

Attachment E:

Public Workshop Materials

This attachment includes materials from a public workshop held on October 21, 2016 by ARB during the development of the Cap-and-Trade Regulation 2016 amendments. The public notice, presentation slides, and supporting materials for the workshop are provided here, and this attachment also includes all of the informal comment letters received by ARB in response to the workshop. All workshop information and materials are also posted on ARB's Cap-and-Trade Program Public Meetings webpage:

<https://www.arb.ca.gov/cc/capandtrade/meetings/meetings.htm>

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October 21, 2016 Cap-and-Trade Regulation Amendments Workshop

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October 21, 2016 - Potential 2016 Amendments to the Cap-and-Trade Regulation Workshop.

Public Notice for Kickoff Workshop

CAPANDTRADE -- CAP-AND-TRADE REGULATION AMENDMENTS WORKSHOP

Posted: 07 Oct 2016 12:51:11

Air Resources Board ARB or Board staff invites interested parties to participate in a public workshop on October 21, 2016, to discuss potential amendments to the Cap-and-Trade Regulation Regulation .

Date: Friday, October 21, 2016
Time: 10:00 am – 4:00 pm

Byron Sher Auditorium
CalEPA Headquarters Building
1001 I Street
Sacramento, California 95814
Webcast: <http://www.calepa.ca.gov/broadcast/?BDO=1>

Purpose of Workshop

ARB will hold a workshop on October 21 to continue the public process of the 2016 amendments to the Regulation and follow-up from the September 22, 2016, Board hearing. The workshop will cover the following topics:

- Potential changes to program design to support greater greenhouse gas reductions at covered entities
- Market program data transparency
- Post-2020 allocation to industry and utilities
- Natural gas supplier allocation consignment
- CAISO Energy Imbalance Market compliance obligations
- Treatment of waste-to-energy facilities

Some presented topics may be part of the current scope of amendments and others may need to be implemented as part of a subsequent rulemaking that would take effect prior to 2021.

Staff proposals for post-2020 allocation will be made available at noon (12 pm) Pacific time on October 14, 2016. All materials will be posted at <http://www.arb.ca.gov/cc/capandtrade/meetings/meetings.htm>.

All interested stakeholders are invited to attend. A live webcast of the workshop will be available at <http://www.calepa.ca.gov/Broadcast/>. Remote participants may e-mail questions during the workshop to auditorium@calepa.ca.gov.

Following the workshop, stakeholders will have an opportunity to provide written comments during an informal comment period which will conclude at 5:00 pm Pacific time on Friday, November 4, 2016. A link to provide comments will be available after the workshop at <http://www.arb.ca.gov/cc/capandtrade/meetings/meetings.htm>.

Background:

The Board first formally adopted the Regulation in October 2011, and subsequently approved limited amendments to the Regulation in June 2012, October 2013, April 2014, September 2014, and most recently June 2015. The 2016 amendments seek to improve Program efficiency, update the Regulation using the latest information, and chart post-2020 implementation of the Program.

More information about ARB's Cap-and-Trade Program is available at <http://www.arb.ca.gov/cc/capandtrade/capandtrade.htm>.

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Presentation Slides for October 21, 2016 Workshop

[*ARB Staff Presentation on the Energy Imbalance Market \(EIM\)*](#)

[*ARB Staff Presentation on AB 197 & Post-2020 Cap-and-Trade Program Design*](#)

[*ARB Staff Presentation on Post-2020 Allowance Allocation*](#)

ARB Staff Presentation on Cap-and-Trade Regulation 2016 Amendments



Mandatory GHG Reporting and
Cap-and-Trade Program Workshop

Energy Imbalance Market (EIM)

October 21, 2016

California Air Resources Board

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Accounting for Electricity Emissions Under AB 32

- ▣ AB 32: "Statewide GHG emissions" includes all GHG emissions from the generation of electricity delivered to and consumed in California, accounting for transmission and distribution lines losses, whether that electricity is generated in state or imported
 - ▣ California power plants must report facility level emissions under MRR
 - ▣ Electricity importers must report imports based on physical delivery of electricity by source
 - ▣ Imported electricity reported as either specified or unspecified

Specified vs. Unspecified Imports

- Specified Source Imports
 - Importer must own, operate, or contract for the power
 - Must be directly delivered to California from the source
 - Power must be specified when parties agree to deal
 - Unspecified power cannot be resold as specified power
 - Report the lesser of power generated or scheduled (with certain exceptions)
- Unspecified Imports
 - Generation source not specified when parties agree to deal
 - Power that does not meet specified source requirements
 - Unspecified emission factor captures emissions impact from “marginal” source in western power markets
- EIM imports currently being reported as specified power from participating resources identified by CAISO’s model

California Climate Policies (1 of 2)

- Ensure accurate accounting of full GHG burden on the atmosphere as a consequence of electricity generated and consumed in California
 - Needed to track progress towards the AB 32 goals, including 2020 target, and assess compliance obligations in the Cap-and-Trade Program
- Ensure implementation and design of policies supporting California GHG goals

California Climate Policies (2 of 2)

- ▣ EIM optimization leads to inaccurate GHG accounting for electricity consumed in CA in some cases
- ▣ CAISO has discussed this issue in terms of emissions associated with a “primary” and “secondary” dispatch
 - ▣ Primary dispatch is referred to in MRR as electricity designated by CAISO’s EIM optimization model as electricity imported to serve California load (see “imported electricity” definition)
 - ▣ Secondary dispatch illustrates the potential backfill effect of higher emitting resources to serve EIM load when the optimization attributes lower emitting resources to serve California load
 - ▣ Secondary dispatch not defined in EIM tariff, secondary dispatch not observable by market participants (CAISO Market Results Interface)

ARB Options Under Consideration for Addressing EIM Accounting

- ▣ Incremental above-economic-base deeming¹
- ▣ Modified optimization with dynamic hurdle rate and renewable contracts for external resources²
- ▣ Other options, or variations of options, discussed by CAISO at their October 13, 2016 workshop (excluding crediting of exported electricity)
- ▣ Open to stakeholder proposals

¹ Option 2 presented at CAISO’s October 13, 2016 workshop

² Modification to Option 3 presented at CAISO’s October 13, 2016 workshop

Incremental Deeming Option

- ▣ CAISO optimizes energy bids in the absence of California load and generation then optimizes EIM for actual dispatch instructions
 - ▣ Deemed generation to serve California load would come from the incremental difference between these two schedules
- ▣ Needs to ensure option addresses emissions accounting concerns
- ▣ CAISO indicates full optimization not computationally possible at this time

Dynamic Hurdle Rate Option (1 of 2)

- ▣ Optimization assigns imports as deemed delivered to California at the 5-minute average emissions rate of the external grid
 - ▣ Cost of compliance would be included in the optimization
 - ▣ EIM imports not assigned to specific resources
 - ▣ Seeking stakeholder input on alternative calculations of hurdle rate
- ▣ Renewable contracts entered into by California load serving entities (LSE) would be assigned a zero compliance obligation
- ▣ EIM imports with compliance obligation:
 - ▣ $\text{EIM Imports} = \text{CA Load} - \text{CA Supply} - \text{CA LSE renewable contracts}$
- ▣ Question: Who would be assigned the compliance obligation?

Dynamic Hurdle Rate Option (2 of 2)

- ▣ Emissions accounting of energy imports at average system rate
- ▣ Maintains recognition for renewable contracts by applying zero emission factor
- ▣ Secondary dispatch not relevant: energy imports assigned uniform interval-specific emissions rate
- ▣ Could extend to regional market and multiple carbon pricing regimes¹
- ▣ CAISO variation of this option retains resource specific attribution through deeming generation and applying a hurdle rate for remaining emissions

¹ Multiple carbon markets may require future modification

Next Steps

- ▣ Staff will continue to work with stakeholders and CAISO to identify options and discuss implementation details
 - ▣ Please provide feedback after workshop on these options or additional options not presented today (through 5pm on November 5, 2016)
- ▣ Staff will propose a solution as part of the 15-day regulatory amendments for both MRR and Cap-and-Trade

Additional Information

- ▣ Mandatory Greenhouse Gas Reporting Program:
<http://www.arb.ca.gov/cc/reporting/ghg-rep/ghg-rep.htm>
- ▣ Cap-and-Trade Program:
<http://www.arb.ca.gov/cc/capandtrade/capandtrade.htm>
- ▣ Email questions and comments to:
byronsher@calepa.ca.gov

AB 197 & Post-2020 Cap-and-Trade Program Design



AB 197 & Post-2020 Cap-and-Trade Program Design

October 21, 2016

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Review of Program Design

- ▣ AB 197
 - ▣ Prioritize measures resulting in direct reductions while considering the social costs of carbon and following AB 32 requirements such as considering cost-effectiveness and minimizing leakage
 - ▣ Does not prohibit a cap-and-trade program
- ▣ September 2016 Board Hearing
 - ▣ Equity and Cap-and-Trade Paper
 - ▣ Board member questions regarding potential adverse impacts to local air quality
 - ▣ Questions regarding program effectiveness for direct reductions
- ▣ EJAC recommendations
 - ▣ Prescriptive regulations in lieu of post-2020 Cap-and-Trade Program

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Potential Design Changes

- ▣ Consider which Program features could be refined to support greater emissions reductions at covered entities
- ▣ Potential changes must be coordinated with our linked partners
- ▣ Potential changes will be evaluated for impact to compliance cost for covered entities

Role of Offset Credits

- ▣ An offset credit represents a real, quantifiable, enforceable, verifiable, additional, and permanent GHG reduction
- ▣ Offset credits provide reductions outside of covered sectors
- ▣ Offset credits are a compliance cost management feature
- ▣ Current offset credit usage limit is 8%
- ▣ Staff considering lowering the offset usage limit post-2020
 - ▣ This change would be subject to cost-containment/economic analysis

Industrial Allowance Allocation

- ▣ Currently, allowance allocation to industrial covered entities is for leakage prevention and transition assistance
- ▣ Allocation is calculated based on production or historic energy use
- ▣ Allocation methodology could shift to a cost-burden approach
 - ▣ Allocation would be reduced annually to reflect reduced compliance obligation owing to expected onsite emissions reductions
 - ▣ This shift in methodology would be consistent with the EAAC recommendation to move to more auctioning and less free allocation

Treatment of Unsold Allowances

- ▣ ARB could retire some or all unsold State-owned allowances with vintage year 2020 or earlier
 - ▣ The Program already includes a self-regulating mechanism for periods when allowance demand is low
 - ▣ This adjustment could be done to recognize that emissions are currently declining faster than anticipated
 - ▣ This change would be subject to cost-containment evaluation
 - ▣ Must be coordinated with linked partner(s)

Market Data Transparency



Slide 18 features a dark blue horizontal band across the middle with the text "Market Data Transparency" in white. The slide is framed by a thin black border. At the bottom, there is a light blue footer bar containing the text "California Air Resources Board" on the left and the number "18" on the right.

Market Data Transparency

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Slide 19 features a dark blue horizontal band at the top with the text "Market Information Currently Collected by ARB" in white. Below this band is a list of bullet points. The slide is framed by a thin black border. At the bottom, there is a light blue footer bar containing the text "California Air Resources Board" on the left and the number "19" on the right.

Market Information Currently Collected by ARB

- ARB collects market sensitive and confidential business information (CBI) through
 - CITSS User Registration (know-your-customer data)
 - Registration (employees, owners, corporate associations)
 - Allocation (output data)
 - Trading (prices, trading partner identities, other contract terms)
 - CITSS account balances (compliance instruments held)
- Certain market sensitive information and CBI may be exempt from disclosure under the California Public Records Act (PRA) and protected by applicable privacy laws
- ARB prevents asymmetric release of market sensitive data to avoid conferring market advantage

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Release of Information Collected By Cap-and-Trade Program (1 of 2)

- Current regulation treats some information as confidential
 - Information collected directly from individuals (e.g., CITSS users)
 - Entity registration information involving individuals
 - Identity of counterparties to a CITSS transfer
 - Account balances of identifiable individual CITSS accounts
 - Allocations, which are based on CBI output data

Release of Information Collected By Cap-and-Trade Program (1 of 2)

- Current regulation allows publication of other data
 - Prices and quantities of individual transfers with identities of parties masked
 - Aggregated or otherwise non-identifiable CITSS account holdings
 - Retirements by quantity, vintage and instrument type (aggregated and entity-specific)
 - Data may be released as part of market investigation and enforcement (including sharing with Federal agencies)
- Proposed regulatory amendments do not alter potential releases

Market Data Available Online

- ▣ Quarterly CITSS Registrant Reports list all registered entities and corresponding reporting facility IDs
- ▣ Quarterly Auction Summary Results Reports includes auction settlement price, quantities sold, and bid metrics
- ▣ Annual Compliance Reports include retirements by entity, instrument type, and vintage
- ▣ Annual summary of transfers reports contain total transfers, quantity and average price by instrument type (beginning with 2014 data)
- ▣ Quarterly Compliance Instrument Report contains aggregated account data by vintage and account type
- ▣ Data related to Cap-and-Trade
 - ▣ GHG Emissions Reporting (annual by reporting entities)
 - ▣ Proceeds and California Climate Investments
- ▣ Overview: https://www.arb.ca.gov/cc/capandtrade/public_info.pdf

Additional Market Data Publication Under Consideration

- ▣ ARB publishes transfer quantities and average prices annually. Considering if possible to publish more frequently
- ▣ Emissions Market Advisory Committee (EMAC) suggested:
 - ▣ Market needs more information on availability of instruments vs. obligations
 - ▣ Metric: entity positions (entity-level holdings vs. obligations, mask identities)
 - ▣ Format: bar graph ranging from entities with longest to shortest position based on estimated obligations
 - ▣ https://www.arb.ca.gov/cc/capandtrade/emissionsmarketassessment/information_release_2014feb_rev.pdf
- ▣ Staff continues to discuss with partner jurisdictions and to assess when this type of information could be ready for release

What additional information should be made public?

- ▣ ARB staff is soliciting ideas on what additional information could be made public
- ▣ Request stakeholders submit ideas, including a rationale for why such data is important to release, when submitting comments on this workshop
- ▣ As mentioned previously, staff will continue to discuss with partner jurisdictions to assess other types of information release

Questions and Comments

Post-2020 Allowance Allocation



Post-2020 Allowance Allocation

October 21, 2016

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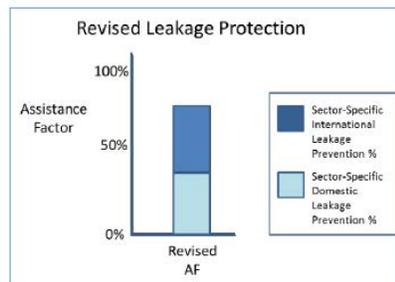
Industrial Allocation: 2013–2020 Assistance Factors

- Direct allocation is provided to minimize emissions leakage and to provide transition assistance in the first and second compliance periods of the program (2013–2017)
 - All sectors receive 100% assistance factor (i.e., 100% x benchmark x cap adjustment factor x output or historical fuel use)
- In the third compliance period (2018–2020), assistance factors will decrease for sectors at medium (75 percent) and low (50 percent) risk of leakage
 - Each covered sector's risk of leakage was determined through analysis of emissions intensity and trade exposure

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Staff Proposal for Post-2020 Assistance Factors

- Staff proposes to utilize leakage studies completed in 2016 to calculate assistance factors for the post-2020 period
- Post-2020 assistance factors would be calculated as the sum of two components targeted to minimize international leakage risk and domestic leakage risk:



International Leakage Prevention: Studied Sectors (1 of 2)

- Staff proposes to calculate international leakage risk using international market transfer (IMT) from the UC Berkeley leakage study
- IMT = percent of every dollar decrease in domestic value added that is offset by an increase in international production in response to a GHG compliance cost

International Leakage Prevention: Studied Sectors (2 of 2)

- ▣ Industry-specific IMT would be calculated as the simple average of raw IMT (i.e., IMT directly from the UC Berkeley study) and a regression IMT
- ▣ The regression IMT uses linear regression of a sector's raw IMT relative to trade exposure and energy cost intensity to obtain coefficients:
 - ▣ This smoothing was recommended by the UC Berkeley researchers
 - ▣ $\text{Regression IMT} = (\text{trade exposure coefficient} * \text{industry trade exposure}) + (\text{energy cost intensity coefficient} * \text{industry energy cost intensity})$
 - ▣ Sectors with high trade exposure would receive high regression IMT
 - ▣ Approach is described on pages 4 and 5 of the informal staff proposal (<https://www.arb.ca.gov/cc/capandtrade/meetings/20161021/ct-af-proposal-101416.pdf>)

Domestic Leakage Prevention: Studied Sectors (1 of 3)

- ▣ Staff proposes to calculate domestic leakage risk using domestic drop from the Resources for the Future (RFF) leakage study
 - ▣ Domestic drop is the estimate of decreases in output or value added due to domestic competition based on a GHG compliance cost
- ▣ Staff used four domestic drop values, two from the RFF study and two values calculated as regressions of those values:
 - ▣ Value added domestic drop
 - ▣ Output domestic drop
 - ▣ Regressed value added domestic drop
 - ▣ Regressed output domestic drop
- ▣ Regressed values smooth RFF estimates based on energy cost intensity

Domestic Leakage Prevention: Studied Sectors (2 of 3)

- For the domestic component of the assistance factor, staff proposes to use the average of the assistance factor for each domestic drop that prevents a 7 percent drop in (regressed or non-regressed) output or value added at the 2022 auction reserve price. For example, for value-added domestic drop for sector X:
 - 20 percent assistance factor → 7.2% value-added domestic drop
 - 30 percent assistance factor → 6.5% value-added domestic drop
 - Therefore, sector X receives 30 percent assistance factor for the value-added domestic drop methodology
- Proposed domestic assistance factor component = average of four assistance factors determined by application of each domestic drop

Domestic Leakage Prevention: Studied Sectors (3 of 3)

- Some studied sectors have emissions not considered by the domestic (Resources for the Future) leakage study
- Table 2 of the informal staff proposal lists the fraction of emissions from fuels considered by the domestic study versus:
 - Process emissions;
 - Non-purchased fuel emissions (e.g., refinery fuel gas); and
 - Coal and coke use (e.g., cement industry)
- Regression domestic drop estimates regress industry domestic drops (value added or output) on logged energy intensity
 - For sectors listed in table 2, energy intensity is adjusted upwards as follows:

$$\text{regression energy intensity} = \text{domestic study energy intensity} / (\text{table 2 purchased fuels fraction})$$

Non-Studied Sectors

- ▣ Post-2020 assistance factors for non-studied sectors are shown as “TBD”
- ▣ Staff’s initial plan was to match non-studied sectors to IMT and domestic drop of overall manufacturing sector using:
 - ▣ Energy cost intensity data from U.S. Economic Census
 - ▣ Trade exposure data from U.S. Census and USA Trade Online
- ▣ This approach is similar to regressed IMT and regressed domestic drop approaches for manufacturing (also adjusted for process emissions)
- ▣ However, staff discovered mismatches in data between the U.S. Census and USA Trade Online data
 - ▣ Staff is following up with U.S. Census staff to check data quality for all non-studied sectors
 - ▣ Staff requests suggestions for other applicable data sources for these sectors

Concluding Thoughts

- ▣ Staff aiming for transparency in informal staff proposal and accompanying international study dataset¹ release
- ▣ Today’s workshop continues the conversation begun in the 45-day rulemaking package on post-2020 industrial allocation:
 - ▣ Workshop comment period (through 5 pm on November 5, 2016)
 - Staff especially requests suggestions on data sources to use to apply the proposed assistance factor calculation methodology to non-studied sectors
 - ▣ Official 15-day comment period

¹ <https://www.arb.ca.gov/cc/capandtrade/meetings/20161021/ucb-leakage-study-data.xlsx>

Post-2020 Allowance Allocation to Electrical Distribution Utilities (EDUs)

Post-2020 Allowance Allocation to Electrical Distribution Utilities (EDUs)

2021-2030 Allocation to Electrical Distribution Utilities

- In response to stakeholder comments, staff is considering a refinement to the previously proposed post-2020 electrical distribution utility (EDU) allocation methodology, and presented two options, both based on cost burden
 - Cost burden is the anticipated incremental cost of power to serve load due to the requirement to surrender compliance instruments in the Cap-and-Trade Program
- The allocation calculation methodology is similar to the methodology used for 2013-2020 allocation to EDUs
- Also in response to stakeholder comments, staff is reconsidering the previous proposal to remove the RPS adjustment post-2020

2021-2030 EDU Allocation Methodology Proposal (1 of 2)

- ▣ Calculate Program cost burden for each year (2021–2030)
 - ▣ Data sources are CEC's 2015 demand forecast and EDUs' 2015 S-2 resource plans (where available)
 - ▣ Cost burden would be based on emissions from natural gas (0.4354 MTCO₂e/MWh) and solid fuel resources (generator-specific emission factor)
 - ▣ Natural gas generation = (total generation for load) – (coal generation) – (zero-emission generation)
 - ▣ Each EDU is assumed to meet mandated RPS requirements (33 percent of load in 2020 to 50 percent of load in 2030)
 - ▣ Load served by natural gas is assumed to never drop below 5 percent to account for support for variable renewable resources
- ▣ Reduce allocation each year with the cap

2021-2030 EDU Allocation Methodology Proposal (2 of 2)

- ▣ For EDUs with industrial covered entity customers, calculated cost burden is reduced to account for emissions associated with industrial covered entities' purchased electricity
 - ▣ Each EDU's industrial covered entity emissions would be calculated as the product of baseline electricity consumption, each year's cap adjustment factor, and an EDU-specific emission factor for each year
 - ▣ Industrial covered entity information for each EDU (to the extent allowed by confidentiality) is shown in the last two columns of Table 1 of staff's informal EDU proposal:
<https://www.arb.ca.gov/cc/capandtrade/meetings/20161021/ct-edu-allocation-101416.pdf>

Options Under Consideration

- ▣ The only difference between the two options under consideration is the assumed load for each year
 - ▣ Option 1: EDUs' generation for load changes over time as estimated in the CEC demand forecast or S-2s
 - ▣ Option 2: Loads are fixed for 2021–2030 at the level estimated for 2020 in the demand forecast or S-2s

Differences from the 2013-2020 EDU Allocation Methodology

- ▣ No top-down component based on an electricity sector-wide allocation with a percentage of total to each EDU
- ▣ No energy efficiency/early action credit because early action has already been recognized and energy efficiency/RPS requirements are now essentially the same for all EDUs
- ▣ No assumption that power from renewable qualifying facilities is priced at market
 - ▣ Projected amount of power from renewable QFs: 101 GWh in 2024 (down from 3,121 GWh in 2013; source: 2015 S-2s)
- ▣ Calculated cost burden for EDUs with industrial covered entities would be reduced to account for emissions associated with purchased electricity

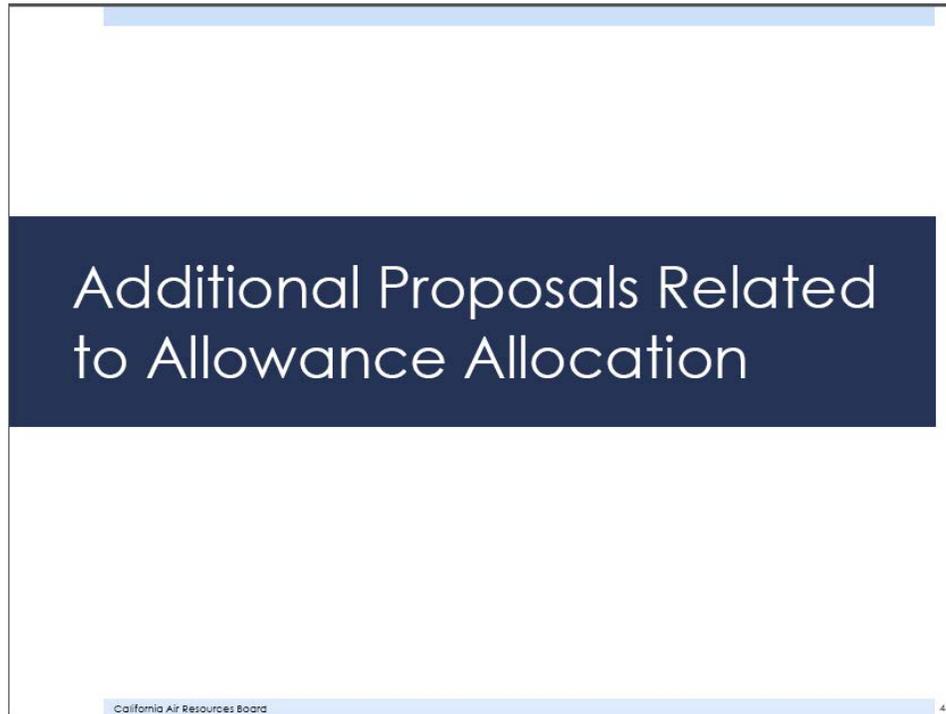
RPS Adjustment

- Previous staff proposal from 45-day amendment package: eliminate the RPS adjustment after 2020 and provide EDUs with post-2020 allocation to compensate for investments in renewable electricity that is not directly delivered to California
- In response to stakeholder comments, staff now proposes to continue the RPS adjustment with the existing reporting and verification requirements, and to not provide any additional post-2020 allocation as a substitute
- Staff continues to work with reporters on how to claim an RPS adjustment in compliance with MRR

Electrification of Transportation

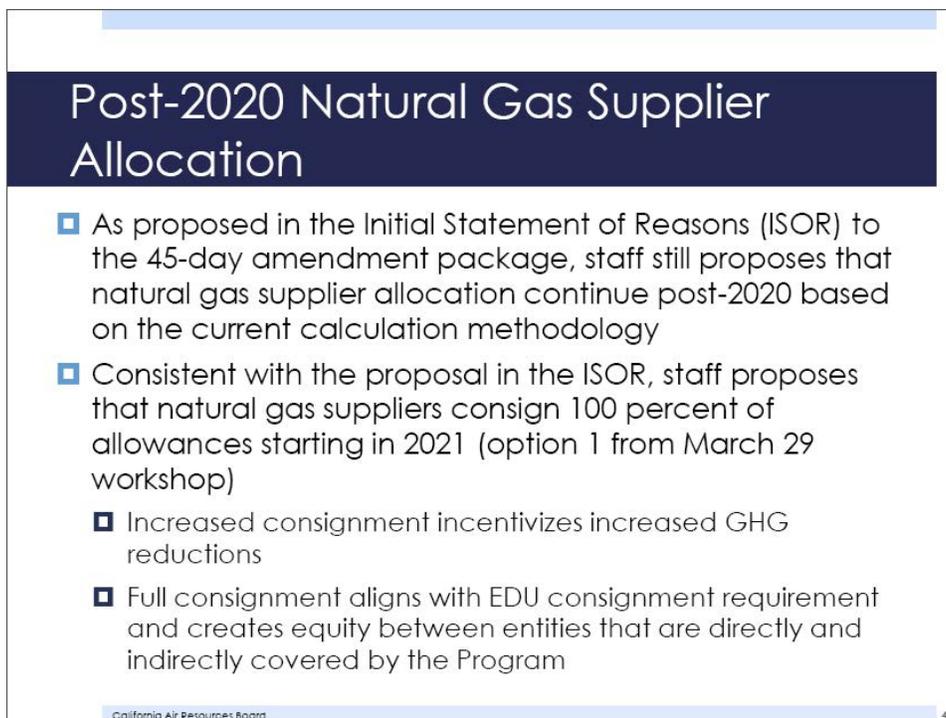
- Staff will continue to coordinate with energy agencies and stakeholders to assess the potential for allocating for emissions resulting from electrification of transportation

Additional Proposals Related to Allowance Distribution



Additional Proposals Related to Allowance Allocation

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Post-2020 Natural Gas Supplier Allocation

- As proposed in the Initial Statement of Reasons (ISOR) to the 45-day amendment package, staff still proposes that natural gas supplier allocation continue post-2020 based on the current calculation methodology
- Consistent with the proposal in the ISOR, staff proposes that natural gas suppliers consign 100 percent of allowances starting in 2021 (option 1 from March 29 workshop)
 - Increased consignment incentivizes increased GHG reductions
 - Full consignment aligns with EDU consignment requirement and creates equity between entities that are directly and indirectly covered by the Program

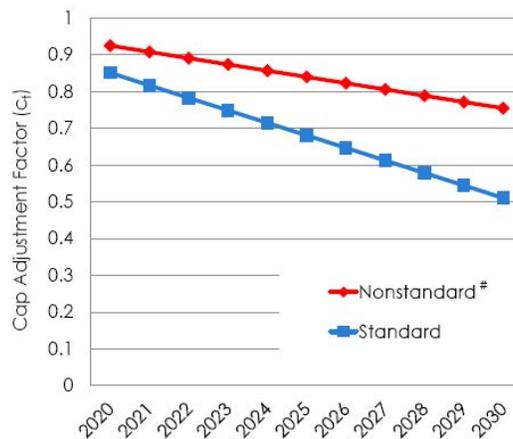
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Other Post-2020 Allowance Allocation

- Staff still proposes that post-2020 allocation to universities and public service facilities, legacy contract generators with industrial counterparties, and public wholesale water agencies would continue under the current methodologies
- Allocations would adjust each year with the cap adjustment factor

Proposed 2021–2030 Cap Adjustment Factors

Year	C _t	
	Standard	Nonstandard [#]
2020	0.851	0.925
2021	0.817	0.908
2022	0.783	0.891
2023	0.749	0.874
2024	0.715	0.857
2025	0.681	0.840
2026	0.647	0.823
2027	0.613	0.806
2028	0.579	0.789
2029	0.545	0.772
2030	0.511	0.755



[#]Nonstandard sectors are those with greater than 50 percent process emissions and high leakage risk.

Waste-to-Energy Limited Exemption of Emissions

- The current Regulation includes a limited exemption of emissions for waste-to-energy facilities through 2015
- In this year's 45-day amendments to the Regulation, staff proposed extending this exemption through the second compliance period (i.e., through 2017)
- The Environmental Justice Advisory Committee has recommended that these facilities be subject to a compliance obligation
 - In response to this recommendation and discussion at September Board hearing, staff plans to revert to the existing language (i.e., with the limited exemption ending in 2015) in 15-day changes to the Regulation

Tentative Schedule

- Cap-and-Trade Regulation
 - November Annual Board update
 - Fall release of first 15-day changes
 - Early 2017 release of potential second 15-day changes
 - Spring 2017 final board hearing
 - Workshops– to be noticed
- Scoping Plan
 - November 7th– Policy scenarios workshop
 - November Board update on policy scenarios
 - Late November – Draft Scoping Plan release
 - January – First full draft with CEQA
 - March – Final draft
 - Workshops– to be noticed

Questions/Comments

- An informal comment period will run through Friday, November 4 at 5 pm:
 - https://www.arb.ca.gov/lispub/comm2/bcsubform.php?listname=ct-amendments-ws&comm_period=1
- Staff will consider comments when drafting the next (15-day) regulatory amendments for release this fall

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**Cap-and-Trade Regulation
Post-2020 Allocation to Electrical Distribution Utilities
Informal Staff Proposal**

Together, Assembly Bill 32, Senate Bill 32, and Assembly Bill 197 set an ambitious goal for reducing greenhouse gas emissions to 40 percent below 1990 levels by 2030 and provide guidance for how those reductions are achieved. To meet these objectives, the State is developing a 2030 Target Scoping Plan to chart the path to achieve the 2030 limit. Comments received on the 2030 Target Scoping Plan and Cap-and-Trade Regulation (Regulation) rulemaking materials will be considered as staff prepares a final regulation for Board consideration in 2017.

Air Resources Board staff is considering two new options for post-2020 allocation to electrical distribution utilities (EDU) under the Regulation. These two options use methods that are similar to the method used to calculate 2013-2020 EDU allocations, but with some important differences. Consistent with staff's proposal outlined in the 2016 Initial Statement of Reasons¹ to the proposed amendments to the Regulation, in both options under consideration, allocation would be based on Cap-and-Trade Program (Program) cost burden. Cost burden would be calculated by estimating emissions for each year from 2021-2030 associated with generation from natural gas and coal resources listed in 2015 S-2 resource plans submitted to the California Energy Commission (CEC), as explained in greater detail below. Generation from natural gas resources is calculated by subtracting generation from solid fuel and zero-emission resources from total generation to meet load. Zero-emission resources include large hydroelectric and nuclear power, and also include power from facilities eligible under the Renewables Portfolio Standard (RPS), with the assumption that each EDU adds RPS-eligible power that increases from the mandated 33 percent in 2020 to the mandated 50 percent in 2030. Both options include subtracting from an EDU's allocation an amount equivalent to the emissions resulting from power that serves industrial covered entities that are customers of each EDU. The options differ only in that the first option assumes changes in load based on the CEC's 2015 demand forecast, while the second option keeps loads fixed at the load estimated for 2020.

These options differ from the concept initially discussed at a March 29, 2016 public workshop² and outlined in the 2016 Initial Statement of Reasons and reflect staff consideration of stakeholder comments and meetings with the Joint Utilities Group and other stakeholders. Staff previously considered allocating to individual EDUs based on calculated cost burden for 2020 and, for each year after 2020, reducing the allocation by multiplying the 2020 cost burden by the cap adjustment factor. This allocation would also account for post-2020 coal plant retirements. Staff had proposed ending the RPS adjustment³ after 2020 and instead increasing allocations by assuming a requirement of only 28 percent instead of 33 percent RPS power to account for a portion of the RPS Category 2 power that is not directly delivered to California. In response to stakeholder comments, staff now proposes to continue the RPS adjustment post-2020 in its current

¹ <https://www.arb.ca.gov/regact/2016/capandtrade16/isor.pdf>

² Materials from this workshop are available at <https://www.arb.ca.gov/cc/capandtrade/meetings/meetings.htm>.

³ Section 95852(b)(4) of the Regulation

form, consistent with the rationale put forth in the 2011 Final Statement of Reasons (FSOR),⁴ and to not provide any additional post-2020 allocation to account for investments in out-of-State RPS power that is not imported into California.

This informal staff proposal provides post-2020 EDU allocation amounts for stakeholder review and feedback to inform formal 15-day regulatory amendments.

Proposed Options for Post-2020 EDU Allocation

Staff proposes to allocate allowances to each EDU equal to the cost burden for each year from 2021-2030. Cost burden is the anticipated incremental cost of power to serve load due to the requirement to surrender compliance instruments in the Cap-and-Trade Program. Cost burden is calculated using load data from CEC's 2015 demand forecast and expected generation data from resources in the 2015 S-2 forms,⁵ assuming that natural gas provides all generation needed to serve load not met with solid fuel and zero-emission power.

In both options, staff proposes to calculate natural gas power by subtracting generation from solid fuel, large hydro, nuclear, and RPS-eligible facilities from total generation needed to meet load. Power provided under contract with the Intermountain Power Project (IPP) coal plant would be assumed to be replaced with natural gas power for the six EDUs with IPP shares when the contracts end in June 2027.⁶ A similar reduction would be made for PacifiCorp based on planned coal plant retirements in PacifiCorp's 2015 integrated resource plan.⁷ It would be assumed that the amount of RPS zero-emission power is determined by RPS requirements. Each EDU is assumed to meet RPS targets based on a linear increase from 33 percent of load in 2020 to 50 percent in 2030. Emissions would be calculated using a single emission factor for natural gas (0.4354 metric tons of carbon dioxide equivalent (MTCO₂e) per megawatt-hour (MWh)) and different emission factors for solid fuels depending on the generator. Load served by natural gas is assumed to never drop below 5 percent of total load to account for the balancing that is necessary for renewable resources.

The calculated cost burden for each EDU with industrial covered entities would be reduced to account for emissions associated with electricity purchased by these entities.⁸ These emissions for each EDU would be calculated as the product of the following factors:

- a. Projected annual electricity consumption (MWh) from industrial covered entities served by that EDU = average baseline industrial covered entity

⁴ <https://www.arb.ca.gov/regact/2010/capandtrade10/fsor.pdf>

⁵ For EDUs that do not submit S-2s, staff estimates resources using data from integrated resource plans or other data provided by the EDUs.

⁶ Pre-2021 retirements of coal would already be accounted for in the S-2 used to calculate cost burden for 2021-2030.

⁷ Available at <http://www.pacificorp.com/es/irp.html>.

⁸ 2016 Initial Statement of Reasons. See page 42 for the explanation of the change to EDU allocations, and page 33 for the discussion of including purchased electricity in determining benchmarks for allocation to industrial covered entities.

electricity consumption⁹ (MWh) * cap adjustment factor for each year from 2021 to 2030 year; and

- b. Annual EDU-specific emission factor (MTCO_{2e}/MWh) = annual EDU cost burden (MTCO_{2e}) / annual EDU load (MWh).

Allocation to industrial covered entities would be done through direct allocation to industrial entities, and the emissions would be included in calculated industry-specific benchmarks.

The only differences between options 1 and 2 concern load, as outlined in Table 1. Option 1 assumes that EDUs' loads change as projected in the 2015 CEC Demand Forecast, which estimates loads through 2026.¹⁰ For 2027-2030, loads would be assumed to change at the average rate calculated for 2014-2026. Under option 2, loads would be fixed at 2020 levels.

Staff continues to assess the potential for adjusting allocation amounts for emissions that result from electrification of transportation. Staff will continue to coordinate with energy agencies and stakeholders to develop a methodology to allocate for this purpose.

Differences from the 2013-2020 EDU Allocation Methodology

- There is no top-down component based on an electricity sector-wide allocation with a percentage of the sector amount for each EDU. Proposed post-2020 methodologies apply to each EDU individually. This will make each EDU's annual allocation more transparent and will simplify changes in allocation when load is sold among EDUs.
- Post-2020 EDU allocation would not include energy efficiency or early action credits because early action has already been recognized, and because energy efficiency and RPS requirements are now essentially the same for publicly-owned utilities and investor-owned utilities.
- The calculated cost burden for each EDU with industrial covered entity customers would be reduced to account for emissions associated with electricity purchased by these entities. Allocation to industrial covered entities would be done through direct allocation to industrial entities, and the emissions would be included in calculated industry-specific benchmarks.
- The proposed calculation of the 2020 cost burden would not account for zero-emission power priced at market, as was done previously for qualifying facility (QF) renewable power.¹¹

⁹ Calculated as [(2013 industrial covered entity MWh / 2013 cap adjustment factor) + (2014 industrial covered entity MWh / 2014 cap adjustment factor)] / 2.

¹⁰ Form 1.5a—Statewide California Energy Demand Revised/Final Forecast, 2016-2026, Mid Demand Baseline Case, Mid AAEE Savings, Net Energy for Load by Agency and Balancing Authority (GWh). This form provides load estimates for selected utilities and for regions. If specific load estimates for an EDU are not provided, staff would assume loads would change at the average 2014-2026 rate for the region in which the EDU is located.

¹¹ The total amount of renewable QF power is projected to decline from 3,121 gigawatt-hours (GWh) in 2013 to 251 GWh in 2020 and 101 GWh in 2024. (Source: data from CEC 2015 S-2s, available at: http://www.energy.ca.gov/almanac/electricity_data/s-2_supply_forms_2015/.)

- In option 2, each EDU's load would be assumed to be maintained at the 2020 level, reflecting the CEC's estimate that overall State load will stay nearly flat, decreasing at an annual rate of 0.21 percent.

RPS Adjustment

As discussed in the December 14, 2015 workshop, issues with RPS adjustment reporting were discovered through staff's quality control efforts. The RPS adjustment was originally included in the Regulation to recognize investments in out-of-State RPS-eligible power that is not directly delivered to California. This RPS adjustment is a voluntary option, and it is only applicable when the importer purchases both electricity and renewable energy credits (REC) together and can demonstrate that the electricity was not delivered to California.

The 2016 Initial Statement of Reasons explained why staff proposed to eliminate the RPS adjustment after 2020. Instead of keeping the RPS adjustment, staff proposed to provide each EDU with post-2020 allowance allocation that accounts for a portion of RPS-eligible electricity that is purchased together with RECs but cannot be directly delivered to California. This allowance allocation was intended to serve the same purpose as the original RPS adjustment, but to alleviate the reporting and verification difficulties and the potential for double counting of zero-emission electricity.

Based in part on comments submitted during the 45-day comment period and at the Board hearing, staff's new proposed allocation methods do not include allocation for higher emitting electricity generation that replaces RPS electricity that is not directly delivered. Instead, staff proposes to continue the RPS adjustment after 2020 with the existing reporting and verification requirements pursuant to the Mandatory Reporting Regulation and as outlined in the 2011 FSOR, and to not provide any additional post-2020 allocation as a substitute for the RPS adjustment since it will remain in effect.¹²

¹² Available at <https://www.arb.ca.gov/cc/reporting/ghg-rep/ghg-rep-power/rps-adj-guidance.pdf>.

Table 1. Post-2020 EDU allocation proposals. In the interest of brevity, only the 2021 and 2030 allocation amounts are shown for each EDU. Annual allocations would be proposed in 15-day changes to the Regulation.

	2021		2030		Industrial Covered Entities	
	Method 1: Change Load, RPS 33-50%	Method 2: Fixed Load, RPS 33-50%	Method 1: Change Load, RPS 33-50%	Method 2: Fixed Load, RPS 33-50%	2021 Adjustment*	Number of Entities
Electrical Distribution Utility						
Alameda Municipal Power	67,659	68,216	27,724	27,800	-	-
Anza Electric Cooperative, Inc.	29,441	29,410	15,988	15,782	-	-
Azusa Light and Water	66,684	66,372	31,490	29,985	-	-
Bear Valley Electric Service (BVES)	41,162	41,162	19,504	19,504	-	-
Biggs Municipal Utilities	2,273	2,274	780	748	-	-
Burbank Water and Power	504,579	502,924	139,557	133,598	-	-
City and County of San Francisco, Public Utilities Commission	23,910	23,764	15,620	14,863	-	-
City of Anaheim	1,278,736	1,277,356	334,385	323,052	-	-
City of Banning	33,319	33,152	15,182	14,378	-	-
City of Cerritos	26,012	25,906	12,788	12,275	-	-
City of Colton	96,448	96,017	46,208	44,129	-	-
City of Corona Dept. of Water & Power	39,497	39,320	18,913	18,061	-	-
City of Industry	12,808	12,756	6,297	6,044	-	-
City of Lompoc	31,370	31,318	14,224	13,749	-	-
City of Needles	4,142	4,073	820	787	-	-
City of Palo Alto	136,874	136,090	45,364	43,470	-	-
City of Riverside	934,707	933,327	299,196	288,173	-	-
City of Shasta Lake - Electric	57,384	56,832	29,860	26,929	-	-
City of Ukiah	26,093	25,986	11,792	11,279	-	-
City of Vernon	267,007	266,399	131,681	125,683	*	2

* This amount is included in (subtracted from) the amount listed in the column "2021: Method 1: Change Load, RPS 33-50%." An industrial covered entity amount was also subtracted from the 2030 amount based on the calculation methodology outlined in the text. 2021 industrial covered entity adjustments are not shown for EDUs with fewer than 5 industrial covered entities to keep confidential electricity demand data for those entities.

	2021		2030		Industrial Covered Entities	
	Method 1: Change Load, RPS 33-50%	Method 2: Fixed Load, RPS 33-50%	Method 1: Change Load, RPS 33-50%	Method 2: Fixed Load, RPS 33-50%	2021 Adjustment*	Number of Entities
Electrical Distribution Utility						
Eastside Power Authority	3,943	3,904	1,205	1,020	-	-
Glendale Water & Power	383,517	381,862	126,963	121,049	-	-
Gridley Electric Utility	5,416	5,389	1,922	1,816	-	-
Healdsburg Electric Dept.	18,410	18,272	8,354	7,850	-	-
Imperial Irrigation District (IID)	1,017,285	999,405	547,970	460,025	*	3
Kirkwood Meadows PUD	1,850	1,850	877	877	-	-
Lassen Municipal Utility District	31,936	31,763	14,592	13,755	-	-
Liberty Utilities (CalPeco Electric) LLC	165,604	164,128	83,566	77,769	-	-
Lodi Electric Utility	99,984	99,501	46,442	43,217	-	-
Los Angeles Department of Water & Power (LADWP)	8,341,673	8,309,671	2,140,872	2,070,649	(206,509)	5
Merced Irrigation District (MeID)	125,555	123,933	71,893	63,218	*	2
Modesto Irrigation District (MID)	635,853	626,783	330,170	286,821	*	3
Moreno Valley Utility (MVU)	48,066	47,869	23,629	22,682	-	-
Pacific Gas and Electric Company (PG&E)	13,265,588	13,314,998	4,419,595	4,742,899	(405,607)	84
PacifiCorp	382,023	378,174	192,871	179,191	-	-
Pasadena Water and Power	562,639	561,811	136,316	130,695	-	-
Pittsburg Power Company	5,418	5,385	2,455	2,298	-	-
Plumas-Sierra REC	25,018	24,994	9,120	8,725	-	-
Port of Oakland	19,426	19,236	9,206	8,440	-	-
Port of Stockton	6,366	6,337	3,105	2,969	-	-
Power and Water Resources Pooling Authority (PWRPA)	69,635	69,635	22,367	22,367	-	-
Rancho Cucamonga Municipal Utility	22,619	22,527	11,120	10,674	-	-
Redding Electric Utility	128,290	125,531	54,784	42,121	-	-
Roseville Electric	293,897	289,759	143,819	123,815	-	-
Sacramento Municipal Utility District (SMUD)	2,136,874	2,136,534	908,263	864,544	*	1
San Diego Gas & Electric (SDG&E)	5,631,950	5,651,508	2,566,984	2,675,454	*	2

	2021		2030		Industrial Covered Entities	
	Method 1: Change Load, RPS 33-50%	Method 2: Fixed Load, RPS 33-50%	Method 1: Change Load, RPS 33-50%	Method 2: Fixed Load, RPS 33-50%	2021 Adjustment*	Number of Entities
Electrical Distribution Utility						
Silicon Valley Power (SVP), City of Santa Clara	614,029	608,477	263,772	241,806	*	2
Southern California Edison (SCE)	20,793,217	20,973,477	8,922,790	9,642,588	(719,047)	49
Surprise Valley Electrification Corp.	2,613	2,613	1,634	1,634	-	-
Truckee Donner Public Utilities District	46,623	46,423	22,961	21,997	-	-
Turlock Irrigation District (TID)	385,531	379,185	187,772	155,104	*	3
Valley Electric Association, Inc.	2,266	2,266	970	970	-	-
Victorville Municipal Utility Services	22,336	22,245	10,981	10,541	-	-
WAPA - Sierra Nevada Region	157,351	152,937	23,483	5,719	-	-
TOTAL	59,132,904	59,281,039	22,530,196	23,235,584	(1,503,333)	156

This is an update to the [Informal Staff Proposal](#) originally posted on October 14, 2016. Tables 3–6 have been updated to reflect accurate data, and no other information has changed.

Cap-and-Trade Regulation Industry Assistance Factor Calculation Informal Staff Proposal

Together, Assembly Bill 32 (AB 32), Senate Bill 32, and Assembly Bill 197 set an ambitious goal for reducing greenhouse emissions to 40 percent below 1990 levels by 2030 and provide guidance for how those reductions are achieved. To meet these objectives, the State is developing a 2030 Target Scoping Plan to chart the path to achieve the 2030 limit. Comments received on the 2030 Target Scoping Plan and Cap-and-Trade Regulation rulemaking materials will be considered as staff prepares a final regulation for Board consideration in 2017.

In 2011 and 2012, Board Resolutions 11-32 and 12-33 directed Air Resources Board (ARB) staff to investigate potential improvements to industrial allowance allocation to better meet the AB 32 objective to “minimize emissions leakage to the extent feasible.” In response, ARB commissioned three emissions leakage potential studies to inform the development of assistance factors (AF) for Cap-and-Trade Program allowance allocation to manufacturing sectors. Based on these leakage studies, ARB staff proposed in Appendix E¹ of the 2016 Initial Statement of Reasons to the proposed amendments to the Regulation a methodology by which emissions leakage would be assessed and AFs would be developed for the fourth compliance period and beyond. This informal staff proposal details additional calculations based on this methodology and provides industry-specific AFs for stakeholder review and feedback to inform formal 15-day regulatory amendments.

This proposal combines the AF calculation approach described in Appendix E with staff’s current thinking, and results in AFs that are staff’s best calculation of the AFs necessary to minimize emissions leakage. Relative to third compliance period AFs, these revised AFs result in a downward adjustment to AFs for all sectors.² The resulting AFs for studied manufacturing sectors can be found alongside the Cap-and-Trade Regulation third compliance period AFs in Table 8.

Post-2020 AFs are provided for sectors analyzed by the leakage studies, but not for sectors not included in the leakage studies. Non-studied sectors include those industries with NAICS codes starting with 1, 2, 4, and select sectors with NAICS starting with 3.³ Section 4 of Appendix E to the 2016 ISOR included a proposal to assign non-studied sector AFs based on their similarity to studied sectors based on key variables from public sources. Staff had intended to use six-digit NAICS data from the 2007 and 2012 U.S. Census (economic census),⁴ as well as export and import trade data from

¹ <https://www.arb.ca.gov/regact/2016/capandtrade16/appe.pdf>

² Sector-specific AFs are assigned at the North American Industry Classification System (NAICS) six-digit sector level and in some cases by industrial activity (see Tables 8-1 and 8-3 of the proposed Regulation).

³ NAICS 311221, 325194, and 336390

⁴ <https://www.census.gov/econ/census/>

U.S. Census's USA Trade Online (UTO) database.⁵ Staff wants to more fully vet the data before using it to propose AFs for non-studied sectors, in part based on stakeholder feedback. Staff invites comments from interested parties on this process, as well as additional means by which to develop AFs for these non-studied sectors. The section of this proposal entitled "Assistance Factor Components for Non-Studied Sectors" provides an additional discussion on AF development for the non-studied sectors.

Specifics of Post-2020 Emissions Leakage Prevention Methodology

Assistance Factors for Leakage Prevention and Transition Assistance

For all sectors with currently proposed AFs in table 8, AFs for the post-2020 period are calculated by summing an international AF component to minimize potential international leakage and a domestic AF component to minimize potential domestic leakage. Both components range between zero and 100 percent, and they are summed to yield the total AF for a sector as follows:

$$\text{Post-2020 AF} = \text{international AF component} + \text{domestic AF component} \quad (\text{Equ.1})$$

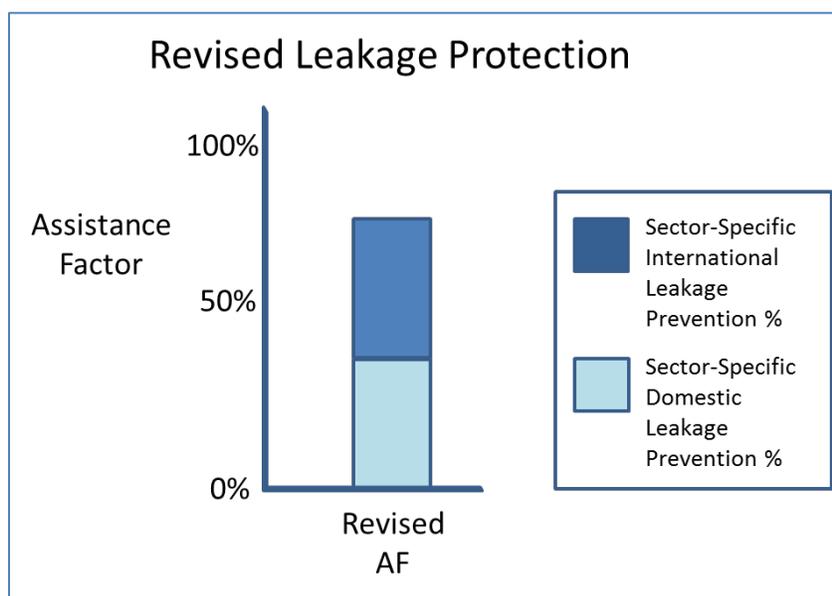


Figure 1. Sector-specific additive international and domestic assistance factors resulting in total revised assistance factor.

International AF Component Calculation

The international AF component is the first component of each sector's total AF used for post-2020 allowance allocation.

⁵ <https://usatrade.census.gov/>

Potential International Emissions Leakage for Certain Manufacturing Sectors without Non-Purchased Fuel⁶ and Process Emissions

As stated in Appendix E to the 2016 Initial Statement of Reasons, international emissions leakage will be identified and minimized by quantifying international market transfer (IMT), a metric developed by Fowlie et al. (2016)⁷ (international leakage study). IMT is the fraction of every dollar decrease in domestic value added in response to a carbon price that is offset by an increase in international production (i.e., IMT measures production leakage). Value added is an approximation of profit; it equals total revenues minus expenses for the sector.

The international leakage study used the carbon content of fuels and electricity to calculate the responsiveness, or elasticity, of domestic shipments, domestic exports, and foreign imports for the sector with respect to changes in domestic energy prices similar to the changes experienced upon implementation of a marginal carbon compliance cost. For example, the elasticity of domestic exports with respect to domestic energy prices (“exp elasticity” below) is the percentage change in domestic exports with respect to a one percent increase in domestic energy prices. In this informal staff proposal, the study-calculated IMTs are referred to as “raw” IMTs.

Accompanying this informal staff proposal is the dataset⁸ the UC Berkeley research team provided to ARB staff. The dataset provides annual raw IMT values (“transfer_rate_p50”⁹) for each year from 2010 to 2015.¹⁰ The equation used to calculate the raw IMT for these sectors in a given year “t,” using data from the dataset, is as follows:

$$\text{Raw IMT}_{i,t} = (\text{imp elasticity ratio}_i \times (\text{imp}_{i,t} / \text{dom ship}_{i,t})) + (\text{exp elasticity ratio}_i \times (\text{exp}_{i,t} / \text{dom ship}_{i,t})) \quad (\text{Equ. 2})$$

Where:

“imp_{i,t}” is the annual value of international imports to the U.S. within sector i for each of 2010 to 2015;¹¹

“imp elasticity ratio_i” is the import elasticity divided by the domestic shipment elasticity for sector i;¹²

⁶ Non-purchased fuel emissions include emissions from fuels not purchased by the facility (e.g., refinery fuel gas).

⁷ <https://www.arb.ca.gov/cc/capandtrade/meetings/20160518/ucb-intl-leakage.pdf>

⁸ <http://www.arb.ca.gov/cc/capandtrade/meetings/20161021/ucb-leakage-study-data.xlsx>

⁹ For full transparency, ARB staff has not retitled the columns of the dataset provided to staff by the international leakage research team.

¹⁰ The elasticities were calculated for the time period of the study dataset (1993-2012), and were paired with domestic value, import and export data from the time period 2010 to 2015.

¹¹ Imp_val, Exp_val and Dom_val in the dataset

¹² Ratio_imp_p50 and ratio_exp_p50 in the dataset

“ exp_i ” is the annual value of international exports from the U.S. within sector i for 2010 to 2015;¹⁰

“exp elasticity ratio $_i$ ” is the export elasticity divided by the domestic shipment elasticity for sector i ;¹¹ and

“dom ship $_{i,t}$ ” is the annual value of domestic shipments for both exports and domestic consumption within sector i for 2010 to 2015.¹⁰

Staff also developed a second estimate of IMT, termed the “regression IMT.” To estimate the regression IMT for each sector, staff ran a pooled linear regression (OLS) between the raw IMT for each manufacturing industry and its trade exposure (TE) and energy intensity. For sectors where dataset raw IMTs were below zero, the raw IMT used in the regression was set equal to zero, and for sectors with IMTs exceeding one, the raw IMT used in the regression was set equal to one. This process provided linear coefficients (i.e., B_0 , B_1 , and B_2) via equation 3:

$$\text{Raw IMT}_{i,t} = B_0 + B_1 \times TE_{i,t} + B_2 \times (\text{energy intensity}_{i,t}) + \text{error}_{i,t} \quad (\text{Equ. 3})$$

Where:

“Raw IMT $_{i,t}$ ” is sector i 's IMT for year t from the dataset;

“TE $_{i,t}$ ” is sector i 's trade exposure for year t from the dataset;

“energy intensity $_{i,t}$ ” is sector i 's energy intensity for year t from the dataset;

“ B_k ” is the industry-wide relationship between variable k , and raw IMT; and

“error $_{i,t}$ ” is the difference between “Raw IMT $_{i,t}$ ” and the right-hand side of the equation excluding “error $_{i,t}$ ” at the OLS-regression-estimated “ B_k ”.

The linear coefficients estimated in equation 3 were then used to calculate the regression IMT value for a sector based on its TE and energy intensity. Each industry's regression IMT was calculated using equation 4, where est B_k is the estimated value of B_k from the pooled OLS regression above:

$$\text{Regression IMT}_{i,t} = \text{est}B_0 + \text{est}B_1 \times (TE_{i,t}) + \text{est}B_2 \times (\text{energy intensity}_{i,t}) \quad (\text{Equ. 4})$$

Staff used single multi-year IMT values based on the average of 2010 through 2015 annual raw and regression IMTs. This averaging was weighted by domestic shipments (i.e., IMTs from years with more sector-specific domestic economic activity were given more weight in staff's calculation of the multi-year IMT). Table 1 shows the raw IMT,

regression IMT, and the IMT value used to calculate the total AF in equation 1 for each sector.

When calculating the total AF for a sector, staff set the international assistance factor component equal to the average of the raw IMT and regression IMT. Regression IMT values were applied in this manner because, as described in the international leakage study, some of the raw IMT values were noisy and not in line with expectations (e.g., high trade exposure but low raw IMT). Figure E.2 shows the regression IMTs calculated by equation 4 for given combinations of energy intensity and TE.

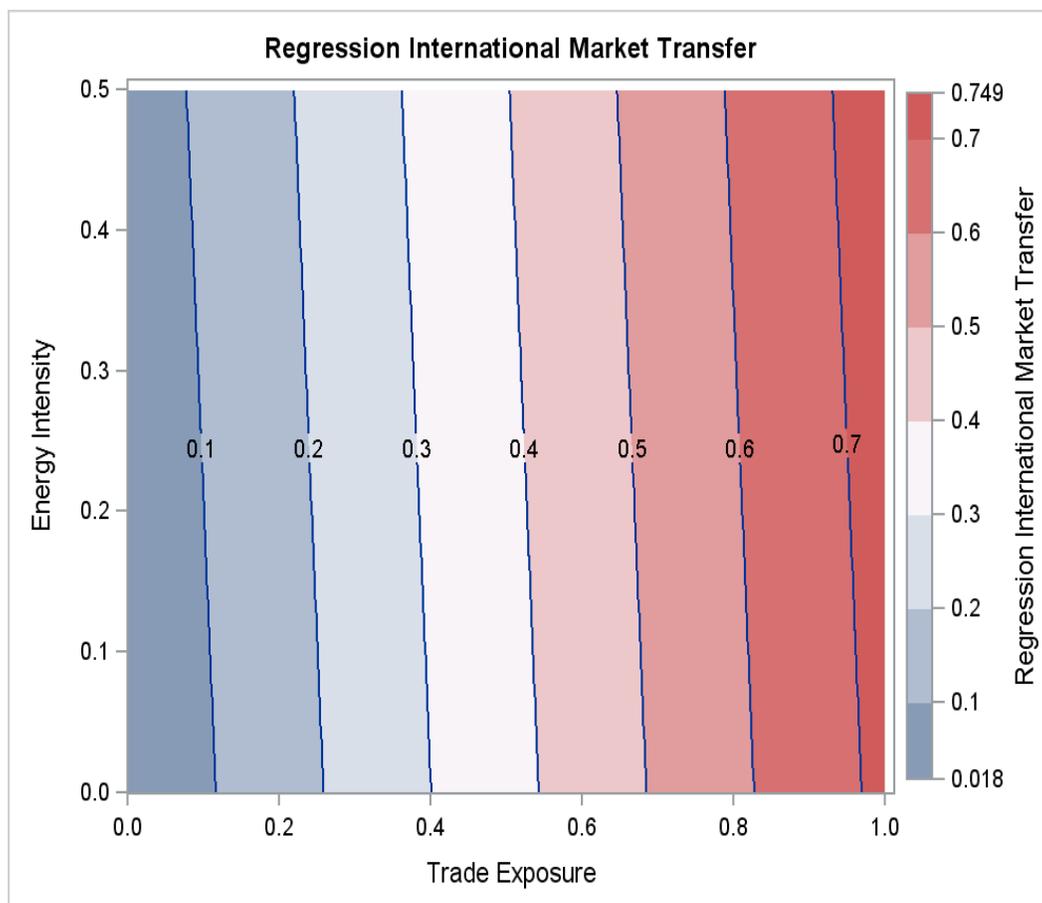


Figure 2. Regression IMTs based on industry energy intensity (y-axis) and trade exposure (x-axis).

Figure 3 shows a raw IMT and regression IMT for a hypothetical sector. The raw IMT is 0.07 and the regression IMT—calculated from the sector's energy intensity, trade exposure, and equation 4—is 0.15. When calculating the total AF by equation 1 for this hypothetical sector, the international AF component would be assigned at the average of these two values: 0.11.

IMT Determination

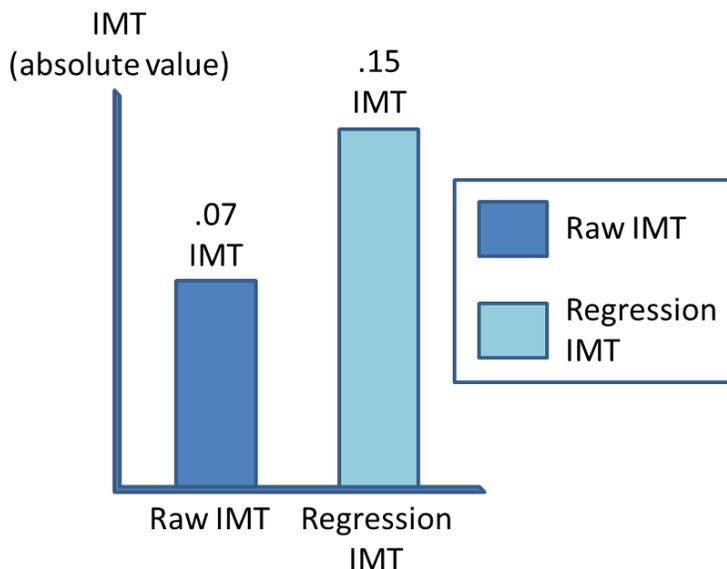


Figure 3. Raw IMT and regression IMT for a hypothetical sector.

Potential International Emissions Leakage for Manufacturing Sectors with Non-Purchased Fuel and/or Process Emissions

For sectors that have non-purchased fuel emissions and/or process emissions in addition to energy-related emissions, staff used an upward adjustment to the energy intensity used to estimate the sector's regression IMT (i.e., the energy intensity in equation 4 was increased). Non-purchased fuel emissions include emissions from fuels not reported to the U.S. Census Bureau as part of the Annual Survey of Manufacturing (ASM) data used by the international leakage study to establish sector-specific energy expenditures¹³. For example, refinery fuel gas is a byproduct of onsite processes at refineries. Refineries do not purchase this fuel, so it is not included in the ASM data, but emissions from combusting refinery fuel gas incur a compliance obligation in the Program. Process emissions are non-combustion emissions, such as the calcination emissions arising from cement production. For sectors with non-purchased fuel and process emissions, Table 2 provides the ratio of emissions captured by the international leakage study to total emissions based on data collected under ARB's Mandatory Greenhouse Gas Reporting Regulation (MRR). For these sectors, the revised energy intensity used to develop each sector's regression IMT was calculated as:

$$\text{Revised equation 4 energy intensity} = \text{study energy intensity} / F \quad (\text{Equ. 5})$$

¹³ The ASM, and thus IMT, includes coal and coke expenditures, so an adjustment has not been applied to the IMT for coal and coke consumption; these fuels have not been included in the domestic leakage study, however, so an upward adjustment was applied to the domestic AF factors for the cement sector as discussed in section three.

Where:

“study energy intensity” is the energy intensity calculated by the international leakage study based on ASM purchased fuel data; and

“F” is the fraction of total emissions from the consumption of purchased fuels based on MRR data (i.e., 1 – non-purchased fuels). These are the values presented in Table 2.

Potential Domestic Emissions Leakage for the Manufacturing Sector

Potential Domestic Leakage for Manufacturing Sectors without Non-Purchased Fuels and/or without Process Emissions: Developing Domestic Drops

The domestic leakage study¹⁴ used plant-level U.S. Census data to simulate the effects of a carbon price-driven increase in operating costs on manufacturing sectors in California through increased electricity and natural gas prices. The study measured the decrease in output, value added, and employment for each sector. The increase in California operating cost is driven by increased electricity and natural gas prices, which escalate with allowance prices. The domestic leakage study simulated industry responses for a marginal compliance cost of \$24.88 per MTCO₂e in 2016 dollars with varying domestic AF components. This represents the 2030 price floor in 2016 dollars. In developing domestic AF components, staff is applying the lower 2022 floor price of \$17, in real 2015 dollars, used by the Standardized Regulatory Impact Assessment (SRIA)¹⁵.

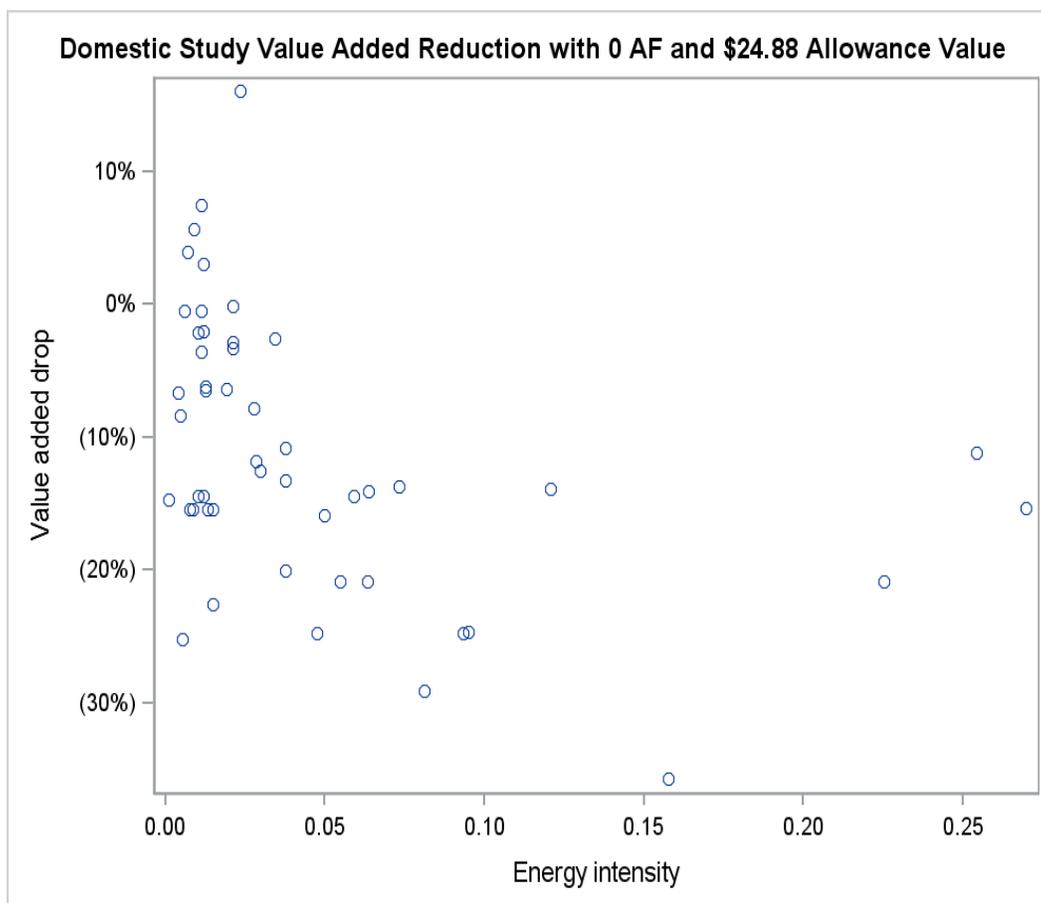
Staff used the output and value added responses to an allowance value to assess potential domestic emissions leakage caused by the Program. Staff also developed and applied two additional domestic leakage estimates. Similar to the regression IMT, these are based on industry-wide regressions of the drop in value added or output on each industry's energy intensity, termed regressed domestic value added drop and regressed output drop respectively. Each of these four methods is referred to as a domestic drop (DD) methodology. Staff is basing each sector's DD for application in developing the revised AFs on the average of domestic value added drop, domestic output drop, regressed domestic value added drop, and regressed domestic output drop.

Domestic value added drop, the first DD methodology, can be found in Table A1 of the domestic leakage study, which is reproduced as Table 3. Table 3 presents domestic value added drop values for a range of domestic AF component values from zero, indicating no allowance allocation, up to 90 percent allowance allocation in 10 percent

¹⁴ <https://www.arb.ca.gov/cc/capandtrade/meetings/20160518/rff-domestic-leakage.pdf>

¹⁵ <https://www.arb.ca.gov/regact/2016/capandtrade16/appc.pdf>

increments.¹⁶ Domestic value added drop for a given sector generally decrease to smaller negative values as the AF increases from left to right in the table, indicating that domestic value added decreases less in response to a marginal compliance cost as AF values increase. For the industrial sectors studied, Figure 4 plots the domestic value added drops from the first column of Table 3 (i.e., those with an AF equal to zero, indicating no allowance allocation at the 2030 price floor) relative to natural gas and electricity expenditures and a \$24.88 per MTCO₂e marginal compliance cost.



up to 90 percent, and increasing allowance allocation generally decreases the domestic output drop. Figure 5 plots the domestic output drops from the first column of Table 4 (i.e., those with an AF equal to zero, indicating no allowance allocation at the 2030 price floor) relative to natural gas and electricity expenditures and a \$24.88 per MTCO₂e marginal compliance cost.

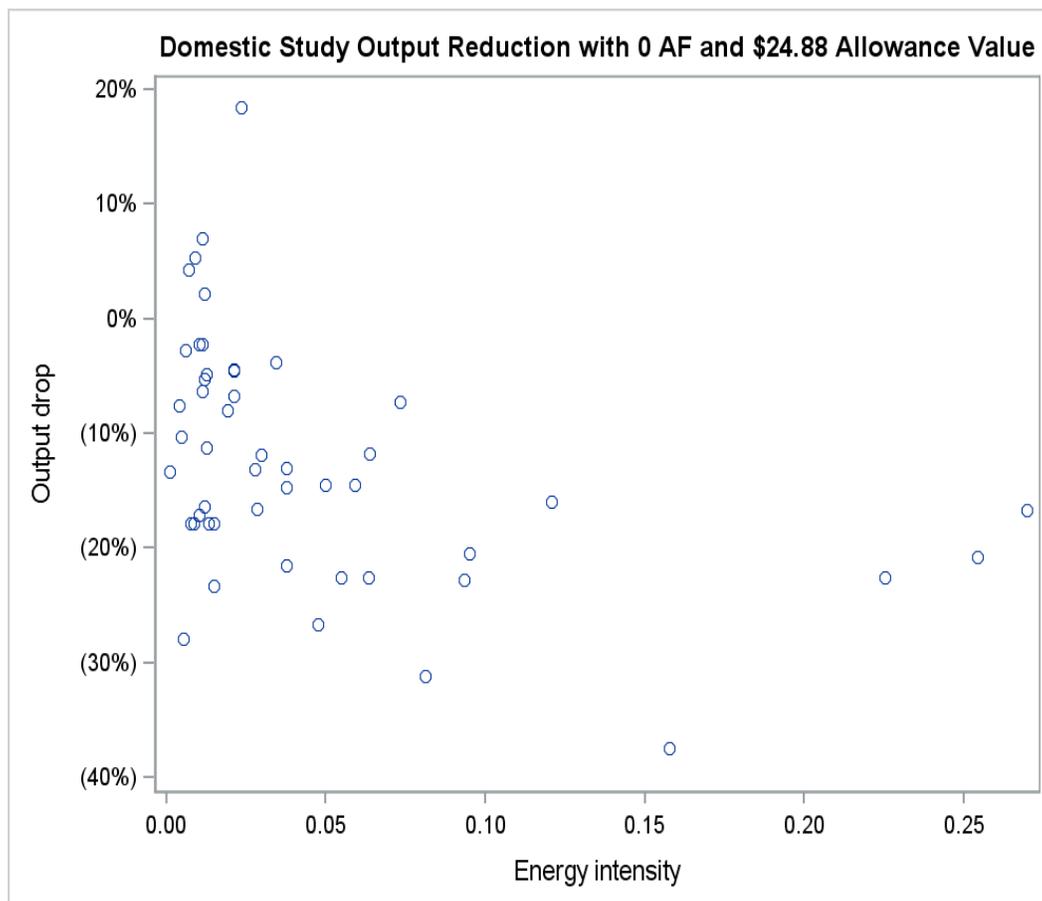


Figure 5. Percent reduction in California output for various industrial sectors with AF equal to zero and a \$24.88/MTCO₂e marginal compliance cost from the domestic leakage study.

As can be seen in Figures 4 and 5, the domestic leakage study calculated counterintuitive positive domestic value added and domestic output responses to increased energy prices for some California sectors. Staff has developed a methodology to provide allocation for sectors with these counterintuitive responses. Broadly, when sectors had unexpectedly limited or positive changes in value added and/or output in response to the compliance cost, staff adjusted the response downward to match an average level of decrease in value added and / or output based on sectors with similar energy intensities. While these individual sectors showed positive responses, the trend of the overall manufacturing sector conforms with expectations: value added and output decrease in response to increased energy prices, and the

impacts are more negative for sectors with higher energy intensities. For sectors with high energy intensities, value added drops (Figure 4), and output drops (Figure 5) from the domestic leakage study were very negative.

Figures 4 and 5 generally show a curved negative relationship between value added and energy intensity, and output drop and energy intensity. Informed by this relationship, staff developed a regression to correlate domestic value added drop to energy intensity (Equation 7 with resulting values in the second column of Table 5). Staff also developed a correlation of domestic output drop to energy intensity (Equation 8 with resulting values in the second column of Table 6). In the sectors for which value added drop and / or output drop were positive, the drops were lowered to zero. This has the effect of increasing allocation for some sectors.¹⁷

The domestic value added drop regression is a pooled linear regression (OLS) with all studied sectors' domestic value added drop at a zero assistance factor (the first column of Table 4) regressed on the natural log of the sector's energy intensity. The regression equation is as follows:

$$DVA_{i,study,0} = B_0 + B_1 \times \ln(\text{energy intensity}_i) + \text{error}_i \quad (\text{Equ. 6})$$

Where:

" $DVA_{i,study,0}$ " is the domestic value added drop for sector "i" with zero assistance factor from the domestic leakage study, which can be found in Table 3; and

" error_i " is the difference between $DVA_{i,study,0}$ and the right-hand side of the equation, excluding error_i .

The regressed domestic value added drop with a zero assistance factor for a sector is then calculated by the following equation:

$$DVA_{i,regressed,0} = \text{est}B_0 + \text{est}B_1 \times \ln(\text{energy intensity}_i) \quad (\text{Equ. 7})$$

Where:

" $DVA_{i,regressed,0}$ " is the regression domestic value added drop for sector "i" with zero assistance factor, which are presented in Table 5, and

" $\text{est}B_k$ " is the OLS estimate of the coefficient B_k resulting from the pooled OLS regression of equation 6.

¹⁷ When the left-hand-side of equations 6 and 9 are more negative, $\text{est}B_k$ in equations 7 and 9 are more negative, resulting in greater (more negative) regressed value added and regressed output drops.

With the regression domestic value added drop at zero assistance factor established for each sector, staff then populated Table 5 for increasing values of AF based on the following formula:

$$DVA_{i,regressed,X} = DVA_{i,regressed,0} \times (1 - X) \quad (\text{Equ. 8})$$

Where:

“ $DVA_{i,regressed,X}$ ” is the regression domestic value added drop for sector “i” with an assistance factor equal to X, where X is one of the various AF values reported in Table 5.

Regressed output drop is calculated using the same general method as regressed value added drop:

$$\text{Output Drop}_{i,study,0} = B_0 + B_1 \times \ln(\text{energy intensity}_i) + \text{error}_i \quad (\text{Equ. 9})$$

Where:

“ $\text{Output Drop}_{i,study,0}$ ” is the domestic output drop for sector “i” with zero assistance factor from the domestic leakage study, which can be found in Table 4; and

“ error_i ” is the difference between $DVA_{i,study,0}$ and the right-hand side of the equation, excluding error_i .

Each sector’s regressed domestic output drop with a zero assistance factor is then calculated by the following equation:

$$\text{Output Drop}_{i,regressed,0} = \text{est}B_0 + \text{est}B_1 \times \ln(\text{energy intensity}_i) \quad (\text{Equ. 10})$$

Where:

“ $\text{Output Drop}_{i,regressed,0}$ ” is the regression domestic output drop for sector “i” with zero assistance factor, which are presented in Table 6, and

“ $\text{est}B_k$ ” is the OLS estimate of the coefficient B_k resulting from equation 9.

With the regression domestic out drop at zero assistance factor established for each sector, staff then populated the remainder of Table 6 for increasing values of AF based on the following equation:

$$\text{Output Drop}_{i,regressed,X} = \text{Output Drop}_{i,regressed,0} \times (1 - X) \quad (\text{Equ. 11})$$

Where:

“Output Drop_{i,regressed,X}” is the regression domestic output drop for sector “i” with an assistance factor equal to X, where X is one of the various AF values reported in Table 6.

Applying Domestic Drops to Obtain Domestic Assistance Factor Components

As discussed in Appendix E, the four methodologies to estimate DD conservatively assume a one-for-one tradeoff between a decline in California output and an increase in non-California domestic output. Because of this one-for-one assumption, staff cannot simply translate the DD values from Tables 3 through 6 into the domestic AF component for each sector in the same way that the IMT values could be translated into the international AF component. Instead, staff has applied a cutoff DD value of minus 7 percent based on the 2022 floor price used in the SRIA of \$17 dollars. In the tables supplied by the researchers assuming a higher \$24.88 dollar allowance value, this 7 percent DD at the 2022 floor price is equivalent to a 10.245 percent DD in Tables 3 through 6 that assume the 2030 floor price.

To set a domestic AF component value for each sector, staff estimated the domestic AF component implied by each of the four DD estimates (value added drop, output drop, regressed value added drop, and regressed output drop). This is the domestic AF component necessary to reduce the DDs in Tables 3 through 6 to less than 10.245 percent in absolute value. Using each methodology and corresponding Tables 3 through 6, the domestic AF component is increased from zero in ten percent increments until the DD value in the respective Table 3, 4, 5 or 6 is above the 2022-floor-price-implied cutoff value of minus 10.245 percent (e.g., the DD value reaches a value of -9 percent). For example, Table 6 shows that for NAICS 325199, the 20AF column results in a regressed domestic output drop greater than 10.245 in absolute value, whereas the 30AF column results in less than 10.245 in absolute value (-9.6). Thus, the domestic AF component implied by the regressed domestic output drop methodology for NAICS 325199 is 30 percent.

Applying Domestic Drops to Obtain Domestic Assistance Factor Components in Manufacturing Sectors with Non-Purchased Fuel, Coal and Coke Energy Consumption, and/or Process Emissions

For sectors with non-purchased fuel, coal and or coke fuel inputs, and / or process emissions, the energy intensity used to calculate the regressed value added drop and regressed output drop (i.e., in two of the four DD estimation methodologies) was adjusted upward. Regressed value added and regressed output increase (become more negative) in energy intensity. This upward adjustment results in a higher domestic AF component for these sectors relative to excluding consideration of non-purchased fuel, Coal and Coke energy, and/or process emissions. The percentage of total emissions from purchased fuel emissions for these sectors is presented in Table 2.

Domestic Assistance Factor Component for Studied Sectors

Table 7 lists the four domestic AF components determined by each of the four DD approaches. The average of these four values is applied as the domestic AF component, which is presented in the final column of Table 7. This Table 7 domestic AF component for each sector is used to calculate the total assistance factor, which is also presented in Table 8.

Assistance Factor Components for Non-Studied Sectors

Staff initially intended to use data from the 2007 and 2012 economic census as well as U.S. Census's UTO database to calculate AFs for non-studied sectors. In the rare earth mining sector (NAICS 212299), however, the 2007 UTO domestic exports exceed the 2007 economic census' domestic shipments (inclusive of domestic exports and shipments for domestic consumption). Since this data anomaly is present in one or both of these datasets used for staff's initial non-studied sector AF approach, staff is concerned there could be additional as-of-yet unresolved data issues in the non-studied sector public data. Basing AFs on incorrect data would lead to potential inappropriate assignment of AFs for other mining sectors. Staff is following up with U.S. Census Bureau staff on these data sources, but has chosen not to release post-2020 AFs for all of the non-studied sectors until staff either has resolved this data issue or identified another approach with which to calculate AFs for the non-studied sectors. Staff seeks stakeholder input on this approach or alternate methodological approaches for the rare earth mining, and potentially other non-studied, sectors (i.e., sectors with TBDs in the post-2020 column of table 8).

Highlight of Key Assumptions

Figure 6 highlights key assumptions used in developing the revised post-2020 AFs in Table 8.

Item	Topic	CP4 AFs
1.	Price for domestic drop	7% domestic drop at 2022 floor price (SRIA price of 17 dollars), equivalent to a 10.245% domestic drop at 2030 floor price
2.	Domestic AF: studied sectors	Average non-rounded domestic AF out of the four methodologies
3.	Domestic AF: studied sectors	Study DDs decreased to zero when positive for purposes of estimating regression DDs
4.	International IMT: studied sectors	Average of Berkeley and regression IMT
5.	Non-studied emissions (international AF component calculations)	Non-studied emissions = "Process" + "non-purchased fuel" emissions
6.	Non-studied emissions (domestic AF component calculations)	Non-studied emissions = "Process" + "Coal" + "Coke" + "non-purchased fuel" emissions

Figure 6. Key assumptions for AFs for stakeholder review and feedback.

Table 1. International assistance factor component for manufacturing sectors.

NAICS Code	Activity Name	Raw IMT	Regression IMT	Average IMT
311423	Dehydrated Garlic Processing	10%	10%	10%
311423	Dehydrated Onion Processing	10%	10%	10%
311423	Dehydrated Chili Pepper Processing	10%	10%	10%
311423	Dehydrated Spinach Processing	10%	10%	10%
311423	Dehydrated Parsley Processing	10%	10%	10%
311512	Milk, Buttermilk, Skim Milk, and Ultrafiltered Milk Processing	5%	5%	5%
311512	Butter Processing	5%	5%	5%
311512	Intermediate Dairy Ingredients Processing	5%	5%	5%
311514	Cream Processing	12%	11%	12%
311514	Condensed Milk Processing	12%	11%	12%
311514	Nonfat Dry Milk and Skimmed Milk Powder (Low Heat) Processing	12%	11%	12%
311514	Nonfat Dry Milk and Skimmed Milk Powder (Medium Heat and High Heat) Processing	12%	11%	12%
311514	Buttermilk Powder Processing	12%	11%	12%
311514	Dairy Product Solids for Animal Feed Processing	12%	11%	12%
311615	Whole Chicken and Chicken Parts Processing	4%	5%	5%
311615	Poultry Deli Product Processing	4%	5%	5%
311615	Protein Meal and Fat Processing	4%	5%	5%
311911	Pistachio Processing	3%	5%	4%
311911	Almond Processing	3%	5%	4%

NAICS Code	Activity Name	Raw IMT	Regression IMT	Average IMT
311919	Fried Potato Chips Processing	2%	3%	3%
311919	Baked Potato Chips Processing	2%	3%	3%
311919	Corn Chips Processing	2%	3%	3%
311919	Corn Curls Processing	2%	3%	3%
311919	Pretzel Processing	2%	3%	3%
312120	Brewing	10%	11%	10%
312120	Lager Beer Manufacturing	10%	11%	10%
312130	Distilled Spirits Production	24%	17%	20%
312130	Dry Color Concentrate Production	24%	17%	20%
312130	Grape Juice Concentrate Production	24%	17%	20%
312130	Grape Seed Extract Production	24%	17%	20%
312130	Liquid Color Concentrate Production	24%	17%	20%
322121	Bathroom Tissue Manufacturing	7%	9%	8%
322121	Facial Tissue Manufacturing	7%	9%	8%
322121	Delicate Task Wipers Manufacturing	7%	9%	8%
322121	Paper Towel Manufacturing	7%	9%	8%
322130	Recycled Boxboard Manufacturing	10%	11%	11%
322130	Recycled Linerboard (Testliner) Manufacturing	10%	11%	11%
322130	Recycled Medium (Fluting) Manufacturing	10%	11%	11%
324110	Petroleum Refining	12%	11%	11%
324121	Asphalt Paving Mixture and Block manufacturing	1%	3%	2%
325120	On-purpose Hydrogen Gas Production	4%	8%	6%

NAICS Code	Activity Name	Raw IMT	Regression IMT	Average IMT
325120	Liquid Hydrogen Production	4%	8%	6%
325188	All Other Basic Inorganic Chemical Manufacturing	32%	29%	30%
325193	Ethyl Alcohol Manufacturing	4%	6%	5%
325199	All Other Basic Organic Chemical Manufacturing	26%	25%	26%
325311	Nitric Acid Production	23%	29%	26%
325311	Calcium Ammonium Nitrate Solution Production	23%	29%	26%
325412	Pharmaceutical and Medicine Manufacturing	30%	22%	26%
325414	Biological Product (Except Diagnostic) Manufacturing	43%	29%	36%
327211	Flat Glass Manufacturing	23%	23%	23%
327213	Container Glass Manufacturing	9%	13%	11%
327310	Cement Manufacturing	4%	18%	11%
327410	Dolime Manufacturing	1%	10%	5%
327420	Plaster Manufacturing	3%	6%	5%
327420	Stucco Manufacturing	3%	6%	5%
327993	Fiber Glass Manufacturing	11%	13%	12%
331111	Steel Production Using an Electric Arc Furnace	14%	17%	15%
331221	Hot Rolled Steel Sheet Production	2%	4%	3%
331221	Pickled Steel Sheet Production	2%	4%	3%
331221	Cold Rolled and Annealed Steel Sheet Production	2%	4%	3%
331221	Galvanized Steel Sheet Production	2%	4%	3%

NAICS Code	Activity Name	Raw IMT	Regression IMT	Average IMT
331221	Tin Steel Sheet Production	2%	4%	3%
331314	Aluminum and Aluminum Alloy Billet Manufacturing	1%	3%	2%
331492	Lead Acid Battery Recycling	5%	7%	6%
331511	Iron Foundries	7%	9%	8%
331511	Ductile Iron Pipe Manufacturing	7%	9%	8%
332510	Hardware Manufacturing	36%	31%	34%
333611	Testing of Turbines and Turbine Generator Sets	66%	32%	49%
336411	Aircraft Manufacturing	0%	7%	3%
336414	Guided Missile and Space Vehicle Manufacturing	2%	4%	3%

Table 2. Fraction of total emissions from purchased fuels for studied sectors with non-purchased fuel consumption and/or process emissions.

NAICS Code	Activity Name	Fraction of Total Emissions from Consumption of Purchased Fuels[#]
311313	Beet Sugar Manufacturing	80%
324110	Petroleum Refineries	60%
324199	All Other Petroleum and Coal Products Manufacturing	90%
325120	Industrial Gas Manufacturing	60%
325311	Nitrogenous Fertilizer Manufacturing	25%
327211	Flat Glass Manufacturing	75%
327213	Glass Container Manufacturing	75%
327310	Cement Manufacturing	13%
327410	Lime Manufacturing	30%
327993	Mineral Wool Manufacturing	85%
331111	Iron and Steel Mills	65%
331492	Secondary Smelting, Refining, and Alloying of Nonferrous Metal (except Copper and Aluminum)	25%

[#] Equal to the fraction "F" in equation 5.

Table 3. Domestic Value Added DDs for Each Studied Sector at Assistance Factors from Zero to 90 Percent (Percentages).

NAICS Code	0AF	10AF	20AF	30AF	40AF	50AF	60AF	70AF	80AF	90AF
311313	-2.9	-2.6	-2.4	-2.1	-1.8	-1.5	-1.2	-0.9	-0.6	-0.3
311421	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0.0	0.0	0.0
311423	-3.4	-3.0	-2.7	-2.4	-2.1	-1.8	-1.4	-1.1	-0.7	-0.4
311512	-15.5	-14.0	-12.5	-11.0	-9.4	-7.9	-6.4	-4.8	-3.2	-1.6
311513	3.0	2.8	2.5	2.2	1.9	1.6	1.3	1.0	0.7	0.3
311514	-6.4	-5.8	-5.2	-4.6	-3.9	-3.3	-2.7	-2.0	-1.3	-0.7
311615	-22.6	-20.5	-18.3	-16.1	-13.9	-11.7	-9.4	-7.1	-4.8	-2.4
311911	-14.5	-13.1	-11.7	-10.3	-8.9	-7.4	-6.0	-4.5	-3.0	-1.5
311919	-2.1	-2.0	-1.8	-1.7	-1.5	-1.3	-1.0	-0.8	-0.6	-0.3
312120	-15.5	-14.0	-12.5	-11.0	-9.4	-7.9	-6.4	-4.8	-3.2	-1.6
312130	3.9	3.6	3.2	2.8	2.5	2.1	1.7	1.3	0.9	0.4
322121	-15.9	-14.4	-12.9	-11.3	-9.8	-8.2	-6.6	-5.0	-3.3	-1.7
322130	-29.2	-26.4	-23.6	-20.8	-17.9	-15.0	-12.1	-9.1	-6.1	-3.1
324110	-7.8	-7.1	-6.3	-5.6	-4.8	-4.0	-3.2	-2.4	-1.6	-0.8
324121	-2.6	-2.3	-2.1	-1.9	-1.6	-1.4	-1.1	-0.8	-0.6	-0.3
324199	-14.8	-13.4	-11.9	-10.5	-9.1	-7.6	-6.1	-4.6	-3.1	-1.6
325120	-15.4	-13.9	-12.5	-11.0	-9.5	-7.9	-6.4	-4.8	-3.2	-1.6
325188	-14.5	-13.1	-11.7	-10.3	-8.9	-7.4	-6.0	-4.5	-3.0	-1.5
325193	-20.9	-18.9	-16.9	-14.8	-12.8	-10.7	-8.6	-6.5	-4.4	-2.2
325199	-11.8	-10.7	-9.6	-8.4	-7.2	-6.1	-4.9	-3.7	-2.5	-1.2
325311	-11.2	-10.1	-9.0	-7.9	-6.8	-5.7	-4.5	-3.4	-2.3	-1.1
325412	-8.4	-7.6	-6.8	-6.0	-5.1	-4.3	-3.5	-2.6	-1.8	-0.9
325414	5.7	5.1	4.6	4.1	3.5	3.0	2.4	1.8	1.2	0.6
327211	-20.9	-18.9	-16.9	-14.8	-12.8	-10.7	-8.6	-6.5	-4.4	-2.2
327213	-35.7	-32.3	-28.9	-25.4	-21.9	-18.4	-14.8	-11.1	-7.5	-3.8
327310	-24.7	-22.3	-20.0	-17.6	-15.1	-12.7	-10.2	-7.7	-5.2	-2.6

NAICS Code	0AF	10AF	20AF	30AF	40AF	50AF	60AF	70AF	80AF	90AF
327410	-20.9	-18.9	-16.9	-14.8	-12.8	-10.7	-8.6	-6.5	-4.4	-2.2
327420	-13.9	-12.6	-11.2	-9.9	-8.5	-7.1	-5.7	-4.3	-2.9	-1.5
327993	-24.8	-22.4	-20.1	-17.6	-15.2	-12.7	-10.2	-7.7	-5.2	-2.6
331111	-24.8	-22.4	-20.0	-17.6	-15.2	-12.7	-10.2	-7.7	-5.2	-2.6
331221	16.1	14.6	13.1	11.6	10.0	8.4	6.8	5.1	3.5	1.7
331314	-14.1	-12.8	-11.4	-10.0	-8.7	-7.3	-5.8	-4.4	-3.0	-1.5
331492	-13.7	-12.4	-11.1	-9.8	-8.4	-7.1	-5.7	-4.3	-2.9	-1.4
331511	-20.0	-18.1	-16.2	-14.2	-12.3	-10.3	-8.3	-6.2	-4.2	-2.1
332510	-0.5	-0.5	-0.4	-0.4	-0.3	-0.3	-0.2	-0.2	-0.1	0.0
333611	-15.5	-14.0	-12.5	-11.0	-9.4	-7.9	-6.4	-4.8	-3.2	-1.6
336111	-25.2	-22.8	-20.3	-17.9	-15.4	-12.9	-10.4	-7.8	-5.2	-2.6
336411	-6.6	-6.0	-5.4	-4.7	-4.1	-3.4	-2.8	-2.1	-1.4	-0.7
336414	-0.5	-0.5	-0.4	-0.4	-0.3	-0.3	-0.2	-0.2	-0.1	-0.1

Table 4. Domestic Output DDs for Each Studied Sector at Assistance Factors from Zero to 90 Percent (Percentages).

NAICS Code	0AF	10AF	20AF	30AF	40AF	50AF	60AF	70AF	80AF	90AF
311313	-4.5	-4.1	-3.7	-3.2	-2.8	-2.3	-1.9	-1.4	-1.0	-0.5
311421	-6.7	-6.1	-5.5	-4.9	-4.2	-3.5	-2.9	-2.2	-1.5	-0.7
311423	-4.4	-4.0	-3.6	-3.2	-2.7	-2.3	-1.9	-1.4	-0.9	-0.5
311512	-17.8	-16.1	-14.4	-12.7	-10.9	-9.2	-7.4	-5.6	-3.7	-1.9
311513	2.2	2.0	1.8	1.6	1.4	1.2	1.0	0.7	0.5	0.2
311514	-8.1	-7.3	-6.5	-5.7	-5.0	-4.2	-3.4	-2.5	-1.7	-0.9
311615	-23.3	-21.1	-18.9	-16.7	-14.4	-12.1	-9.7	-7.3	-4.9	-2.5
311911	-17.1	-15.5	-13.9	-12.2	-10.5	-8.8	-7.1	-5.4	-3.6	-1.8
311919	-2.2	-2.1	-2.0	-1.8	-1.6	-1.4	-1.2	-0.9	-0.6	-0.3
312120	-17.8	-16.1	-14.4	-12.7	-10.9	-9.2	-7.4	-5.6	-3.7	-1.9
312130	4.3	3.9	3.5	3.1	2.7	2.2	1.8	1.4	0.9	0.5
322121	-14.6	-13.2	-11.8	-10.4	-8.9	-7.5	-6.0	-4.5	-3.0	-1.5
322130	-31.2	-28.2	-25.2	-22.2	-19.1	-16.1	-12.9	-9.7	-6.5	-3.3
324110	-13.2	-11.9	-10.7	-9.4	-8.1	-6.8	-5.5	-4.1	-2.8	-1.4
324121	-3.8	-3.4	-3.1	-2.7	-2.4	-2.0	-1.6	-1.2	-0.8	-0.4
324199	-13.3	-12.1	-10.8	-9.5	-8.2	-6.8	-5.5	-4.1	-2.8	-1.4
325120	-16.7	-15.1	-13.5	-11.9	-10.3	-8.6	-6.9	-5.2	-3.5	-1.8
325188	-14.5	-13.2	-11.8	-10.4	-8.9	-7.5	-6.0	-4.5	-3.0	-1.5
325193	-22.6	-20.5	-18.3	-16.1	-13.9	-11.6	-9.4	-7.1	-4.7	-2.4
325199	-16.6	-15.1	-13.5	-11.9	-10.2	-8.6	-6.9	-5.2	-3.5	-1.8
325311	-20.8	-18.8	-16.8	-14.8	-12.7	-10.7	-8.6	-6.5	-4.3	-2.2
325412	-10.3	-9.4	-8.4	-7.4	-6.4	-5.3	-4.3	-3.2	-2.2	-1.1
325414	5.3	4.8	4.3	3.8	3.3	2.8	2.3	1.7	1.2	0.6
327211	-22.6	-20.5	-18.3	-16.1	-13.9	-11.6	-9.4	-7.1	-4.7	-2.4
327213	-37.5	-33.9	-30.3	-26.7	-23.0	-19.3	-15.5	-11.7	-7.9	-4.0
327310	-20.5	-18.5	-16.5	-14.5	-12.5	-10.5	-8.4	-6.3	-4.2	-2.1

NAICS Code	0AF	10AF	20AF	30AF	40AF	50AF	60AF	70AF	80AF	90AF
327410	-22.6	-20.5	-18.3	-16.1	-13.9	-11.6	-9.4	-7.1	-4.7	-2.4
327420	-16.0	-14.4	-12.9	-11.4	-9.8	-8.2	-6.6	-5.0	-3.4	-1.7
327993	-22.8	-20.6	-18.4	-16.2	-14.0	-11.7	-9.4	-7.1	-4.7	-2.4
331111	-26.7	-24.1	-21.6	-19.0	-16.4	-13.7	-11.0	-8.3	-5.6	-2.8
331221	18.4	16.7	15.0	13.2	11.4	9.6	7.8	5.9	4.0	2.0
331314	-11.7	-10.6	-9.5	-8.4	-7.2	-6.0	-4.9	-3.7	-2.5	-1.2
331492	-7.3	-6.6	-5.8	-5.1	-4.4	-3.7	-2.9	-2.2	-1.5	-0.7
331511	-21.6	-19.5	-17.4	-15.4	-13.2	-11.1	-8.9	-6.7	-4.5	-2.3
332510	-2.3	-2.0	-1.8	-1.6	-1.4	-1.2	-0.9	-0.7	-0.5	-0.2
333611	-17.8	-16.1	-14.4	-12.7	-10.9	-9.2	-7.4	-5.6	-3.7	-1.9
336111	-27.9	-25.2	-22.5	-19.8	-17.1	-14.3	-11.5	-8.7	-5.8	-2.9
336411	-7.6	-6.9	-6.2	-5.4	-4.7	-3.9	-3.2	-2.4	-1.6	-0.8
336414	-2.8	-2.5	-2.2	-2.0	-1.7	-1.4	-1.2	-0.9	-0.6	-0.3

Table 5. Regressed domestic value added DD for each studied sector at assistance factors from zero to 90 percent (percentages).

NAICS Code	0AF	10AF	20AF	30AF	40AF	50AF	60AF	70AF	80AF	90AF
311313	-11.4	-10.3	-9.1	-8.0	-6.8	-5.7	-4.6	-3.4	-2.3	-1.1
311421	-11.4	-10.2	-9.1	-8.0	-6.8	-5.7	-4.6	-3.4	-2.3	-1.1
311423	-11.4	-10.2	-9.1	-8.0	-6.8	-5.7	-4.6	-3.4	-2.3	-1.1
311512	-9.7	-8.8	-7.8	-6.8	-5.8	-4.9	-3.9	-2.9	-1.9	-1.0
311513	-9.4	-8.5	-7.6	-6.6	-5.7	-4.7	-3.8	-2.8	-1.9	-0.9
311514	-11.1	-10.0	-8.9	-7.8	-6.6	-5.5	-4.4	-3.3	-2.2	-1.1
311615	-10.1	-9.1	-8.1	-7.1	-6.1	-5.1	-4.1	-3.0	-2.0	-1.0
311911	-8.9	-8.0	-7.1	-6.3	-5.4	-4.5	-3.6	-2.7	-1.8	-0.9
311919	-8.9	-8.0	-7.1	-6.3	-5.4	-4.5	-3.6	-2.7	-1.8	-0.9
312120	-10.2	-9.2	-8.2	-7.1	-6.1	-5.1	-4.1	-3.1	-2.0	-1.0
312130	-7.5	-6.8	-6.0	-5.3	-4.5	-3.8	-3.0	-2.3	-1.5	-0.8
322121	-14.4	-12.9	-11.5	-10.1	-8.6	-7.2	-5.8	-4.3	-2.9	-1.4
322130	-16.1	-14.5	-12.9	-11.3	-9.6	-8.0	-6.4	-4.8	-3.2	-1.6
324110	-12.4	-11.1	-9.9	-8.7	-7.4	-6.2	-4.9	-3.7	-2.5	-1.2
324121	-13.1	-11.8	-10.5	-9.2	-7.8	-6.5	-5.2	-3.9	-2.6	-1.3
324199	-0.3	-0.3	-0.3	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	0.0
325120	-20.2	-18.2	-16.2	-14.2	-12.1	-10.1	-8.1	-6.1	-4.0	-2.0
325188	-15.0	-13.5	-12.0	-10.5	-9.0	-7.5	-6.0	-4.5	-3.0	-1.5
325193	-14.7	-13.2	-11.8	-10.3	-8.8	-7.4	-5.9	-4.4	-2.9	-1.5
325199	-12.4	-11.2	-9.9	-8.7	-7.5	-6.2	-5.0	-3.7	-2.5	-1.2
325311	-20.0	-18.0	-16.0	-14.0	-12.0	-10.0	-8.0	-6.0	-4.0	-2.0
325412	-6.1	-5.5	-4.9	-4.3	-3.7	-3.0	-2.4	-1.8	-1.2	-0.6
325414	-8.4	-7.6	-6.7	-5.9	-5.0	-4.2	-3.4	-2.5	-1.7	-0.8
327211	-19.6	-17.7	-15.7	-13.7	-11.8	-9.8	-7.8	-5.9	-3.9	-2.0
327213	-18.4	-16.5	-14.7	-12.9	-11.0	-9.2	-7.4	-5.5	-3.7	-1.8
327310	-21.0	-18.9	-16.8	-14.7	-12.6	-10.5	-8.4	-6.3	-4.2	-2.1

NAICS Code	0AF	10AF	20AF	30AF	40AF	50AF	60AF	70AF	80AF	90AF
327410	-15.2	-13.7	-12.2	-10.6	-9.1	-7.6	-6.1	-4.6	-3.0	-1.5
327420	-17.5	-15.7	-14.0	-12.2	-10.5	-8.7	-7.0	-5.2	-3.5	-1.7
327993	-16.6	-14.9	-13.2	-11.6	-9.9	-8.3	-6.6	-5.0	-3.3	-1.7
331111	-14.2	-12.8	-11.4	-10.0	-8.5	-7.1	-5.7	-4.3	-2.8	-1.4
331221	-11.7	-10.6	-9.4	-8.2	-7.0	-5.9	-4.7	-3.5	-2.3	-1.2
331314	-15.2	-13.7	-12.2	-10.7	-9.1	-7.6	-6.1	-4.6	-3.0	-1.5
331492	-15.7	-14.1	-12.6	-11.0	-9.4	-7.9	-6.3	-4.7	-3.1	-1.6
331511	-13.4	-12.1	-10.7	-9.4	-8.0	-6.7	-5.4	-4.0	-2.7	-1.3
332510	-9.2	-8.3	-7.3	-6.4	-5.5	-4.6	-3.7	-2.8	-1.8	-0.9
333611	-7.9	-7.1	-6.3	-5.5	-4.7	-3.9	-3.1	-2.4	-1.6	-0.8
336111	-6.6	-6.0	-5.3	-4.7	-4.0	-3.3	-2.7	-2.0	-1.3	-0.7
336411	-5.5	-4.9	-4.4	-3.8	-3.3	-2.7	-2.2	-1.6	-1.1	-0.5
336414	-7.0	-6.3	-5.6	-4.9	-4.2	-3.5	-2.8	-2.1	-1.4	-0.7

Table 6. Regressed domestic output DD for each studied sector at assistance factors from zero to 90 percent (percentages).

NAICS Code	0AF	10AF	20AF	30AF	40AF	50AF	60AF	70AF	80AF	90AF
311313	-12.8	-11.5	-10.2	-8.9	-7.7	-6.4	-5.1	-3.8	-2.6	-1.3
311421	-12.8	-11.5	-10.2	-8.9	-7.7	-6.4	-5.1	-3.8	-2.6	-1.3
311423	-12.8	-11.5	-10.2	-8.9	-7.7	-6.4	-5.1	-3.8	-2.6	-1.3
311512	-11.1	-10.0	-8.9	-7.8	-6.7	-5.6	-4.5	-3.3	-2.2	-1.1
311513	-10.9	-9.8	-8.7	-7.6	-6.5	-5.4	-4.3	-3.3	-2.2	-1.1
311514	-12.5	-11.2	-10.0	-8.7	-7.5	-6.2	-5.0	-3.7	-2.5	-1.2
311615	-11.5	-10.4	-9.2	-8.1	-6.9	-5.8	-4.6	-3.5	-2.3	-1.2
311911	-10.4	-9.3	-8.3	-7.3	-6.2	-5.2	-4.1	-3.1	-2.1	-1.0
311919	-10.4	-9.3	-8.3	-7.3	-6.2	-5.2	-4.1	-3.1	-2.1	-1.0
312120	-11.6	-10.4	-9.3	-8.1	-7.0	-5.8	-4.6	-3.5	-2.3	-1.2
312130	-9.0	-8.1	-7.2	-6.3	-5.4	-4.5	-3.6	-2.7	-1.8	-0.9
322121	-15.7	-14.1	-12.5	-11.0	-9.4	-7.8	-6.3	-4.7	-3.1	-1.6
322130	-17.3	-15.6	-13.9	-12.1	-10.4	-8.7	-6.9	-5.2	-3.5	-1.7
324110	-13.7	-12.3	-11.0	-9.6	-8.2	-6.9	-5.5	-4.1	-2.7	-1.4
324121	-14.4	-13.0	-11.5	-10.1	-8.6	-7.2	-5.8	-4.3	-2.9	-1.4
324199	-2.0	-1.8	-1.6	-1.4	-1.2	-1.0	-0.8	-0.6	-0.4	-0.2
325120	-21.4	-19.3	-17.1	-15.0	-12.8	-10.7	-8.6	-6.4	-4.3	-2.1
325188	-16.2	-14.6	-13.0	-11.4	-9.7	-8.1	-6.5	-4.9	-3.2	-1.6
325193	-16.0	-14.4	-12.8	-11.2	-9.6	-8.0	-6.4	-4.8	-3.2	-1.6
325199	-13.8	-12.4	-11.0	-9.6	-8.3	-6.9	-5.5	-4.1	-2.8	-1.4
325311	-21.2	-19.1	-17.0	-14.8	-12.7	-10.6	-8.5	-6.4	-4.2	-2.1
325412	-7.6	-6.8	-6.1	-5.3	-4.6	-3.8	-3.0	-2.3	-1.5	-0.8
325414	-9.9	-8.9	-7.9	-6.9	-5.9	-4.9	-3.9	-3.0	-2.0	-1.0
327211	-20.8	-18.7	-16.6	-14.6	-12.5	-10.4	-8.3	-6.2	-4.2	-2.1
327213	-19.6	-17.6	-15.7	-13.7	-11.7	-9.8	-7.8	-5.9	-3.9	-2.0
327310	-22.1	-19.9	-17.7	-15.5	-13.3	-11.1	-8.8	-6.6	-4.4	-2.2

NAICS Code	0AF	10AF	20AF	30AF	40AF	50AF	60AF	70AF	80AF	90AF
327410	-16.5	-14.8	-13.2	-11.5	-9.9	-8.2	-6.6	-4.9	-3.3	-1.6
327420	-18.7	-16.8	-14.9	-13.1	-11.2	-9.3	-7.5	-5.6	-3.7	-1.9
327993	-17.8	-16.0	-14.2	-12.5	-10.7	-8.9	-7.1	-5.3	-3.6	-1.8
331111	-15.5	-14.0	-12.4	-10.9	-9.3	-7.8	-6.2	-4.7	-3.1	-1.6
331221	-13.1	-11.8	-10.5	-9.2	-7.9	-6.6	-5.2	-3.9	-2.6	-1.3
331314	-16.5	-14.9	-13.2	-11.6	-9.9	-8.3	-6.6	-5.0	-3.3	-1.7
331492	-17.0	-15.3	-13.6	-11.9	-10.2	-8.5	-6.8	-5.1	-3.4	-1.7
331511	-14.7	-13.3	-11.8	-10.3	-8.8	-7.4	-5.9	-4.4	-2.9	-1.5
332510	-10.6	-9.5	-8.5	-7.4	-6.4	-5.3	-4.2	-3.2	-2.1	-1.1
333611	-9.3	-8.4	-7.5	-6.5	-5.6	-4.7	-3.7	-2.8	-1.9	-0.9
336111	-8.1	-7.3	-6.5	-5.7	-4.9	-4.1	-3.3	-2.4	-1.6	-0.8
336411	-7.0	-6.3	-5.6	-4.9	-4.2	-3.5	-2.8	-2.1	-1.4	-0.7
336414	-8.5	-7.7	-6.8	-6.0	-5.1	-4.3	-3.4	-2.6	-1.7	-0.9

Table 7. Studied sector domestic assistance factor component from the four DD estimation approaches, and the assigned domestic assistance factor component.

NAICS Code	Activity Name	Output Domestic AF Component	Value Added Domestic AF Component	Regression Value Added Domestic AF Component	Regression Output Domestic AF Component	Assigned Domestic AF Component
311313	Beet Sugar Manufacturing	0	0	0.2	0.2	0.1
311421	Aseptic Tomato Paste Processing	0	0	0.2	0.2	0.1
311421	Aseptic Whole and Diced Tomato Processing	0	0	0.2	0.2	0.1
311421	Non-Aseptic Tomato Juice Processing	0	0	0.2	0.2	0.1
311421	Non-Aseptic Tomato Paste and Tomato Puree Processing	0	0	0.2	0.2	0.1
311421	Non-Aseptic Whole and Diced Tomato Processing	0	0	0.2	0.2	0.1
311423	Dehydrated Chili Pepper Processing	0	0	0.2	0.2	0.1
311423	Dehydrated Garlic Processing	0	0	0.2	0.2	0.1
311423	Dehydrated Onion Processing	0	0	0.2	0.2	0.1
311423	Dehydrated Parsley Processing	0	0	0.2	0.2	0.1
311423	Dehydrated Spinach Processing	0	0	0.2	0.2	0.1
311512	Butter Processing	0.5	0.4	0	0.1	0.25
311512	Intermediate Dairy Ingredients Processing	0.5	0.4	0	0.1	0.25
311512	Milk, Buttermilk, Skim Milk, and Ultrafiltered Milk Processing	0.5	0.4	0	0.1	0.25
311513	Cheese Processing	0	0	0	0.1	0.025
311513	Deproteinized Whey Processing	0	0	0	0.1	0.025
311513	Lactose Processing	0	0	0	0.1	0.025
311513	Whey Protein Concentrate Processing	0	0	0	0.1	0.025
311514	Buttermilk Powder Processing	0	0	0.1	0.2	0.075
311514	Condensed Milk Processing	0	0	0.1	0.2	0.075

NAICS Code	Activity Name	Output Domestic AF Component	Value Added Domestic AF Component	Regression Value Added Domestic AF Component	Regression Output Domestic AF Component	Assigned Domestic AF Component
311514	Cream Processing	0	0	0.1	0.2	0.075
311514	Dairy Product Solids for Animal Feed Processing	0	0	0.1	0.2	0.075
311514	Nonfat Dry Milk and Skimmed Milk Powder (Low Heat) Processing	0	0	0.1	0.2	0.075
311514	Nonfat Dry Milk and Skimmed Milk Powder (Medium Heat and High Heat) Processing	0	0	0.1	0.2	0.075
311615	Poultry Deli Product Processing	0.6	0.6	0	0.2	0.35
311615	Protein Meal and Fat Processing	0.6	0.6	0	0.2	0.35
311615	Whole Chicken and Chicken Parts Processing	0.6	0.6	0	0.2	0.35
311911	Almond Processing	0.5	0.4	0	0.1	0.25
311911	Pistachio Processing	0.5	0.4	0	0.1	0.25
311919	Baked Potato Chips Processing	0	0	0	0.1	0.025
311919	Corn Chips Processing	0	0	0	0.1	0.025
311919	Corn Curls Processing	0	0	0	0.1	0.025
311919	Fried Potato Chips Processing	0	0	0	0.1	0.025
311919	Pretzel Processing	0	0	0	0.1	0.025
312120	Brewing	0.5	0.4	0	0.2	0.275
312120	Lager Beer Manufacturing	0.5	0.4	0	0.2	0.275
312130	Distilled Spirits Production	0	0	0	0	0
312130	Dry Color Concentrate Production	0	0	0	0	0
312130	Grape Juice Concentrate Production	0	0	0	0	0
312130	Grape Seed Extract Production	0	0	0	0	0
312130	Liquid Color Concentrate Production	0	0	0	0	0
322121	Bathroom Tissue Manufacturing	0.4	0.4	0.3	0.4	0.375

NAICS Code	Activity Name	Output Domestic AF Component	Value Added Domestic AF Component	Regression Value Added Domestic AF Component	Regression Output Domestic AF Component	Assigned Domestic AF Component
322121	Delicate Task Wipers Manufacturing	0.4	0.4	0.3	0.4	0.375
322121	Facial Tissue Manufacturing	0.4	0.4	0.3	0.4	0.375
322121	Paper Towel Manufacturing	0.4	0.4	0.3	0.4	0.375
322130	Recycled Boxboard Manufacturing	0.7	0.7	0.4	0.5	0.575
322130	Recycled Linerboard (Testliner) Manufacturing	0.7	0.7	0.4	0.5	0.575
322130	Recycled Medium (Fluting) Manufacturing	0.7	0.7	0.4	0.5	0.575
324110	Petroleum Refining	0.3	0	0.2	0.3	0.2
324121	Asphalt Paving Mixture and Block manufacturing	0	0	0.3	0.3	0.15
324199	Coke Calcining	0.3	0.4	0	0	0.175
325120	Liquid Hydrogen Production	0.5	0.4	0.5	0.6	0.5
325120	On-purpose Hydrogen Gas Production	0.5	0.4	0.5	0.6	0.5
325188	All Other Basic Inorganic Chemical Manufacturing	0.4	0.4	0.4	0.4	0.4
325193	Ethyl Alcohol Manufacturing	0.6	0.6	0.4	0.4	0.5
325199	All Other Basic Organic Chemical Manufacturing	0.4	0.2	0.2	0.3	0.275
325311	Calcium Ammonium Nitrate Solution Production	0.6	0.1	0.5	0.6	0.45
325311	Nitric Acid Production	0.6	0.1	0.5	0.6	0.45
325412	Pharmaceutical and Medicine Manufacturing	0.1	0	0	0	0.025
325414	Biological Product (Except Diagnostic) Manufacturing	0	0	0	0	0
327211	Flat Glass Manufacturing	0.6	0.6	0.5	0.6	0.575

NAICS Code	Activity Name	Output Domestic AF Component	Value Added Domestic AF Component	Regression Value Added Domestic AF Component	Regression Output Domestic AF Component	Assigned Domestic AF Component
327213	Container Glass Manufacturing	0.8	0.8	0.5	0.5	0.65
327310	Cement Manufacturing	0.6	0.6	0.6	0.6	0.6
327410	Dolime Manufacturing	0.6	0.6	0.4	0.4	0.5
327420	Plaster Manufacturing	0.4	0.3	0.5	0.5	0.425
327420	Stucco Manufacturing	0.4	0.3	0.5	0.5	0.425
327993	Fiber Glass Manufacturing	0.6	0.6	0.4	0.5	0.525
331111	Steel Production Using an Electric Arc Furnace	0.7	0.6	0.3	0.4	0.5
331221	Cold Rolled and Annealed Steel Sheet Production	0	0	0.2	0.3	0.125
331221	Galvanized Steel Sheet Production	0	0	0.2	0.3	0.125
331221	Hot Rolled Steel Sheet Production	0	0	0.2	0.3	0.125
331221	Pickled Steel Sheet Production	0	0	0.2	0.3	0.125
331221	Tin Steel Sheet Production	0	0	0.2	0.3	0.125
331314	Aluminum and Aluminum Alloy Billet Manufacturing	0.2	0.3	0.4	0.4	0.325
331492	Lead Acid Battery Recycling	0	0.3	0.4	0.4	0.275
331511	Ductile Iron Pipe Manufacturing	0.6	0.6	0.3	0.4	0.475
331511	Iron Foundries	0.6	0.6	0.3	0.4	0.475
332510	Hardware Manufacturing	0	0	0	0.1	0.025
333611	Testing of Turbines and Turbine Generator Sets	0.5	0.4	0	0	0.225
336111	Automobile Manufacturing	0.7	0.7	0	0	0.35
336411	Aircraft Manufacturing	0	0	0	0	0
336414	Guided Missile and Space Vehicle Manufacturing	0	0	0	0	0

Table 8. Domestic assistance factor component, international assistance factor component, and overall Table 8-1 (“Compliance Period 3 AF”) and Table 8-3 (“Post-2020 AF”) assistance factor.

NAICS	Activity Name	Compliance Period 3 AF	Domestic AF Component	International AF Component	Post-2020 AF
211111	Natural Gas Processing >25 Mmscf/day	1	TBD ¹⁸	TBD	TBD
211111	Non-Thermal Crude Oil	1	TBD	TBD	TBD
211111	Thermal EOR Crude Oil	1	TBD	TBD	TBD
211112	Natural Gas Liquid Processing	1	TBD	TBD	TBD
212299	Rare Earth Production	1	TBD	TBD	TBD
212391	Mining and Manufacturing of Soda Ash and Related Products	1	TBD	TBD	TBD
212399	Diatomaceous Earth Mining	1	TBD	TBD	TBD
212399	Freshwater Diatomite Filter Aids Manufacturing	1	TBD	TBD	TBD
311221	Wet Corn Milling	1	TBD	TBD	TBD
311313	Beet Sugar Manufacturing	0.75	0.10	0.11	0.21
311421	Aseptic Tomato Paste Processing	0.75	0.10	0.13	0.23
311421	Aseptic Whole and Diced Tomato Processing	0.75	0.10	0.13	0.23
311421	Non-Aseptic Tomato Juice Processing	0.75	0.10	0.13	0.23
311421	Non-Aseptic Tomato Paste and Tomato Puree Processing	0.75	0.10	0.13	0.23
311421	Non-Aseptic Whole and Diced Tomato Processing	0.75	0.10	0.13	0.23
311423	Dehydrated Chili Pepper Processing	0.75	0.10	0.10	0.20
311423	Dehydrated Garlic Processing	0.75	0.10	0.10	0.20
311423	Dehydrated Onion Processing	0.75	0.10	0.10	0.20

¹⁸ Table 8 TBDs will be added in a future formal 15-day amendment proposal.

NAICS	Activity Name	Compliance Period 3 AF	Domestic AF Component	International AF Component	Post-2020 AF
311423	Dehydrated Parsley Processing	0.75	0.10	0.10	0.20
311423	Dehydrated Spinach Processing	0.75	0.10	0.10	0.20
311512	Butter Processing	0.75	0.25	0.05	0.30
311512	Intermediate Dairy Ingredients Processing	0.75	0.25	0.05	0.30
311512	Milk, Buttermilk, Skim Milk, and Ultrafiltered Milk Processing	0.75	0.25	0.05	0.30
311513	Cheese Processing	0.75	0.03	0.03	0.05
311513	Deproteinized Whey Processing	0.75	0.03	0.03	0.05
311513	Lactose Processing	0.75	0.03	0.03	0.05
311513	Whey Protein Concentrate Processing	0.75	0.03	0.03	0.05
311514	Buttermilk Powder Processing	0.75	0.08	0.12	0.19
311514	Condensed Milk Processing	0.75	0.08	0.12	0.19
311514	Cream Processing	0.75	0.08	0.12	0.19
311514	Dairy Product Solids for Animal Feed Processing	0.75	0.08	0.12	0.19
311514	Nonfat Dry Milk and Skimmed Milk Powder (Low Heat) Processing	0.75	0.08	0.12	0.19
311514	Nonfat Dry Milk and Skimmed Milk Powder (Medium Heat and High Heat) Processing	0.75	0.08	0.12	0.19
311615	Poultry Deli Product Processing	0.75	0.35	0.05	0.40
311615	Protein Meal and Fat Processing	0.75	0.35	0.05	0.40
311615	Whole Chicken and Chicken Parts Processing	0.75	0.35	0.05	0.40
311911	Almond Processing	0.75	0.25	0.04	0.29
311911	Pistachio Processing	0.75	0.25	0.04	0.29
311919	Baked Potato Chips Processing	0.75	0.03	0.03	0.05
311919	Corn Chips Processing	0.75	0.03	0.03	0.05

NAICS	Activity Name	Compliance Period 3 AF	Domestic AF Component	International AF Component	Post-2020 AF
311919	Corn Curls Processing	0.75	0.03	0.03	0.05
311919	Fried Potato Chips Processing	0.75	0.03	0.03	0.05
311919	Pretzel Processing	0.75	0.03	0.03	0.05
312120	Brewing	0.75	0.28	0.10	0.38
312120	Lager Beer Manufacturing	0.75	0.28	0.10	0.38
312130	Distilled Spirits Production	0.75	0	0.20	0.20
312130	Dry Color Concentrate Production	0.75	0	0.20	0.20
312130	Grape Juice Concentrate Production	0.75	0	0.20	0.20
312130	Grape Seed Extract Production	0.75	0	0.20	0.20
312130	Liquid Color Concentrate Production	0.75	0	0.20	0.20
322121	Bathroom Tissue Manufacturing	1	0.38	0.08	0.46
322121	Delicate Task Wipers Manufacturing	1	0.38	0.08	0.46
322121	Facial Tissue Manufacturing	1	0.38	0.08	0.46
322121	Paper Towel Manufacturing	1	0.38	0.08	0.46
322130	Recycled Boxboard Manufacturing	1	0.58	0.11	0.68
322130	Recycled Linerboard (Testliner) Manufacturing	1	0.58	0.11	0.68
322130	Recycled Medium (Fluting) Manufacturing	1	0.58	0.11	0.68
324110	Petroleum Refining	0.75	0.20	0.11	0.31
324121	Asphalt Paving Mixture and Block manufacturing	0.75	0.15	0.02	0.17
324199	Coke Calcining	1	0.18	0.03	0.20
325120	Liquid Hydrogen Production	0.75	0.50	0.06	0.56
325120	On-purpose Hydrogen Gas Production	0.75	0.50	0.06	0.56
325188	All Other Basic Inorganic Chemical	1	0.40	0.30	0.70

NAICS	Activity Name	Compliance Period 3 AF	Domestic AF Component	International AF Component	Post-2020 AF
	Manufacturing				
325193	Ethyl Alcohol Manufacturing	0.75	0.50	0.05	0.55
325199	All Other Basic Organic Chemical Manufacturing	1	0.28	0.26	0.53
325311	Calcium Ammonium Nitrate Solution Production	1	0.45	0.26	0.71
325311	Nitric Acid Production	1	0.45	0.26	0.71
325412	Pharmaceutical and Medicine Manufacturing	0.5	0.03	0.26	0.28
325414	Biological Product (Except Diagnostic) Manufacturing	0.75	0	0.36	0.36
327211	Flat Glass Manufacturing	1	0.58	0.23	0.81
327213	Container Glass Manufacturing	1	0.65	0.11	0.76
327310	Cement Manufacturing	1	0.60	0.11	0.71
327410	Dolime Manufacturing	1	0.50	0.05	0.55
327420	Plaster Manufacturing	0.75	0.43	0.05	0.47
327420	Stucco Manufacturing	0.75	0.43	0.05	0.47
327993	Fiber Glass Manufacturing	1	0.53	0.12	0.65
331111	Steel Production Using an Electric Arc Furnace	1	0.50	0.15	0.65
331221	Cold Rolled and Annealed Steel Sheet Production	0.75	0.13	0.03	0.15
331221	Galvanized Steel Sheet Production	0.75	0.13	0.03	0.15
331221	Hot Rolled Steel Sheet Production	0.75	0.13	0.03	0.15
331221	Pickled Steel Sheet Production	0.75	0.13	0.03	0.15
331221	Tin Steel Sheet Production	0.75	0.13	0.03	0.15
331314	Aluminum and Aluminum Alloy Billet Manufacturing	0.75	0.33	0.02	0.35
331492	Lead Acid Battery Recycling	0.75	0.28	0.06	0.33
331511	Ductile Iron Pipe Manufacturing	0.75	0.48	0.08	0.56

NAICS	Activity Name	Compliance Period 3 AF	Domestic AF Component	International AF Component	Post-2020 AF
331511	Iron Foundries	0.75	0.48	0.08	0.56
332112	Nonferrous Metal Forging	0.5	0.25	0.06	0.31
332112	Seamless Rolled Ring	0.5	0.25	0.06	0.31
332510	Hardware Manufacturing	0.75	0.03	0.34	0.36
333611	Testing of Turbines and Turbine Generator Sets	0.75	0.23	0.49	0.72
336111	Automobile Manufacturing	TBD	0.35	0.58	0.93
336411	Aircraft Manufacturing	0.5	0	0.03	0.03
336414	Guided Missile and Space Vehicle Manufacturing	0.5	0	0.03	0.03
4881	Support Activities for Air Transportation	0.5	TBD	TBD	TBD
111419	Other Food Crops Grown Under Cover	TBD	TBD	TBD	TBD
325194	Cyclic Crude, Intermediate, and Gum and Wood Chemical Manufacturing	1	TBD	TBD	TBD
336390	Other Motor Vehicle Parts Manufacturing	TBD	TBD	TBD	TBD

October 21, 2016 – Cap-and-Trade Regulation Amendments Workshop

#	Received From	Subject	Comment Period	Date/Time Added to Database	Document Link
1	Grizard, Erin,	Bloom Energy letter to ARB	1st Workshop	2016-10-25 14:52:10	Link
2	Houston, Bob,	CSCME talking points	1st Workshop	2016-10-25 15:17:00	Link
3	Screve, Francois, Deltaway Energy	WTE exemption from the GHG cap to 2017	1st Workshop	2016-10-25 17:55:34	Link
4	Jones, Todd, Center for Resource Solutions (CRS)	Comments of Center for Resource Solutions (CRS) in response to Oct 21, 2016 workshop	1st Workshop	2016-10-27 10:51:28	Link
5	Byers, Brett, Million Acre Pledge	maintaining authority to add tropical forest offset credits	1st Workshop	2016-10-27 17:10:47	Link
6	Cullenward, Danny,	EIM GHG attribution; CAISO expansion	1st Workshop	2016-10-27 17:50:11	Link
7	Wells, Kallie,	Comments on Cap-and-Trade workshop	1st Workshop	2016-11-03 12:48:11	Link
8	Leslie, John, Attorney for Shell Energy North America	Comments of Shell Energy on Potential Amendments to the Cap and Trade Regulation	1st Workshop	2016-11-03 13:40:55	Link
9	Upicksoun, Anna,	Cap-and-trade regulation amendments workshop	1st Workshop	2016-11-03 18:08:19	Link
10	TAYLOR, GRAY,	Cap-and trade regulations amendments	1st Workshop	2016-11-04 09:05:39	Link
11	Busch, Chris, Energy Innovation: Policy and Technology	Comments on Oct. 21 workshop	1st Workshop	2016-11-04 09:42:30	Link
12	Gowans, Kelsey, Modesto Irrigation District	Modesto Irrigation District's Comments from the October 21, 2016 Mandatory GHG Reporting a	1st Workshop	2016-11-04 10:24:38	Link
13	Stack, Jonathan, A-GAS Americas	A-Gas Comments on ARB's October 21 Cap and Trade Regulations Amendments Workshop	1st Workshop	2016-11-04 10:35:00	Link
14	Hadley, Elizabeth, Redding Electric Utility	REU comments re: Staff Allowance Allocation Proposal to EDUs	1st Workshop	2016-11-04 10:37:57	Link
15	Bragg, Lynn, Glass Packaging Institute	Comments to the Cap-and-Trade Regulation Industry Assistance Informal Staff Proposal	1st Workshop	2016-11-04 10:43:01	Link
16	Harrell, Badia ,	Comments for Pasadena Water and Power in response to Oct. 21, 2016 Workshop	1st Workshop	2016-11-04 11:19:46	Link
17	Mallott, Anthony, Sealaska Corporation	Sealaska comment	1st Workshop	2016-11-04 11:16:58	Link

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18	Guge, Brett, California Steel Industries, Inc.	California Steel Industries, Inc. Letter to ARB	1st Workshop	2016-11-04 11:52:56	Link
19	Van Brunt, Michael, Covanta	Covanta comments on October 24th Cap and Trade workshop	1st Workshop	2016-11-04 11:56:17	Link
20	Weiner, Peter, Crockett Cogeneration LLC	Cap-and-Trade Regulation Amendments	1st Workshop	2016-11-04 12:42:02	Link
21	Fort, Jeffrey, Dentons US LLP	Comment on CARB's Cap and Trade Regulation Amendments Workshop	1st Workshop	2016-11-04 12:52:30	Link
22	Giese, Jodean, LADWP	LADWP Comments on Proposed Cap & Trade Amendments	1st Workshop	2016-11-04 13:46:03	Link
23	Smith, Adam,	SCE comments on the Cap-and-Trade Workshop	1st Workshop	2016-11-04 13:48:54	Link
24	Kripke, Adrianna, San Diego Gas & Electric (SDG&E)	SDG&E Comments to October 21, 2016 Cap-and-Trade Workshop	1st Workshop	2016-11-04 13:54:59	Link
25	Phillips, Dwayne, Air Liquide Large Industries U.S. LP	California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms	1st Workshop	2016-11-04 13:34:49	Link
26	Bloom, John , CSCME	Comments on 10/21/16 Public Workshop on Amendments to Cap and Trade	1st Workshop	2016-11-04 14:02:36	Link
27	O'Brien, Rachael, Agricultural Council of California	Comments on ARB's October 21 Cap and Trade Regulations Amendments Workshop	1st Workshop	2016-11-04 14:09:22	Link
28	Townsend, Kevin, Blue Source, LLC	Blue Source comments	1st Workshop	2016-11-04 13:54:35	Link
29	Carmichael, Tim,	Final SCG Comments on C&T amendments Workshop held 10/21/16	1st Workshop	2016-11-04 14:15:43	Link
30	Zierman, Rock,	CIPA Comments on Assistance Factors	1st Workshop	2016-11-04 14:26:18	Link
31	Lee, Diana, CPUC/ORCA	ORA Comments on 10.21.16 Cap-and-Trade Workshop	1st Workshop	2016-11-04 13:43:08	Link
32	Wiencke, Mary, PacifiCorp	PacifiCorp Comments on 11/4 Workshop	1st Workshop	2016-11-04 14:34:23	Link
33	Brown, Timothy, Tradewater, LLC	Support of Carbon Offset Provisions of Cap-and-Trade Program	1st Workshop	2016-11-04 14:27:20	Link
34	Taheri, Sarah, Southern Calif. Public Power Authority	Southern California Public Power Authority Comments on 10/21 Cap-and-Trade Workshop	1st Workshop	2016-11-04 14:53:19	Link
35	Poole, Melissa, Wonderful Company	Comments on Cap-and-Trade Regulation Amendments Workshop	1st Workshop	2016-11-04 15:03:18	Link

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36	Balistreri, Nicholas, University of California, Office of the	Support of UPSE Continued Transition Assistance	1st Workshop	2016-11-04 15:19:41	Link
37	van Aelstyn, Nico, Beveridge & Diamond, PC	Powerex Corp. Comments on Oct. 21 Stakeholder Workshop	1st Workshop	2016-11-04 15:23:31	Link
38	Larrea, John, CA League of Food Processors	CLFP Comments to Oct 21st CARB Workshop	1st Workshop	2016-11-04 15:26:03	Link
39	Adams, Keith, Air Products and Chemicals, Inc.	Comments on Proposed Amendments to Cap & Trade Program	1st Workshop	2016-11-04 15:26:37	Link
40	Zakreski, Sheldon,	comments on cap and trade regulation amendments workshop	1st Workshop	2016-11-04 15:35:59	Link
41	Blixt, Amber , IEP	IEP's comments on CARB Cap and Trade Workshop	1st Workshop	2016-11-04 15:45:21	Link
42	Song, CC, Marin Clean Energy	Resubmission of CCA Comments	1st Workshop	2016-11-04 15:48:26	Link
43	Vessels, Tom, Vessels Coal Gas Inc.	Cap-and-Trade Regulation Amendments Workshop	1st Workshop	2016-11-04 15:47:31	Link
44	Anderson, Cory, USS-POSCO Industries	Comments of USS-POSCO Industries	1st Workshop	2016-11-04 15:55:37	Link
45	Breidenich, Clare, Western Power Trading Forum	Comments on October 21st workshop issues	1st Workshop	2016-11-04 15:59:11	Link
46	Vessels, Evan, Vessels Coal Gas Inc.	Cap-and-Trade Regulation Amendments Workshop	1st Workshop	2016-11-04 16:08:33	Link
47	Nold, Ken,	TID Comments on Cap & Trade Workshop	1st Workshop	2016-11-04 16:08:40	Link
48	Hopper, Martin, M-S-R Public Power Agency	M-S-R Workshop Comments	1st Workshop	2016-11-04 16:09:51	Link
49	Hudson-Nunez, Rebecca,	GUG Comments on Cap-and-Trade Regulation Amendments Workshop	1st Workshop	2016-11-04 16:16:34	Link
50	Westerfield, William, Sacramento Municipal Utility District	SMUD Comments on Proposed 2016 Cap-and-Trade Amendments	1st Workshop	2016-11-04 16:27:29	Link
51	Facciola, Nick, Origin Climate Inc.	The use of offsets under Cap-and-Trade	1st Workshop	2016-11-04 16:29:04	Link
52	McBride, Barbara, Calpine Corporation	Calpine Comments on October 21, 2016 Cap-and-Trade Workshop	1st Workshop	2016-11-04 16:29:36	Link
53	Patney, Arjun,	Cap-and-Trade Regulation Amendments Workshop	1st Workshop	2016-11-04 16:36:21	Link

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54	Krausse, Mark,	PG&E Comments on the Cap-and-Trade Regulation Amendments Workshop	1st Workshop	2016-11-04 16:00:18	Link
55	Hickel, Josie ,	Comments re: Cap & Trade Regulations, Proposed Carbon Offset Credit Limits	1st Workshop	2016-11-04 16:02:44	Link
56	Berlin, Susie, Northern California Power Agency (NCPA)	Comments on October 21 Workshop	1st Workshop	2016-11-04 16:45:09	Link
57	Daijogo, Kendra,	Cap-and-Trade Reg Amend Workshop: CA Council for Environmental and Economic Balance	1st Workshop	2016-11-04 16:33:29	Link
58	Wynne, Justin, CMUA	California Municipal Utilities Association Comments on Cap-and-Trade Workshop	1st Workshop	2016-11-04 16:26:15	Link
59	Sullivan, Katie, IETA	IETA Comments on Cap-and-Trade Amendments Workshop	1st Workshop	2016-11-04 16:52:53	Link
60	Shaw, Michael, CMTA	CMTA comments on Industry Assistance Factor Informal Staff Proposal	1st Workshop	2016-11-04 16:52:56	Link
61	Shillinglaw, Brian, New Forests	Comments on Cap and Trade Workshop	1st Workshop	2016-11-04 17:00:29	Link
62	Sullivan, Shelly, Climate Change Policy Coalition	15-day Cap-and-Trade Regulation Amendments	1st Workshop	2016-11-04 17:00:39	Link
63	Moran, Ralph J., BP America	BP Comments on 10/21 Workshop	1st Workshop	2016-11-23 08:22:48	Link
64	Reheis-Boyd, Catherine, WSPA	WSPA Comments on ARB's informal draft concepts for AB 197 Implementation	1st Workshop	2016-11-30 07:51:15	Link
65	Hendry , James , SF Public Utilities Commission	Cap and Trade Allocation -- Comments of San Francisco Public Utilities Commission	1st Workshop	2016-11-30 07:51:15	Link
66	Smith, Adam. California Joint Utility Group	Comments on Proposed Electric Distribution Utility Allowance Allocation	1st Workshop	2016-12-09 13:29:01	Link



October 25, 2016

Richard Corey
Executive Officer
California Air Resources Board
1001 "I" Street
Sacramento, CA 95814

Dear Mr. Corey,

Recently we met with the ARB staff to discuss our concerns with the proposed removal of fuel cells from the list of emission sources without a cap-and-trade compliance obligation (i.e., Section 95852.2). We are writing to update you on these discussions with the staff and express our appreciation for your staff's attention to this important issue.

In the original cap-and-trade rulemaking, the ARB included fuel cells in Section 95852.2. The significance of including fuel cells in Section 95852.2 and the letter you sent to Bloom Energy dated May 23, 2013 confirming the treatment of fuel cells cannot be overstated-- it offers a clear demarcation that fuel cells are GHG reducing with co-benefits that afford them unique treatment in recognition of these important attributes. The proposed amendments to the cap-and-trade program currently under Board consideration make a fundamental change to the regulation that will disrupt the market success of GHG reducing fuel cells. The proposed change would remove fuel cells from Section 95852.2 and lead to direct regulation of a small number of operators, but impact the perception of fuel cells for all customers regardless of whether they are a covered entity.

We appreciate the ARB's goal to fully account for all emissions and that the phase in of the natural gas sector may lead to a partial minimization of cap-and-trade costs compared to other sources over 25,000 MT. We also appreciate that delay in the implementation of the natural gas compliance costs are a source of concern. However, any perceived preferential treatment a small number of fuel cell systems may currently receive is temporary and will in short order be accounted for via the full implementation of natural gas sector compliance. As the compliance costs are implemented and the natural gas sector is subject to a growing allowance consignment ratio, at some point between 2020 and 2030, fuel cell operators will face the same GHG costs as sources directly regulated by the cap-and-trade program. In fact, as recently as last Friday, October 21st, the ARB staff proposed a 100% consignment date by 2021, which would ensure that sources not otherwise directly regulated by the cap-and-trade program bear 100% of the natural gas utility's carbon costs by 2021. Thus, as the natural gas sector is transitioned into the cap-and-trade program, natural gas fuel cells will face indirect compliance costs paid to the utility and will be accounted for under the cap. As outlined in your 2013 letter, such compliance costs associated with emissions from natural gas use will effectively spur private investment in efficient technologies, such as fuel cells.

Further, directly regulating a small amount of emissions from just a few entities presents three significant challenges for the fuel cell industry. First, an important

point of comfort for all customers is that fuel cell systems will not be directly regulated by the cap-and-trade program because they reduce GHG emissions. There is a broad perception that regulation under the cap-and-trade program means that the technology has no GHG-benefits because the cap-and-trade program is designed to discourage dirty technologies. We appreciate that this is not the ARB's intent, but we want to make sure that the ARB is aware of the perception.

Second, customers would need to factor into their purchase decision the potential overhead costs of retaining staff to ensure and monitor compliance - costs that would be perceived as directly resulting from the purchase of a fuel cell that is otherwise cleaner than their current source of power. Direct regulation will not only pose a higher cost as small participants cannot manage their administrative costs as well as the natural gas sector, but there will be an intangible cost in the form of a new regulatory burden and risk.

Third, direct regulation of fuel cells is counterproductive to the broader goals of AB 32 and AB 197. Fuel cell systems are much lower GHG emissions sources than conventional natural gas generation. There is no combustion, and as a result, fuel cells also emit no criteria pollutants. It is precisely the type of activity that will "complement federal and state ambient air quality standards and reduce toxic air contaminant emissions" envisioned in AB 32 (i.e., Cal. Health and Safety Code Sec. 38562(b)(4)). Retaining fuel cells in Section 95852.2 is also consistent with the direction in AB 197 to encourage direct emissions reductions at large stationary sources (i.e., Cal. Health and Safety Code Sec. 38562.5(a)). Retaining fuel cells in Section 95852.2 is a longer-term step that will lead to GHG reductions and reductions in criteria pollutants.

We urge you to recognize that direct regulation of fuel cells can actually lead to foregone emission reductions associated with fuel cells and that any associated emissions will be managed in short order via full consignment in the natural gas sector.

Thank you again for your and your staff's attention to this important matter.

Sincerely,



Erin Grizard

cc: Jason Gray
Mary Jane Coombs
David Allgood
David Hults

**CARB Workshop:
CSCME Talking Points for John Bloom
October 21, 2016**

INTRODUCTION

- My name is John Bloom, and I am the chairman of the Coalition for Sustainable Cement Manufacturing & Environment, known as CSCME, which is an *ad hoc* coalition of all five companies that operate the eight cement plants in California.
- I am an economist with over 25 years of experience working in the cement industry. I have spent the past 8 years on economic and environmental policy issues associated with the implementation of AB 32 in California.
- The cement industry will be submitting comments on the proposed regulation, but I wanted to take this opportunity to communicate three key points.
 - First, we support CARB's current approach to allocating allowances to reduce the risk of leakage, which is based on publically available, objective, and widely recognized measures of leakage risk.
 - Second, we strongly oppose CARB's proposed post-2020 approach to allowance allocation that uses the unverifiable results of academic studies in a manner that even the researchers themselves have warned against and will result in severe leakage for our industry.
 - Third, we understand that CARB is considering adopting command-and-control measures in response to environmental justice concerns, and I would like to express our opposition to that approach because it is ill-suited for the cement industry and will actually frustrate (not advance) the goals that we all share, including cleaner air, lower global GHG emissions, and a growing economy.

CSCME SUPPORTS CARB'S CURRENT APPROACH

- CSCME supports CARB's current approach to allocating allowances to the industrial sector because, at least to date, it has been successful at achieving its intended objective, which is to minimize emissions leakage.
- The California cement industry is a prime example of that.
- To understand this point, you need to understand the recent history of the California cement industry.
- When AB32 was adopted in 2006, the California cement industry consisted of 10 cement plants operating at high utilization rates and producing over 11 million tons of cement clinker per year.
- As a result of the unprecedented recession, production declined by almost 40 percent by 2011, and two cement plants closed their doors.
- During this same time, CARB developed a cap-and-trade regulation that recognized the severe vulnerability of the California cement industry to leakage, and the cement industry responded by reducing its GHG intensity.
- In short, since the adoption of AB 32, the California cement industry has experienced the most severe economic downturn in modern history, weathered a slow recovery, and regained its footing without losing market share to imports, all while reducing its GHG intensity.
- This should be good news for all stakeholders.
 - It is good news in terms of economic growth because cement is needed to construct buildings, roads, bridges, and other infrastructure and is essential to support California's transition to a sustainable green economy.
 - It is good news in terms of climate change because cement produced in California has a lower GHG footprint than cement produced overseas and shipped across the ocean to California.

- And it is good news in terms of environmental justice because the vast majority of cement production in California is in very sparsely populated areas. The alternative—imported cement—must be off-loaded in the ports, loaded on heavy trucks, and transported through California’s most disadvantaged and densely populated communities.

CSCME DOES NOT SUPPORT CARB’S PROPOSED POST-2020 FRAMEWORK

- That being said, the California cement industry strongly opposes CARB’s proposed post-2020 framework for determining assistance factors.
- Our opposition is based on a wide range of process, conceptual, and technical concerns, which we outlined in our comment letter in response to the proposed regulations. Unfortunately, CARB appears to have ignored those concerns.
- I’d like to highlight a number of our concerns today.
- **First**, the results of the leakage studies, which are the foundation of CARB’s new proposal, highlight the extreme importance of allowance allocation. For instance,
 - In the absence of allowance allocations, the Domestic Leakage Study estimates that California’s industrial production would decline 11 percent on average in response to a \$23 carbon price. And the International Leakage Study estimates an 18 percent decline in response to a \$10 carbon price.
 - To put this into perspective, U.S. industrial production tends to fall by roughly 5 percent per year during a “typical” recession and fell 18 percent per year in the Great Recession.
 - Simply put, the results of the leakage studies effectively predict that, absent high levels of leakage assistance, the cap-and-trade program would push California into a severe industrial recession on the order of the Great Recession.

- The results are even more stunning for the cement industry, which is estimated to be hit harder than most any other industry. For instance,
 - In the absence of allowance allocations, the International Leakage Study estimates that, with a carbon price of just \$10, output in the California cement industry would fall by 72 percent when you consider both combustion and process emissions.
 - This bears repeating – the International Leakage Study estimates that a \$10 carbon price will result in a 72 percent reduction in output.
 - If you scale this result to be consistent with even the most conservative allowance price assumption for the post-2020 timeframe, it effectively equates to the elimination of the entire California cement industry.
- Despite these dire predictions, CARB has proposed an assistance factor of 0.71 for the cement industry versus the current factor of 1 through 2020, a decline of 29 percent.
- Given the projected output decline of the International Leakage Study alone, an assistance factor of 0.71 suggests that the California cement industry could sustain an output decline of well beyond 30 percent without a significant increase in economic or emissions leakage.
- That is, of course, an absurd conclusion, but it highlights the absurdity of the proposed assistance factors in light of the massive output declines, and it should raise serious concerns for all stakeholders about CARB’s proposed approach to applying the results of the leakage studies.
- **Second**, CARB proposes to use the results of the leakage studies to calculate specific assistance factors for specific industries, as opposed to using them to assess the general reasonableness of the current risk classifications.
 - There are two fundamental flaws in applying the studies in this fashion.

- First, the studies use data that cannot be reviewed and validated by anyone except the researchers themselves. In other words, the studies are a black box to all stakeholders, including CARB staff. This obviously raises serious concerns in terms of transparency and accountability.
- Second, CARB is attempting to use the studies to generate industry-specific assistance factors, which is a gross misapplication of the results.
 - You don't have to take my word for it on this point. Let me quote from the authors of the International Leakage Study, who state, "The natural next step is to translate these responsiveness measures to corresponding measures of market transfer and associated emission leakage. However, pushing on to this next step amounts to pushing up against the limits of the data. Given the noisiness of these estimates, we cannot estimate the transfer rate for any given industry with any degree of confidence."
 - This last sentence is a stunning statement that deserves to be repeated: "we cannot estimate the transfer rate for any given industry with any degree of confidence."
 - An author of the Domestic Leakage Study has made similar public statements, noting that the results of that study are not "useful" when it comes to assigning specific impacts to specific industries.
- This obviously begs the question of why CARB staff is attempting to apply these results to specific industries, especially when the researchers themselves have indicated that this is an improper application of their results? We understand the pressure to use these studies given that they took years to develop and required a substantial investment of tax-payer dollars.
- However, those are not good reasons to ignore the practical limitations of the studies, particularly given the inevitable real-world costs associated with CARB's approach in terms of both job losses and emissions leakage.

- **Third**, CARB ignores the unique aspects of the cement industry in proposing an assistance factor that is unsustainable.
 - For example, over half of the cement industry's GHG emissions are from the process itself – that is, they are an unavoidable consequence of producing cement clinker, not burning fossil fuels.
 - CARB's proposed assistance factor together with further reductions from the cap adjustment factor will result in allowance allocations that fall below the level of process emissions. For a commodity product like cement that is sold on the basis of price, CARB's approach will result in severe leakage.
- And, to be clear, the failure to minimize leakage will not just have direct consequences for the California cement industry, its employees, and the communities that it supports.
- It will have a negative impact on global GHG emissions, as locally-produced cement is displaced by imported cement that is manufactured using a more GHG intensive process and shipped half-way across the world.
- It will also have a negative impact on environmental equity, as every 10 percent of market share that is lost to imports will result in 40,000 more heavy truck trips through California's coastal ports and roads, which are often located close to the state's most disadvantaged and densely populated communities.

THE ENVIRONMENTAL JUSTICE DEBATE IS INAPPLICABLE TO THE CEMENT INDUSTRY

- This brings me to my third and last point. A recently-released advocacy paper contends that California's cap-and-trade program has caused the cement industry to increase emissions in disadvantaged communities.

- The paper reaches this conclusion because disadvantaged communities tend to live closer to large emitters and because absolute GHG emissions in the cement industry increased after cap-and-trade went into force.
- The paper, however, does not provide the appropriate context for the emissions analysis which undermines its conclusion in relation to the cement industry.
- The paper reports the cement industry's GHG emissions for two years prior to the implementation of the cap-and-trade program and two years after the cap-and-trade program. But here is what the paper does not say:
 - It does not say that cement industry output declined by almost 40 percent in the aftermath of the Great Recession, bottoming out in 2011.
 - It does not say that, according to the most recent emissions data released by CARB, absolute cement industry emissions are roughly 20 percent lower than prior to the recession.
 - It does not say that, also according to CARB data, the cement industry's emissions intensity has declined since the passage of AB 32 and the implementation of the cap-and-trade program.
- The paper also suggests that, generally speaking, large industrial facilities tend to be located close to disadvantaged communities. But here is what the paper does not say:
 - It does not say that cement plants tend to be located in exceptionally remote and sparsely populated areas, especially relative to other large emitters.
 - It does not say that if domestic cement is displaced by imports, it will result in a dramatic increase in GHG and criteria pollutant emissions associated with transporting cement through ports and on roads that are located within California's most disadvantaged and densely populated communities.

- When considered in the appropriate context, this paper clearly misrepresents the cement industry's performance under the cap-and-trade program and the cement industry's relevancy to the environmental justice debate.
 - The increase in the cement industry's absolute GHG emissions between 2011 and 2014 is simply the natural result of an industry recovering from a deep recession, not the failure of the California cap-and-trade program.
 - At the same time, the California cement industry has significantly decreased its GHG intensity without significant leakage, which is exactly what the cap-and-trade program is designed to do.
 - Moreover, unlike other large emitters, California cement plants tend to be located in sparsely populated areas and far from disadvantaged communities, which suggests that more stringent regulation on the cement industry would simply exacerbate emissions leakage without delivering any real environmental justice benefits.
- Do our policy-makers really want to mandate emission reductions that permanently keep cement production at unsustainable recession-like levels, cause severe emissions and economic leakage from the displacement of California production with imports, force higher emissions into our most disadvantaged communities, and generate higher global GHG emissions?
- I appreciate the opportunity to present the views of the California cement industry at today's workshop. Thank you.

Comment Log Display

Below is the comment you selected to display.

Comment 3 for Cap-and-Trade Regulation Amendments Workshop (ct-amendments-ws) - 1st Workshop.

First Name: Francois

Last Name: Screve

Email Address: fscreve@deltawayenergy.com

Affiliation: Deltaway Energy

Subject: WTE exemption from the GHG cap to 2017

Comment:

We are kindly requesting that the Air Resources Board keep the proposed language that extends the exemption from the GHG cap to 2017 for Waste-to-Energy (WTE). The WTE plants provides a service to the community and a large portion of its fuel is made of biomass and other renewable waste materials.

Best regards,

Francois Screve

Attachment:

Original File Name:

Date and Time Comment Was Submitted: 2016-10-25 17:55:34



November 4, 2016

Rajinder Sahota
Branch Chief
California Cap-and-Trade Program
California Air Resources Board (ARB)
1001 I Street
Sacramento, CA 95814

Re: Comments of Center for Resource Solutions (CRS) in response to the October 21, 2016 Cap-and-Trade Regulation Amendments Workshop

Dear Ms. Sahota:

CRS appreciates the opportunity to submit comments regarding potential 2016 amendments to the Cap-and-Trade Regulation discussed at the Workshop held on October 21, 2016. Our comments focus on post-2020 allowance allocation to Electrical Distribution Utilities (EDUs) and, in particular, on Staff's most recent proposal regarding the RPS Adjustment, included in the Post-2020 Electrical Distribution Utility Allocation Informal Proposal and slide 43 of Staff's presentation. We provide a recommendation for how to administer the RPS Adjustment and avoid double counting with directly delivered renewable energy.

If Staff is proposing to continue the RPS Adjustment after 2020 with the existing reporting and verification requirements pursuant to the Mandatory Reporting Regulation (MRR), we strongly recommend that it reconsider its current proposal to remove the renewable energy credit (REC) reporting requirement for specified imports.¹

1. Staff can use REC serial numbers reported with specified imports to prevent double counting with the RPS Adjustment.

Where the RPS Adjustment is verified with RECs, Staff can verify that the RPS Adjustment is not used for directly delivered power using the REC serial numbers reported with directly delivered power. If the REC reporting requirement for imports is eliminated and the RPS Adjustment is kept, as proposed, the RECs associated with directly delivered power could still be used for the RPS Adjustment and double counted. This would still require monitoring by ARB, except it is made more difficult because it would result in two different tracking mechanisms being used (i.e. the power or other instrument for the import and the REC for the RPS Adjustment). Having the REC serial numbers for both allows the two to be compared.

2. ARB must standardize REC serial reporting, such that it allows Staff to identify individual RECs reported with specified imports.

¹ Proposed change to Sec. 95852.b.3.D (p.126) of Proposed Regulation Order posted August 2, 2016 and discussed at the September 22, 2016 Board hearing.

3. ARB must enforce conformance with the REC serial number reporting requirement.

To the extent that non-conformance is preventing ARB from having access to the REC serial numbers that it needs to verify no double counting and appropriate use of the RPS Adjustment, this cannot be a reason to allow continued double counting. The solution is conformance with existing rules, which must be enforced. Regardless of whether the import is specified by rule, REC serial number reporting is required, in part to prevent double counting with the RPS Adjustment.

4. Staff can address any administrative burden associated with verification of REC serial numbers.

Solutions to alleviate this burden may include having an outside entity do verification of REC serial numbers.

We recommend that the list of REC serial numbers associated with specified imports be given to Western Renewable Energy Generation Information System (WREGIS) and that WREGIS be used to confirm that those RECs were retired in California or by a California user at the time of compliance. We have significant experience with helping states use tracking systems to verify different regulatory requirements. We would be happy to help ARB and WREGIS create the functionality needed in WREGIS to verify no double counting between the RPS Adjustment and specified imports.

Please feel to contact us with any questions about these comments, or if we can otherwise be of assistance.

Sincerely,



Todd Jones
Senior Manager, Policy and Climate Change Programs

Comment Log Display

Below is the comment you selected to display.

Comment 5 for Cap-and-Trade Regulation Amendments Workshop (ct-amendments-ws) - 1st Workshop.

First Name: Brett

Last Name: Byers

Email Address: brettbyers@millionacrepledge.org

Affiliation: Million Acre Pledge

Subject: maintaining authority to add tropical forest offset credits

Comment:

I have been told that certain members of the California legislature may be considering amendments to the California CO2 cap-and-trade program to bar the use of some or all offsets that are outside of California. My understanding is that the objection to use of such credits is that they allow additional pollution in California but with the offset likely being far away from California.

I would urge the California legislature (and the board members and staff of the ARB and California EP, and other California government officials) to resist a removal of such offsets for several reasons.

First, I note that carbon dioxide pollution knows no boundaries and defuses through the world atmosphere and causing global warming worldwide. As such, the effect of CO2 emissions anywhere in the world have the same negative impact on California.

Second, I note that fossil fuel use reduction AND tropical forest conservation (to be encouraged by CA cap and trade tropical forest offsets as soon as 2018) are both likely needed to avoid 2 degrees C of warming. Also, most of the carbon on the surface of the earth is in tropical forest, so that offsets for this sector must be outside of California to address carbon sequestration by nature in a significant way. See: R.A. Houghton, Brett Byers and Alexander A. Nassikas, "A role for tropical forest in stabilizing atmospheric CO2," Nature Climate Change 5, 1022-1023 (2015), doi: 10.1038/nclimate2869 (published online November 25, 2015). <http://www.nature.com/nclimate/journal/v5/n12/full/nclimate2869.html>

Third, I note that California's inclusion of tropical forest offsets by 2018 would be key as a role model to motivate other jurisdictions to include tropical forest offsets on their cap-and-trade markets or in relationship to carbon tax programs (as a potential use of tax revenue).

Fourth, I note tropical forest offsets (which may be included on the CA cap-and-trade market as soon as 2018) and conservation has a double impact on California. Not only does tropical forest CO2

emissions impact California CO2 levels because of worldwide diffusion of CO2, but loss of tropical forest (especially in the Americas where the CA cap-and-trade program seems likely to be focused) causes drought in California.

Please see these information sources regarding the link between tropical deforestation and drought in California:

1. David Medvigy et al, "Simulated Changes in Northwest U.S. Climate in Response to Amazon Deforestation" *Journal of Climate*, November 2013. DOI: <http://dx.doi.org/10.1175/JCLI-D-12-00775.1>
<http://journals.ametsoc.org/doi/abs/10.1175/JCLI-D-12-00775.1>
<http://www.princeton.edu/main/news/archive/S38/31/66M12/index.xml?section=topstories>
2. Deborah Lawrence and Karen Vandecar, "Effects of tropical deforestation on climate and agriculture", *Nature Climate Change* 5, 27-36 (2015), December 18, 2014 (online), doi:10.1038/nclimate2430
<http://www.nature.com/nclimate/journal/v5/n1/full/nclimate2430.html>
3. Mike Bettwy, Goddard Space Flight Center, NASA, "Tropical Deforestation Affects Rainfall in the U.S. and Around the Globe", September 13, 2005.
http://www.nasa.gov/centers/goddard/news/topstory/2005/deforest_rainfall.html
<http://pratt.duke.edu/about/news/tropical-deforestation-affects-rainfall-us-and-around-globe>
(underlying article published in the April 2005 issue of the *Journal of Hydrometeorology* - Roni Avissar was the lead author of the study: <http://journals.ametsoc.org/doi/abs/10.1175/JHM406.1>)

Attachment:

Original File Name:

Date and Time Comment Was Submitted: 2016-10-27 17:10:47

October 27, 2016

California Independent System Operator (CAISO)
P.O. Box 639014
Folsom, CA 95630

California Air Resources Board (CARB)
1001 I Street
Sacramento, CA 95814

Re: Regional greenhouse gas emissions accounting and energy market design proposals from CAISO and CARB

Dear CAISO and CARB staff and stakeholders,

Thank you for the opportunity to comment on the recent CAISO Technical Workshop¹ and CARB Workshop² presentations concerning market design options to account for the regional greenhouse gas emissions implications of CAISO energy markets.

For context, we are longtime academic observers of California's energy and climate policies. Each of us has spent over a decade conducting research on state, federal, and international climate policy with a particular focus on the design and implementation of emissions trading systems and their impact on the electricity sector. We have also worked extensively on legal issues that affect the application of state climate policies to interstate markets for electricity and transportation fuels.

¹ CAISO, Regional Integration – California Greenhouse Gas Compliance Initiative – Second Update (Oct. 13, 2016) (hereinafter “CAISO Presentation”), *available at* <http://www.caiso.com/informed/Pages/StakeholderProcesses/RegionalIntegrationCaliforniaGreenhouseGasCompliance.aspx>.

² CARB, Mandatory GHG Reporting Program and Cap-and-Trade Program Workshop – Energy Imbalance Market (EIM) (Oct. 21, 2016) (hereinafter “CARB Presentation”), *available at* <https://www.arb.ca.gov/cc/capandtrade/meetings/20161021/oct-21-workshop-slides.pdf>.

We are grateful for the details provided in CAISO's Technical Workshop on October 13 and appreciate the hard work that went into analyzing the market design options contained therein. We also thank CARB for providing its perspective on the regional GHG emissions accounting issues that arise in the Energy Imbalance Market (EIM), many of which also apply to the question of whether and how to expand CAISO's real-time and day-ahead energy markets in the context of a regional ISO. The detailed information from both CARB and CAISO is very helpful in focusing stakeholder conversations on the specific market mechanisms and policy issues under consideration. We believe that successful resolution of these issues is important to maintaining the environmental integrity of California's suite of climate policies.

Our comments today focus on five issues:

- **All of the market design concepts under consideration assume a price on carbon, but CARB only has clear legal authority to price carbon through the end of 2020.** If CAISO markets were expanded without clear legal authority to continue pricing carbon after 2020, this development would put California's climate leadership in jeopardy. We therefore urge stakeholders to condition CAISO expansion discussions on the successful legal authorization of post-2020 carbon pricing policy in California—and, if necessary, to delay CAISO expansion discussions until that time.
- **Policy and legal considerations for the EIM can and should be considered separately from those related to full integration of day-ahead and real time regional energy markets.** We note that while CAISO's overall process focuses on the integration of regional energy markets, both CAISO and CARB staff presentations address concerns with respect to potential EIM reforms. We respectfully ask CAISO and CARB staff to clarify the extent to which their proposed solutions for the EIM are also intended to apply to the full regionalization discussion. Our view is that the carbon prices needed to achieve California's post-2020 policy targets will be much higher than current prices. Put another way, the relatively low carbon price as applied in today's EIM is not representative of the likely market impacts and

dynamics in the post-2020 period. Accordingly, we believe it is a mistake to combine the discussion of potential EIM reforms with regionalization of the core energy markets.

- **Both proposals for Option 3 involve differential treatment of resources depending on their location and/or contractual arrangement with California load-serving entities (LSEs), raising new dormant commerce clause risks that require analysis.** CARB has proposed using dynamic average emissions factors to calculate the greenhouse gas compliance obligations associated with energy transferred into California territory. This will result in higher emissions factors for out-of-state renewable energy resources and potentially for natural gas combined cycle units located in areas where the average regional emissions factor is higher than that of natural gas. CAISO's preferred implementation of Option 3 contemplates retaining the source-specific emissions accounting in the current EIM, but supplementing this approach with a system "hurdle rate" that applies to resources imported into California. Both approaches consider exempting certain out-of-state resources that have bilateral contracts with California LSEs. CAISO proposes that any resource with such a contract would avoid the hurdle rate. In turn, CARB would give renewable energy resources with California contracts source-specific emissions factors. Both approaches raise significant new dormant commerce clause risks that require additional analysis.
- **The potential for post-2020 carbon prices to raise non-discrimination concerns under the Federal Power Act requires additional analysis.** Equal, non-discriminatory access to the transmission system for all generators is a central ordering principal of both the Federal Power Act and FERC Order 888. CAISO has not yet assessed the impacts on dispatch of realistic post-2020 California carbon prices under any of its proposals. These proposals also envision differential treatment of otherwise like resources in regional ISO-wide dispatch. We are concerned that differential treatment that may seem reasonable and not unduly discriminatory at a carbon price of \$12.73/tCO₂ might not be within the zone of reasonableness at a price

of \$50 to \$100 per tCO₂. Thus we believe that all proposals require further evaluation at much higher carbon prices than presented in the staff presentations.

- **CASIO’s and CARB’s proposals for Option 3 would place merchant generators at a disadvantage relative to out-of-state resources that contract with California LSEs.** Both the CAISO and CARB proposals for Option 3 would attribute emissions to resources with bilateral contract paths differently from those without them. At the high carbon prices expected after 2020, merchant zero-carbon resources—a crucial element in the CAISO analysis of the net benefits of a regional ISO—would face differential treatment that could significantly affect their economic competitiveness. CAISO should analyze this issue as it considers the question of non-discriminatory treatment under higher, post-2020 carbon prices.

We describe these issues and our recommendations in greater detail below. Before turning to our recommendations, however, we first summarize what we understand to be the positions taken by CARB and CAISO in their recent workshop presentations.

1. Summary of CAISO and CARB Presentations

As discussed in the CAISO presentation accompanying the Technical Workshop, CAISO considered three different ways to account for the regional GHG emission impacts in a regional energy market:³

- **CAISO Option 1 (“intertemporal netting”):**⁴ This option would involve calculation of the net GHG impact of regional transfers based on a counterfactual dispatch scenario generated separately from the market optimization algorithm. The “netting” of GHG emissions would occur over a medium-length period of time, *e.g.* weeks to months, not minutes to hours. If net GHG emissions as calculated are

³ CAISO Presentation, slide 15.

⁴ *Id.* at slide 16.

greater than the GHG emissions profile of the resources deemed delivered to California in the EIM, then CARB would retire additional cap-and-trade compliance instruments to cover the difference. If the net GHG emissions are less than or equal to the GHG emissions profile of the resources deemed delivered to California in the EIM, then no change to cap-and-trade compliance would be required.

- **CAISO Option 2 (“incremental deeming”):**⁵ This option would involve modification of the CAISO optimization algorithm based on retention of source-specific cost and GHG attributions. Transfers would be assigned by comparing the dispatch in an optimized regional market against a counterfactual “economic base” scenario that optimizes dispatch without transfers from outside California to California. Using this two-step calculation, CAISO would identify the marginal resources outside of California that serve California loads and their associated GHG emissions. Unlike Option 1, the calculation of GHG emissions would occur in each market period—*e.g.* in five-minute increments for the real-time energy market—as opposed to integrated over weeks or months. CAISO concluded that this method is not computationally feasible on the five-minute time scale.⁶
- **CAISO Option 3 (“residual emission rate” or “hurdle rate”):**⁷ This option would involve modification of the CAISO optimization algorithm to include a “residual emission rate” that accounts for the secondary dispatch concerns raised by CARB. This option would resemble Option 2 in that it calculates the GHG emissions of resources imported to California in real-time—*e.g.*, in five-minute increments for the real-time energy market—but differs in that the source-specific

⁵ *Id.* at slides 17-26.

⁶ *Id.* at slide 42. At the CAISO technical workshop, CAISO staff also expressed concern with adopting one method in the real-time market and another method in the day-ahead market. Because CAISO concluded that Option 2 is not feasible for the real-time market, this would imply that Option 2 should not be applied to the day-ahead market, either.

⁷ *Id.* at slides 27-41.

GHG emissions accounting would be augmented by the application of a “residual emission rate” that reflects leakage from secondary dispatch. CAISO indicated that out-of-state resources could avoid the hurdle rate by using bilateral contracting with California-based LSEs.⁸

In turn, CARB addressed each of these options in its presentation from Oct. 21, 2016. We review CARB’s responses and suggestions here:

- **CAISO Option 1:** CARB appears to have rejected this option, stating that it is not open to crediting GHG benefits from exports of relatively low-carbon resources located inside of California that displace generation from relatively high-carbon resources located outside of California.⁹
- **CAISO Option 2:** CARB expressed a willingness to consider this approach, but acknowledged CAISO’s objection on computational feasibility grounds.¹⁰
- **CAISO Option 3:** CARB expressed a willingness to consider this approach and suggested an alternative treatment for the GHG emissions. Instead of using source-specific GHG emissions, as would be the case under CAISO’s proposal for Option 3, CARB indicated a preference for accounting for GHG emissions using a five-minute *average* of power transferred into California.¹¹ CARB also suggested that out-of-state renewable generators that have procurement contracts with California load-serving entities be treated as zero-emissions resources that are not subject to the average-emissions-factor-derived “dynamic hurdle rate.”¹²

⁸ *Id.* at slide 28.

⁹ CARB Presentation, slide 6; *see also* CAISO Presentation, slide 42.

¹⁰ CARB Presentation, slide 7.

¹¹ *Id.* at slide 8.

¹² *Id.* at slides 8-9. Note that CARB only identified renewable resources as potentially taking advantage of this source-specific treatment; in contrast,

Based on CARB's objection to crediting the GHG benefits from exports from California under Option 1, as well as CAISO's statements about the computation infeasibility of applying Option 2 to its real-time energy markets, we understand that Option 3 appears to offer the only way to satisfy both entities' concerns at this time.

2. Successful CAISO regionalization depends on California developing a legally robust post-2020 carbon pricing policy.

As one of us (D.C.) noted in an earlier comment letter on CAISO's August 2016 Issue Paper, both of us (M.W. and D.C.) have expressed serious concerns about CARB's authority to extend the cap-and-trade program after 2020.¹³ This is because we believe the current cap-and-trade program is authorized only through the end of 2020:

In furtherance of achieving the statewide greenhouse gas emissions limit, by January 1, 2011, [CARB] may adopt a regulation that establishes a system of market-based declining annual aggregate emission limits for sources or categories of sources that emit greenhouse gas emissions, *applicable from January 1, 2012, to December 31, 2020, inclusive*, that [CARB] determines will achieve the maximum technologically feasible and cost-effective reductions in greenhouse gas emissions, in the aggregate, from those sources or categories of sources. [Emphasis added.]¹⁴

We note that every one of the options discussed by CARB and CAISO presumes state legal authority to price carbon. In the context of the pre-2020 EIM market operations, this is a valid assumption. As applied to the

CAISO identified all resources that have bilateral contracts with California LSEs.

¹³ Comment letter from Danny Cullenward to CAISO re: August 2016 Issue Paper (Sept. 20, 2016), *available at* <https://www.caiso.com/informed/Pages/StakeholderProcesses/RegionalIntegrationCaliforniaGreenhouseGasCompliance.aspx>.

¹⁴ Cal. Health & Safety Code § 38562(c).

creation of a regional ISO that will operate after 2020, however, it is not. We provided a complete discussion of the issue in an earlier comment letter to CARB and would refer interested stakeholders to that letter for more information.¹⁵

Fundamentally, we believe that stakeholders should condition the creation of a regional ISO on the successful resolution of California's post-2020 carbon pricing legal authority.

Given our view that CARB currently does not have the authority to price carbon after 2020, we also believe the timeframe for developing a final regional ISO proposal is overly ambitious. In order to preserve California's climate leadership in the context of a regional ISO, it will be necessary for the state to have clear legal authority to price carbon after 2020. Achieving that standard will require either a future ballot initiative or new legislation that satisfies the requirements of Proposition 26.¹⁶

Both the legislature and the Governor's office have indicated their intention to pursue appropriate legislation in 2017, but that process will not be resolved in time to finalize a regional ISO proposal in early 2017. As a result, CAISO's proposed schedule¹⁷ to develop a straw proposal for a regional ISO in November and a final proposal in December may need to be delayed.

¹⁵ Comment letter from Danny Cullenward and Michael Wara to CARB (Sept. 19, 2016) (comment #49), *available at* <https://www.arb.ca.gov/lispub/comm/bccommlog.php?listname=capandrade16>.

¹⁶ Cal. Constitution Art. XIII A § 3 (requiring a bicameral legislative supermajority for any change in statute that causes any taxpayer to pay higher taxes, as those terms are broadly defined).

¹⁷ CAISO Presentation, slide 46.

- 3. The EIM reform discussion should be separated from the question of how to integrate real-time and day-ahead energy markets in a regional ISO because western Clean Power Plan compliance strategies and the carbon prices required to meet California’s 2030 climate target will fundamentally alter the market dynamics present in the pre-2020 EIM.**

It appears to us that CARB and CAISO have integrated their discussion of potential reforms to the EIM with the question of how to design a future regional ISO market. The most recent CAISO presentation focuses on potential EIM reforms, but takes place in a process focused on regional ISO market design; it is not entirely clear whether the EIM reforms CAISO discusses are intended to apply to the regional ISO market design discussion.¹⁸ For its part, CARB appears to be focused primarily on concerns about the current operation of the EIM.

While it would of course be desirable to design a set of practices for the EIM that could be ported to future regional ISO markets, we think that combining the two processes confuses two key issues that will be material to success in each market design process. The first relates to the likelihood that multiple carbon pricing systems will be developed in the Western United States and the second concerns the likelihood that California carbon prices will be significantly higher in the post-2020 period.

First, as was pointed out by Berkshire Hathaway Energy in its comments on the August 2016 Issue Paper, any system for the regional ISO must be capable of managing multiple carbon pricing regimes. Assuming the Clean Power Plan survives review in the D.C. Circuit, it is likely that at least some western States will pursue carbon pricing schemes for their power sectors. Nevertheless, we believe it is unlikely that potential partner jurisdictions in a regional ISO will pursue economy-wide cap and trade or regulation of sufficient stringency to allow for linkage with the California

¹⁸ *Id.* at slide 7 (indicating CAISO’s participation in CARB’s public stakeholder process addressing the GHG impacts of the EIM and indicating that CAISO has not yet decided if proposed EIM solutions are “scalable to day-ahead [markets in] a multi-state balancing authority area”).

cap-and-trade program under the requirements of SB 1018.¹⁹ As a result, we believe that the most likely Clean Power Plan compliance scenario will involve multiple carbon pricing regimes in the Western United States, rather than a single integrated system managed in collaboration with CARB.

In addition, CARB has signaled—not least in its response to Option 1—that it objects to the concept of allowing GHG emission credits for zero-emission generation that is exported from California to neighboring states. This is consistent with the idea that California does not want its anticipated over-compliance with Clean Power Plan targets to facilitate under-compliance in other regional ISO member jurisdictions. CARB’s concern is particularly pressing if such over-compliance occurs because of RPS-related bilateral contracts with California LSEs that are ultimately the financial responsibility of California ratepayers.

The need to manage multiple carbon pricing regimes within the regional ISO counsels for separating that market design process from the EIM greenhouse gas accounting reforms CARB has initiated, since the EIM reforms necessarily focus on California’s pre-2020 cap-and-trade market regulations. The likelihood of multiple carbon pricing regimes also calls for broadening the set of stakeholders involved in that separate regional ISO related process to include air regulators and utilities from potential partner jurisdictions— perhaps once there is a decision regarding the Clean Power Plan from the D.C. Circuit Court of Appeals in 2017.

Second, the carbon prices required to achieve California’s new 2030 climate target are very likely to be much higher than past experience or future expected prices for the current system. Current prices in the California cap-and-trade market reflect oversupply of allowances that is likely to continue to at least some degree until 2020.²⁰ However, the rate

¹⁹ Cal. Gov. Code § 12894(f).

²⁰ Severin Borenstein, James Bushnell, Frank Wolak, and Matt Zaragosa-Watkins, *Expecting the Unexpected: Emissions Uncertainty and Environmental Market Design*, Energy Institute at Haas Working Paper 274 (August 2016), 4; *see also* Danny Cullenward & Andy Coghlan, *Structural*

of absolute reductions in greenhouse gas emissions is set to increase by a factor of 10 beginning in 2021. Between 2014 and 2020, emissions under the cap must fall at a rate of about 1.4 million metric tons (MMT) per year in order to achieve the 2020 target.²¹ By contrast, between 2021 and 2030, emissions under CARB's proposed extension to cap-and-trade are set to fall by 13.3 MMT per year.²² This dramatic increase in the pace of reductions raises the odds that the system could flip between carbon prices at the price floor and carbon prices at the Allowance Price Containment Reserve (APCR) price, or even higher. That possibility is further supported by modeling work showing that prices in the cap-and-trade have a bimodal probability distribution that tends to rest at either the Auction Reserve Price or prices above the APCR price, with low probabilities of stable market prices in between these two thresholds.²³

Thus, for practical planning purposes, there are two carbon price regimes that CAISO should analyze: the pre-2020 market (characterized by low carbon prices at the market price floor) and the post-2020 period (likely characterized by much higher prices). Consistent with PG&E's comments on the Issue Paper, we recommend addressing these two market periods in separate processes. One process could focus on the paired EIM and pre-

oversupply and credibility in California's carbon market, *The Electricity Journal* 29: 7-14 (2016).

- ²¹ Overall statewide emissions have to fall at approximately 1.7 MMT per year between 2014 and 2020 to achieve the 2020 target. We assume that covered emissions represent 77% of this value, consistent with recent CARB analyses. CARB, California Greenhouse Gas Emission Inventory – 2016 Edition (June 2016), available at <https://www.arb.ca.gov/cc/inventory/data/data.htm>.
- ²² CARB, Public Hearing to Consider the Proposed Amendments to the California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms, Staff Report: Initial Statement of Reasons (Aug. 2, 2016), at 12, available at <https://www.arb.ca.gov/regact/2016/capandtrade16/capandtrade16.htm>. We note that a similar increase in the rate of GHG reductions—about a factor of 10—is required when one looks at statewide emissions, not just emissions under the capped sectors and pursuant to CARB's proposal for what those sectors must achieve by 2030. See CARB, *supra* note 21.
- ²³ Borenstein et al., *supra* note 20 at 4.

2020 cap-and-trade reforms, consistent with CARB's interests. The other process could focus on the paired regional ISO and post-2020 carbon pricing. Separating the discussions would increase clarity and to some degree narrow the scenarios about which analysis and consensus is required.

To further reinforce our point, we note that in the examples presented in CASIO's August 2016 Issue Paper and the October Technical Workshop Presentation included greenhouse gas prices that varied between \$0/MWh and \$6/MWh.²⁴ In combination with recent grid average emission factors of 0.428 tCO₂/MWh²⁵ this implies a range of carbon prices from \$0 to \$14.02 per tCO₂.²⁶ This is far below the price levels that CARB estimates for the APCR in the post-2020 period—\$77/metric ton and above—in its recent regulatory amendments package.²⁷ Prudence requires insuring that any method for building a GHG adder into bids functions well at both high and low prices. We also note that at a price of \$80/tCO₂ and above, the carbon price for average generation in the regional ISO would be \$34/MWh—very close to current total wholesale energy costs in the ISO²⁸ and likely higher than current wholesale energy prices in jurisdictions that might join a regional ISO.

As a result, we believe that accounting for the GHG emissions associated with interstate transfers of electricity structures should be treated separately in the context of the EIM and regional ISO market designs.

²⁴ CAISO Presentation, slides 9-39.

²⁵ CAISO, Western EIM Benefits Report, Third Quarter 2016, at 6 (October 26, 2016), *available at* <https://www.caiso.com/informed/Pages/EIMOverview/Default.aspx>.

²⁶ If the largest carbon price used in these discussions—\$6/MWh—is meant to represent the effect on a coal power plan, the implied carbon price would be more in the range of \$6-7/tCO₂.

²⁷ CARB *supra* note 22, at 15.

²⁸ CAISO, 2015 Annual Report on Market Issues and Performance (May 2016), at 60, *available at* <https://caiso.com/market/Pages/MarketMonitoring/MarketIssuesPerformanceReports/Default.aspx>.

CARB and CAISO will need to anticipate multiple carbon prices in the regional ISO context; they will also need to analyze the much higher carbon prices in California that are likely in the post-2020 period. In developing options for a regional ISO greenhouse gas accounting proposal, CAISO should perform additional analysis to consider impacts of GHG prices that equal or even exceed present day wholesale energy prices.

4. The specific market mechanisms suggested by CAISO and CARB under Option 3 raise significant new dormant commerce clause risks that should be evaluated in more detail.

CAISO and CARB have proposed distinct mechanisms for implementing Option 3. Each raises potential dormant commerce clause risks; both share a common risk related to bilateral energy contracts with California LSEs. We address each in turn.

A complete analysis of the dormant commerce clause is beyond the scope of this comment letter. In brief, state laws that discriminate against interstate commerce must be no more discriminatory than is strictly necessary to support a compelling state interest. In contrast, state laws that have only incidental impacts on interstate commerce face a more lenient balancing test. A party that raises a dormant commerce clause challenge can show that the state law is discriminatory on its face, in its purpose, or by its practical effects.

The leading case on these issues concerns the constitutionality of CARB's Low Carbon Fuel Standard (LCFS) and is known as *Rocky Mountain Farmers Union v. Corey*.²⁹ One of us (D.C.) represented *amici* on behalf of CARB in this case; both of us strongly support the case's holding that California may use the best available scientific information to account for interstate GHG emissions in its climate policies.

²⁹ *Rocky Mountain Farmers Union v. Corey*, 730 F.3d 1070 (9th Cir. 2013), *cert. denied* 134 S.Ct. 2875 (2014).

We are concerned that the proposals under Option 3 would move away from a core premise in *Rocky Mountain Farmers Union*'s holding: that out-of-state resources are able to opt into a source-specific GHG calculation. While the Ninth Circuit majority found that CARB's use of regional calculations to assess the GHG emissions from corn-based ethanol was not facially discriminatory, an important component of the majority's reasoning was the ability for any regulated party to request an individualized calculation of its source-specific GHG emissions.³⁰ The dissenting judge went a step further, objecting to the use of average GHG emissions calculations that were less favorable than in-state GHG emissions calculations. She would have required use of individualized, source-specific GHG calculations as a remedy.³¹

Under CARB's proposal for Option 3, the GHG accounting for resources imported to California from the EIM would shift away from source-specific accounting to regional average accounting. CARB would impose a "dynamic hurdle rate" that calculates the *average* GHG emissions rate of external resources delivered to California on five-minute increments. In contrast, all generating resources inside California would receive source-specific treatment under the cap-and-trade program. This decision raises significant dormant commerce clause risks because it produces situations where similarly situated power plants receive differential treatment merely on the basis of their location, as discussed below in more detail.

Under CAISO's proposal for Option 3, the market optimization algorithm would include a "hurdle rate" that applies in addition to the source-specific GHG price to resources that are willing to be deemed dispatched to California territory. The hurdle rate is proposed on a constant \$/MWh basis, not on a basis that reflects the source-specific resources to which it applies. The hurdle rate would not apply to generating resources in

³⁰ *Id.* at 1082, 1084, 1093-94 (discussing individualized calculations of GHG emissions under LCFS Methods 2A and 2B).

³¹ *Id.* at 1109 (Murguia, J., dissenting) (arguing that CARB's regional average GHG emissions factors in Table 6 of the LCFS regulations are facially discriminatory and that the only appropriate remedy is to rely exclusively on source-specific calculations, *e.g.* under Methods 2A and 2B).

California. We are not sure exactly how CAISO would apply the hurdle rate and request additional clarification on this point. If the hurdle rate is applied to out-of-state resources, but not to in-state resources, dormant commerce clause concerns might be present. On the other hand, if the hurdle rate is merely charged to California LSEs (or other in-state parties) to account for the leakage impacts of secondary dispatch not captured in CAISO's source-specific GHG emissions attribution—and if the hurdle rate is not used to affect the dispatch algorithm directly—then this approach would raise significantly lower dormant commerce clause risks.

Under both CARB's and CAISO's proposals for Option 3, certain resources that have bilateral contracts with California LSEs receive preferential treatment. Under CARB's proposal, only renewable resources with bilateral contracts receive source-specific emissions attribution; all other (merchant) renewable resources dispatched to California would receive positive, non-zero GHG emission attributions.³² Under CAISO's proposal, any resource with a bilateral contract with a California LSE would apparently be exempted from the hurdle rate, even as all resources receive source-specific GHG attribution. As a result, both proposals contemplate a different accounting standard for out-of-state resources that have contracted with California LSEs as compared to similarly situated resources that lack contracts with California LSEs.

The practical effect of both proposals is to preferentially treat resources that contract with California LSEs or are located in California on more favorable terms. For example, a wind power plant located in Wyoming that contracts with a California LSE would be treated as a zero-carbon resource under both proposals—as would any wind power plant located in California. In contrast, a wind power plant located in Wyoming without a contract with a California LSE would be assigned a non-zero regional GHG emissions factor (under CARB's proposal) or be subject to an additional hurdle rate (under CAISO's proposal).

³² We note the term “renewable” is not defined in CARB's proposal.

A similar situation could apply to out-of-state natural gas combined cycle (NGCC) resources. Under CARB's proposal, an out-of-state NGCC resource that is located in a region whose average emissions are higher than NGCC emissions would be assigned a higher GHG emissions rate than would a similarly situated plant located in California because the California NGCC resource would be subject to source-specific GHG accounting, whereas the out-of-state NGCC resource would be subject to regional average GHG emissions accounting. Under CAISO's proposal, if the out-of-state NGCC resource has a bilateral contract with a California LSE, it would avoid application of the hurdle rate and therefore receive preferable treatment compared to a similarly situated NGCC resource that lacks a bilateral contract.

Again, a complete analysis of the dormant commerce clause risks is beyond the scope of this comment letter. Indeed, we need further clarification on the precise mechanisms proposed by stakeholders to properly analyze the relevant legal risks. Our purpose here is to illustrate that these risks are real, significant, and deserve greater attention in the technical market design discussions going forward. We respectfully request that CARB and CAISO directly address these considerations in the next iteration of market design discussions.

5. Option 3 also raises undue discrimination concerns under the Federal Power Act that require further analysis by CAISO—especially in light of the higher carbon prices expected in the post-2020 period.

We also urge CAISO and CARB to consider possible Federal Power Act concerns regarding the proposed modifications to the EIM Greenhouse Gas Bid Adder—and, more importantly, the treatment of greenhouse gas compliance obligations under a regional ISO. The transfers associated with current EIM function are relatively modest; FERC has been generous in accommodating the request of participating members for flexibility in its

implementation. This is most notable with respect to the obligation for participating members to pay the ISO Transmission Access Charge.³³

In contrast, we expect FERC (and any reviewing court) to be much more concerned with ensuring non-discriminatory treatment in the context of a full regional ISO. A fundamental obligation for all wholesale market operators is to ensure that their tariffs treat all users of the transmission system equitably. Indeed, the entire justification for the functional unbundling at the heart of the ISO model is the need to avoid unjust and undue discrimination in access to the high voltage transmission network.³⁴ This obligation to ensure that rates do not unduly discriminate is not a precise requirement—it is an obligation that rates be set within a zone of reasonableness.³⁵ But what is reasonable depends on the circumstances.

If CAISO were to expand into a regional ISO, the circumstances present in the EIM would not be representative of the future. Fundamentally, California’s current cap-and-trade program and its associated carbon prices are not a good proxy for the post-2020 system. Foreseeable carbon prices in the post-2020 period might create very different outcomes than either the simplified scenarios presented in the CAISO Presentation or in the more complete analysis that CAISO refers to, but does not actually include in its Presentation.

Furthermore, as discussed above, both CARB and CAISO propose variations on Option 3 would treat merchant power plants differently than power plants operating under bilateral contracts with California LSEs. At the same time, CAISO’s analysis of the benefits of regionalization suggests

³³ Cal Indep. Sys. Operator Corp., 147 FERC 61,231 (2014), 53-56.

³⁴ New York v. FERC, 535 U.S. 1, 10-12 (2002); *see also* FERC, Order No. 888, Promoting Wholesale Competition Through Open Access Non-Discriminatory Transmission Services by Public Utilities; Recovery of Stranded Costs by Public Utilities and Transmitting Utilities, 61 Fed. Reg. 21540, 21541-21542 (May 10, 1996).

³⁵ *See* Permian Basin Area Rate Cases, 390 US 747, 767 (1968) *citing* FPC v. Natural Gas Pipeline Co., 315 U.S. 575, 585-586 (1942).

that additional-to-RPS wind might enter the market on a merchant basis.³⁶ We suggest that by the mid-2020's, it is reasonable to assume that merchant solar might also be interested in deploying in a regional ISO, as is beginning to occur in ERCOT.³⁷

CAISO's and CARB's policy proposals under Option 3 raise the prospect of an out-of-state renewable generator receiving differential treatment depending on whether or not it has a bilateral contract with a California LSE. These concerns are magnified in a post-2020, high carbon price scenario. Under CARB's proposal, the renewable resource is assigned a carbon adder of \$0/MWh if it has a bilateral contract, whereas the merchant generator will face a positive price under CARB's use of average emission rates for imports. Similarly, under CAISO's proposal, a renewable resource with a bilateral contract does is not obligated to pay the hurdle rate, whereas a merchant generator will face the hurdle rate. As discussed above, post-2020 carbon prices will likely be much higher than either at present or as simulated in the CAISO Presentation, illustrating the potential for the disparate impacts to merchant generators growing over time under either approach to Option 3.³⁸

We think this problem merits further analysis in order to avoid a claim that treatment of similarly situated generation is unduly discriminatory under the CAISO tariff. The large foreseeable increase in the carbon price might well lead to increases in the differential treatment between merchant and non-merchant resources under Option 3 that might place the tariff beyond the zone of reasonableness as determined by FERC or a reviewing court.

³⁶ CAISO, Senate Bill 350 Study: The Impacts of a Regional ISO-Operated Power Market on California (July 8, 2016), at I-65 to I-66.

³⁷ *Id.*

³⁸ CAISO has requested input on how to set the hurdle rate. CAISO Presentation, slide 41. We do not mean to suggest that the hurdle rate need necessarily scale 1:1 with the carbon price. With significantly higher post-2020 carbon prices, however, it seems likely that the hurdle rate will need to increase at a roughly comparable rate to accomplish its purpose.

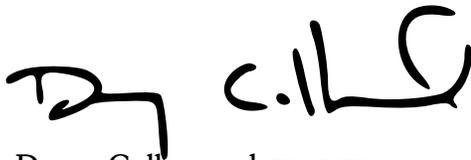
In conclusion, Option 3 raises significant undue discrimination issues, especially with respect to merchant generators and in the presence of higher carbon prices. We urge that CAISO rerun its models to simulate these much higher carbon price levels. Only then will CAISO and CARB be able to fully consider the likely impacts from Option 3 as it develops its straw proposal.

Thank you for the opportunity to comment on both presentations. Again, we are very grateful for the extensive detail provided by both CAISO and CARB and look forward to continued discussions in the future. If we can provide additional information, please feel free to contact us.

Sincerely,



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Disclaimer: we are writing in my personal capacities only, not on behalf of our employers, affiliates, or any other organizations.



Valley Electric Association, Inc. Comments to the California Air Resources Board on the Cap and Trade Regulation Amendments Workshop

November 4, 2016

Valley Electric Association, Inc. (VEA) appreciates the opportunity to provide input to the California Air and Resources Board (ARB) on its consideration of possible amendments to the Cap and Trade regulation as discussed at the recent workshop held on October 21, 2016.

VEA has a vested interest in the solution reached by ARB and the ISO to address the EIM GHG “leakage” concern regarding proper assignment of GHG costs to resources outside of California; VEA currently incurs significant costs due to a misalignment between the current GHG accounting mechanism and its application to non-California CAISO load, such as VEA’s Nevada load.

During the workshop, ARB engaged in discussions on 1) options for addressing the EIM GHG “leakage” concern and 2) proposed changes to the carbon allowance program. The comments herein primarily focus on the former discussion and potential adverse impacts on VEA with any potential solution. VEA previously submitted comments to ARB regarding consideration of possible amendments to the Cap and Trade and Mandatory Reporting Requirements program, which contained potential remedies to ARB’s improper treatment of non-California load served through the CAISO. While those comments are not reiterated here, VEA looks forward to continuing working with ARB to address those matters as well as remedy the inappropriate treatment of VEA.

During the workshop, ARB discussed options for addressing the GHG EIM “leakage” concern. Some of the options were those recently raised by the CAISO at the latest Regional GHG technical workshop,¹ including a two-pass approach and a hurdle rate approach. The two-pass approach would assign the carbon obligations to resources based on incremental dispatch against a presumed baseline dispatch. Whereas the other option would apply a hurdle rate, or a predetermined additional adder, to all resources. ARB also noted potential solutions could be variations of the two-pass or hurdle rate approaches and was also open to stakeholder proposals.

Notwithstanding VEA’s broader policy objectives of seeing a multi-state GHG policy implemented, VEA has a specific concern with any pursued solution to the GHG EIM “leakage” concern as it relates to non-California load, such as VEA’s Nevada load. As currently discussed, options may either assign a residual amount of carbon obligations to California load or may

¹ The ISO hosted a Regional GHG technical workshop to discuss three potential solutions to address ARB’s GHG EIM “leakage” concern. <http://www.caiso.com/Documents/Agenda-Presentation-RegionalIntegrationCaliforniaGreenhouseGasCompliance-TechnicalWorkshop.pdf>



Valley Electric Association, Inc.

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impose additional costs passed onto California through LMPs. Given that the goal of the adjustment is to ensure that the benefits of the resources being used to serve California load should be borne by California load under the cap and trade program, VEA believes it would be inappropriate to allocate any incremental costs through direct assignment or LMPs to VEA's *Nevada* load. Without careful treatment to exclude VEA's Nevada load from any treatment that would otherwise apply to CAISO load the GHG leakage resolution would further worsen the adverse impacts that VEA's Nevada load is experiencing since taking its service through the CAISO.

In short, VEA asks that within any proposed policy ARB ensures it aligns with the intention of the Cap-and-Trade regulation in that only California load be subject to the costs of the carbon policy.

VEA urges ARB to carefully consider the comments herein, and those iterated in VEA's previously submitted comments, and take action to ensure proper application of ARB's policies to VEA.

Daniel Tillman
Executive VP-Administration & Finance
Valley Electric Association, Inc.,
(775) 727-2110,
dant@vea.coop

November 4, 2016

California Air Resources Board
1001 I Street
Sacramento, CA 95814

Re: Comments of Shell Energy on Potential Amendments to the Cap and Trade Regulation

To: Air Resources Board:

In accordance with the process established in connection with the October 21, 2016 workshop addressing potential amendments to the cap and trade regulations, Shell Energy North America (US), L.P. (“Shell Energy”) provides its written comments on the ARB Staff’s October 14, 2016 proposals. As a general matter, Shell Energy supports continuation of the market-based cap-and-trade program to meet the State’s GHG emission reduction goals, including the goals articulated in AB 197.

Shell Energy’s specific comments address three issues: First, the ARB should at least maintain the existing maximum limit of eight percent for “offset credits” to be used to meet a covered entity’s compliance obligation. Second, the Mandatory Reporting Regulation (“MRR”) should be updated to include specific NERC e-Tag requirements for LSEs claiming the RPS adjustment for Portfolio Content Category 2 claims. Third, the criteria pollutant issues identified in AB 197 should be addressed by local air quality management districts, and provided to ARB to avoid duplication. Local air quality districts should report their information to the ARB for aggregation and submission to the joint legislative committee.

I.

THE CAP AND TRADE PROGRAM PROVIDES AN EFFICIENT, COST-EFFECTIVE, MARKET-BASED STRUCTURE TO MAXIMIZE GHG EMISSION REDUCTIONS AND MEET STATUTORY OBJECTIVES

Shell Energy supports continuation of the cap and trade program beyond 2020. The ARB concluded, in 2011, that a market-based mechanism provides proper incentives and opportunities for obligated entities to meet their GHG compliance obligations. The ARB established compliance instruments, an auction mechanism, and trading protocols that, in combination,

provide a market-based platform for achieving the State's GHG emission reduction goals. The cap and trade program provides a structured market through which a value is attached to GHG compliance, and obligated entities, as well as opt-in covered entities and voluntarily associated entities, may use verifiable compliance instruments to achieve GHG emission targets.

A market-based structure is cost-effective and efficient in achieving reduced GHG emissions on a statewide basis. A market-based structure is preferable to a top-down structure or a "tax" that imposes costs without regard to creating workable incentives for GHG reductions and compliance. Imposition of a "tax" increases the potential for "leakage" versus a cap and trade program with an accompanying loss of employment and significant societal costs. The cap and trade program should be extended beyond 2020 to meet the requirements of AB 32 and AB 197.

II.

THE EIGHT PERCENT "CAP" ON THE USE OF OFFSET CREDITS FOR GHG COMPLIANCE SHOULD BE AT LEAST MAINTAINED

The current maximum limit of eight percent for use of offset credits for compliance should be at least maintained. The ARB has developed detailed regulations addressing the eligibility of offset projects for compliance, approval of offset protocols, and independent verification of GHG emission reductions from offset projects. The ARB has linked California with other jurisdictions to encourage the development of offset projects to meet covered entities' increasing compliance obligations over time.

As each obligated entity's compliance obligation increases in 2020 and beyond, covered entities must be able to rely upon offsets, in addition to other compliance instruments, to meet the State's GHG compliance obligation. Covered entities must be permitted to manage the increasing cost of compliance with a portfolio of market-based compliance instruments. Reducing the level of permissible use of offsets to meet a covered entity's compliance obligation will result in an increased cost burden that will reduce the competitiveness of a covered entity in its applicable market. Any reduction in the applicability of offsets may have unintended consequences that could ultimately increase emissions if entities are not able to economically meet their obligations. In addition, offset projects have ancillary benefits (e.g. reforestation) that further increase their value in an effective cap and trade program.

III.

RPS ADJUSTMENT CLAIMS ASSOCIATED WITH PCC2 PRODUCTS SHOULD BE SUPPORTED BY APPLICABLE NERC E-TAG REQUIREMENTS

The Staff's October 14 proposal seeks to continue the RPS adjustment after 2020 with the "existing reporting and verification requirements pursuant to the [MRR] and as outlined in the 2011 [Final Statement of Reasons]." Staff Proposal at p. 4. The RPS adjustment applies to the importation of out-of-state RPS-eligible generation that qualifies as grandfathered renewable energy contracts ("PCC0") and qualifies under P.U. Code Section 399.16(b)(2), also known as Portfolio Content Category 2 resources ("PCC2"). PCC2 is one of three categories of compliant RPS products under California's RPS procurement requirement and it is necessary and possible to differentiate required data for verification depending upon the type of product to which the LSE is applying for the RPS Adjustment.

Under current rules, the RPS adjustment is available to all first deliverers of electricity. The RPS adjustment reduces a first deliverer's GHG compliance costs, which costs in turn are passed through to the first deliverer's wholesale and retail sales customers. The RPS adjustment is effective in compensating all first deliverers of electricity (and their ultimate customers) for the GHG compliance obligation incurred by electricity importers for PCC2 energy or other renewable energy that cannot be delivered to California in real-time. Shell Energy supports retention of the RPS adjustment for a first deliverer's importation of renewable energy generation; customers have already paid a premium for these products.

In order to ensure accurate accounting, the MRR should be updated to include specified NERC e-Tag requirements when claiming the RPS Adjustment for PCC2 products. An entity claiming the RPS adjustment for PCC2 must be able to provide evidence that the "unspecified" import tag has been matched in WREGIS to an out-of-state REC. This requirement currently exists in the RPS program in order to be deemed PCC2 eligible.¹

Currently, the MRR requires that in order to claim the RPS Adjustment, an obligated entity provide evidence that renewable power purchased out-of-state is not directly delivered in-state. In most cases, power under PCC2 contracts that is scheduled from the source, sinks in an out of state balancing authority without generating NERC e-Tags, so providing evidence under

¹ California Energy Commission Renewable Portfolio Standard Eligibility Eighth Edition CEC-300-2015-001-ED8-CMF June 2015 (p. 65): "In all cases, the REC(s) and the accompanying e-Tag(s) shall be from the same calendar year, and the e-Tag(s) shall identify the facility that produced the RECs by either including the RPS ID for the facility in the miscellaneous field, listing the facility name as the source on the e-Tag, or both."

this direction is problematic. Obligated entities can provide contracts to support this request, however; with respect to PCC2, the NERC e-Tag protocol provides the information ARB needs in the reporting template itself. It is preferable for ARB to require a first deliverer provide the same evidence that it provides to the Energy Commission or California Public Utilities Commission to demonstrate PCC2 eligibility in compliance with the State's RPS. The Commissions verify the eligibility of all PCC 2 quantities claimed by LSEs in California. The RPS adjustment can and should be matched against the same NERC e-Tag protocol required to verify the PCC 2 quantities rather than requesting obligated entities provide undefined and unsupported evidence that out of state resources were not directly delivered.

VI.

“CRITERIA POLLUTANTS” AND “TOXIC AIR CONTAMINANTS” SHOULD NOT BE ADDRESSED THROUGH THE CAP AND TRADE PROGRAM

AB 197 directs the ARB to report annually to a joint legislative committee, and to post on its website, statewide information on GHG emissions, criteria pollutants, and toxic air contaminants, broken down on a local and subcounty level. The statute provides that an inventory of sources of “air pollution” “shall use, to the fullest extent, the data of local agencies and other state and federal agencies in fulfilling this purpose.”

AB 197 also requires the ARB, when adopting rules to achieve emission reductions beyond the statewide GHG emissions limits, to “protect the state’s most impacted and disadvantaged communities,” and to “consider the social costs” of GHG emissions. The statute calls upon the ARB to update each “scoping plan” by identifying, for each emission reduction “measure,” the range of projected GHG emissions reductions, the range of projected air pollution reductions, and the cost-effectiveness, “including avoided societal costs.”

As noted above, AB 197 does not alter the validity of the cap and trade program as a means to incentivize GHG emission reductions. The benefit of the cap and trade program is statewide, minimizing societal costs and maximizing GHG emission reductions in all communities including low income communities.

With respect to criteria pollutants and toxic air contaminants, ARB should avoid developing potentially duplicative and contradictory regulation. Criteria pollutants and toxic air contaminants should be addressed by local air quality management districts and reported to ARB to inform the existing regulations as they focus on accounting for and reducing GHG emissions.

V.

CONCLUSION

Please do not hesitate to contact the undersigned with any questions you may have regarding the foregoing comments.

Sincerely,



John W. Leslie
Dentons US LLP
Attorneys for Shell Energy North America (US), L.P.

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Our Culture Unites us; Our Land Sustains us; Our People are Prosperous

November 4, 2016

Via Electronic Submission

California Air Resources Board
1001 I Street
Sacramento, CA 95812

Re: Comments of Ahtna, Inc. on ARB's October 21 Cap-and-Trade Regulation Workshop and the Proposal to Reduce the Offset Credit Usage Limit

Dear Air Resources Board Staff:

We thank you for providing the opportunity to comment on the California Air Resources Board's ("ARB's") presentation at the October 21 stakeholder workshop. Specifically, we wish to address that portion of the workshop dedicated to AB 197 and Post-2020 Cap-and-Trade Program Design. Our concerns center on the potential post-2020 design change of reducing the current offset credit usage limit of 8%.

Ahtna, Inc. ("Ahtna") is an Alaska Native Regional Corporation established under the Alaska Native Claims Settlement Act. We represent nearly two thousand shareholders, almost all of them of Ahtna Athabascan descent. We are committed to preserving, strengthening, and enhancing our cultural identity, which includes protecting our lands and resources for our future generations. We hold title to roughly 1.6 million acres of land in Southeast Central Alaska. Our region includes 600,000 acres within America's largest National Park, Wrangell St. Elias, and holdings in Denali National Park, home of North America's tallest peak. We manage our lands in accordance with cultural and traditional uses and values, conservative development strategies, and principles of culturally appropriate stewardship. Ahtna plans on registering a large forest offset project as it is in keeping with our values and cultural identity.

In the 1970's, our leaders assisted in establishing the Trans-Alaska Pipeline System ("TAPS") by setting aside a 55-mile corridor through our fee-simple lands to provide for the 48-inch diameter pipeline. Seventeen billion barrels of oil have traveled through our lands via TAPS in a safe and environmentally sound manner. The revenue we now generate from TAPS is but a fraction of what it was years ago, with the pipeline running at 25 percent capacity due to the fall of oil and gas prices. Further, our resources are unique in Alaska in that they are completely accessible by road, thus making them prime candidates for exploitation. We are currently pitted in a struggle between maintaining our cultural values in the management of our

land and providing economic stability to our shareholders. Participating in California's offset program would alleviate this struggle by providing economic benefits to our shareholders through, not instead of, sustainable environmental practices.

Our people experience firsthand the negative impacts of climate change. California has been a national and international leader in the fight against a warming climate. ARB thus knows full and well that climate change requires a global solution. The offset program has been effective in banding together forces across borders to join this fight. We believe that if ARB reduces the ability to use offset credits for compliance purposes it may very well threaten a program that can prove essential in bringing the needed global approach to the fight against global warming.

The other benefits of the program cannot go unnoticed. Offset credits help to avoid market volatility by providing a reliable and reasonably priced means of compliance. Millions of tons of carbon have been sequestered by thousands of acres of forests due to the offset program. Wildlife habitat has been preserved on a massive scale. These properly managed forests stand as a testament to each forest owner's commitment to the benefit of future generations. It is this same commitment that Ahtna hopes to make through participating in the program.

We understand the felt injustice experienced by those communities that have suffered because of resource development. It is this exact same predicament that the offset program avoids by providing a means of economic opportunity in step with environmental conservation. We have strived to maintain a proper balance between the economic needs of our shareholders, our cultural identity, and our commitment to environmental stewardship. The offset program allows us to do so while maintaining our ancient values and way of life.

By reducing the offset credit usage limit, ARB would be directly threatening all of the above-mentioned benefits. It would reduce compliance cost stability, erode the program's capacity to unify a global front against climate change, and reduce the incentives to preserve natural resources over damaging resource development. Ahtna thus requests that ARB forego reducing the offset credit usage limit post-2020.

Sincerely,

A handwritten signature in black ink that reads "Michelle Anderson". The signature is written in a cursive, flowing style.

Michelle Anderson
Ahtna, Inc. President



CAP-AND-TRADE REGULATION AMENDMENTS WORKSHOP

The Climate Solutions Group Limited (CSG) is engaged in the business of bringing capital to bear on activities that fight climate change using the mechanisms created by the cap and trade (C and T) laws of California, Quebec and now Ontario as well as the offset creation and trading opportunities created in the Provinces of Alberta and British Columbia. We hope to expand our operations to other jurisdictions as similar systems and opportunities are adopted/created.

Some of the principals of CSG have deep experience with emissions trading in international markets, the existing WCI markets, the Alberta and British Columbia markets and voluntary offset markets. As such, we appreciate the consultation undertaken by the California Air Resources Board (ARB) with respect to the existing California C and T system.

Our experience and analysis leads us to the conclusion that:

Offsets are an essential part of a C and T system and that the creation and expanded use of offsets should be fostered by ARB.

Offsets reach outside the covered sectors to find low cost greenhouse gas (ghg) emission reductions that reduce the cost of compliance for covered sectors and provide opportunities for participation in the fight against climate change to economic and other sectors (like forestry, agriculture, ranching and other animal husbandry and chemical and organic waste management that otherwise find participation challenging. Offset creation



and use engages with business training and capacities throughout the economy and directs creative initiatives using those skills and resources into enterprises that are intended to be profitable and which are directed specifically to ghg emission reduction activities.

We strongly support the continuation of at least the current permitted use and ability to create offsets but also the expansion of the limit on emissions that can be covered with offsets to 20% or more (from the current 8%) and of the number of science-based and environmentally robust protocols for offset creation, for example ,to be more in with Alberta where over 30 protocols are available.

We would be pleased to expand on our views and our role in introducing capital into the C and T markets, particularly into offset creation and use. Thank you for the opportunity to be heard.

Yours sincerely,

Gray Taylor, General Counsel and a Principal

November 4, 2016

Rajinder Sahota
Branch Chief California Cap-and-Trade Program
California Air Resources Board (CARB)
1001 I Street Sacramento, CA 95814

Dear Ms. Sahota,

Thanks to you and all CARB staff for your hard work and excellence at the forefront of climate policy development and implementation. This letter offers comment on the proposals discussed at the cap-and-trade workshop that took place on October 21, 2016.

We support the proposal to retire unsold allowances at the end of 2020. This is an essential step for adjusting to the oversupply of allowances that has become clear, for example in recent auctions results, with some allowances going unsold at the auction reserve price. CARB's own analysis has demonstrated that an oversupply of allowances in excess of covered emissions is likely to continue through 2020. This is evident in slide eight of [the staff presentation](#) to the March cap-setting workshop, which shows approximately 300 MMT (million metric tons of carbon dioxide equivalent) of emissions under the cap in 2020 as compared to the cap level of over 330 MMT in that same year.

ADJUST POST-2020 CAPS TO ACCOUNT FOR BANKED ALLOWANCES ACCUMULATED BY THE END THE THIRD COMPLIANCE PERIOD IN 2020

Our principal recommendation is to adjust post-2020 cap levels to account for the number of banked allowances at the end of the 3rd compliance period. Specifically, a number of allowances equal to the size of the bank should be removed from the allowance levels proposed for the fifth and sixth compliance periods and added to the Allowance Price Containment Reserve.

The quantity of banked allowances could be very large by the end of 2020. In the first compliance period, about 17 percent of allowances issued under the combined California-Quebec program were banked, totaling over 62 MMT. This first compliance period bank is directly estimable from CARB's quarterly compliance instrument reports.

The auction reserve price (informally, the price floor) provides a crucial automatic adjustment mechanism. The program's price floor of \$12.73 per ton is higher than any other major cap-and-trade program, yet it is arguably still fairly low, less than one-third of the current midpoint of the range of U.S. EPA's Social Cost of Carbon. Factoring in the annual five percent price increase, the

floor price will be approximately \$15.50 in 2020 (in real terms—that is, not including a forecast of future annual inflation, which is also added to the floor under the annual adjustment formula).

We are working to develop a quantitative estimate of the expected range of oversupply through the end of 2020, and will soon circulate it for review among stakeholders. Please contact us at the above email address if you wish to review the work. We continue to refine our methodology. Currently, we are estimating that oversupply will amount to between 100–250 MMT by the end of 2020 (across the two jurisdictions, California and Quebec). Of course, Ontario offers another wrinkle.

Once the regulated community becomes more convinced of the credibility of the program’s longevity, there will be an incentive to purchase and bank significant amounts of allowances. This will be especially true if CARB goes forward with the plan to retire unsold allowances. For this reason, we urge this further step of lowering of the post-2020 cap levels to account for the large bank of allowances likely to exist by the end of 2020.

OFFSETS

CARB is considering lowering the offset limit due to AB 197 guidance prioritizing direct, local reductions. That may be the most legally robust approach. It would be preferable to have a policy that automatically adjusts to cost feedback from the market. For example, a design that would limit out-of-state offsets, unless allowance prices rise to some threshold level at which compliance costs would exceed in-state benefits from continued prioritization of local/in-state reductions. We understand this would introduce a new avenue for legal challenge, which would argue in favor of the route you have announced you are considering.

Another design feature that might fulfill the requirements of AB 197 would be to forbid the use of offsets by capped emitters in areas that are in noncompliance with federal air quality standards unless a rigorous, independent audit indicates the emitter has taken advantage of all emission reduction opportunities under some cost-effectiveness threshold.

CITIZEN PERMITS OPTION

We are confident that policymakers will solidify the legal basis for auctioning in the near future. That is the best approach. Nonetheless, as a backup plan, and to put more pressure on regulated entities, we wish to sketch the citizen permits option as a viable option under current law.

How citizen permits would work

It would be relatively straightforward to distribute allowances directly to the people of California. Equal per-capita shares, recognizing equal and shared ownership of the atmosphere, is a natural approach to direct allocation. A method of distribution could be through certificates that are mailed to all residents. Another task would be providing ready means for people to monetize these and get them into circulation. An existing or new nonprofit or quasi government institution could be developed as a mechanism to make this easy. This entity would serve as a

middleman, in effect, between the people that will hold allowances and the emitters that will need to acquire them.

The consumer protection imperative

Free allocation to the emitters covered under the program would be another way to distribute allowances if auctioning is disallowed. The problem with this approach is that it would be regressive and create windfall profits for emitters. It would represent a missed opportunity to protect consumers from price effects as the costs of carbon pollution are factored into our economic system.

Monetizing access to the public resource of the atmosphere creates a huge amount of monetary value. The value far exceeds the cost of investments polluters will have to make to comply. Put differently, the value of allowances far exceeds compliance costs. So it is important to make sure this value lands in the pockets of consumers, not as a windfall to carbon-emitting businesses.

Theory and real world experience show that giving away allowances to polluters does not protect consumers. Consider this situation: If a scalper selling tickets to a sporting event or concert finds a ticket on the ground, that scalper is not going to give it away for free. The fundamentals of supply and demand, not the method of distribution, determine the value of a freely allocated good. For businesses receiving carbon allowances for free, there is an opportunity cost to using them. They forgo the opportunity to sell them. Thus, they seek to pass along this “cost” of doing business to consumers, even if they have not paid for their allowances. Free distribution does not affect the price of allowances, and businesses will seek to have the price of carbon emissions reflected in the price of their product, regardless of how allowances are handed out.

Past experience with free distribution of allowances has shown doing this will produce windfall profits in most instances. Many businesses—including small, local businesses as well as major fuel suppliers such as electricity and gasoline sellers/oil companies—are able to pass “costs” of freely allocated allowances through to consumers. There are a select handful of industries—energy intensive, easily traded—that can be legitimately considered for free allocation in the public interest. In these few cases where businesses will not be able to pass through the carbon price, free allocation does make sense and could still be part of the overall allocation mix as it is currently for energy intensive, trade exposed industries.

A credible threat to encourage support for auctioning in the regulated community

The citizen permits’ approach provides a viable alternative to allow for the continuation of the state’s cap-and-trade program in the way that maximizes public benefits, avoiding the windfall profits that would follow from large-scale free distribution. Explicit recognition that this is a possibility might even encourage greater support in the regulated community for legislation to enable auctioning. Capped emitters would have to be concerned about the possibility that some citizens would choose to keep their allowances in order to lower the cap. Some would also

inadvertently fail to cash them in, which would put further downward pressure on the cap. While auctioning would be simpler and preferable, at the least, recognition of the citizen permits option might reduce opposition to a legislative solution to auctioning authority post-2020.

Thank you for your consideration of these comments.

We stand ready to assist in whatever way we can be most helpful.

Sincerely,

A handwritten signature in black ink, appearing to read "Chris Busch". The signature is written in a cursive, flowing style.

Chris Busch

Research Director, Energy Innovation

415.799.2164

November 4, 2016

Ms. Rajinder Sahota
Chief, Climate Change Program Planning & Management Branch
California Air Resources Board
1001 I Street
Sacramento, CA 95814

Filed Electronically

Re: Modesto Irrigation District's Comments from the October 21, 2016 Mandatory GHG Reporting and Cap-and-Trade Program Workshop

Dear Ms. Sahota:

The Modesto Irrigation District (MID) welcomes the opportunity to present our comments on the topics presented by the California Air Resources Board (ARB) during the October 21, 2016 workshop. MID appreciates Staff's continued work with stakeholders on proposed amendments to the cap-and-trade program. However, we are concerned with the overall messaging of the Legislature, non-market participants like the environmental justice community and ARB itself that support for the cap-and-trade program is waning in favor of more direct, costly command-and-control measures. MID is strongly in favor of the use of a well-designed market mechanism, like the cap-and-trade program, as the vehicle for achieving the State's emissions reduction goals in a cost-effective manner.

The Environmental Justice Advisory Committee (EJAC), in particular, continues to mount pressure in opposition to the cap-and-trade program in favor of mandatory reduction targets at the individual facility level. These types of point-source reductions will increase the cost of compliance, and citizens in disadvantaged communities will experience the most severe impacts of these increases. MID's service territory is predominantly classified as a disadvantaged area, and our region struggles with employment, education and poverty rates that lag far behind the rest of the state and nation. MID opposes increased costs on an already struggling customer and urges Staff and the ARB Board members to continue to support the cap-and-trade program as the preferred Scoping Plan option for achieving California's climate goals.

MID supports a cost-effective cap-and-trade program and has several concerns with Staff's latest proposals for: Electric Distribution Utility (EDU) allowance allocation, cost containment, emissions accounting in the California Independent System Operator (CAISO) Energy Imbalance Market (EIM), and market data transparency.

Post-2020 EDU Allowance Allocation

MID has several concerns with Staff's latest proposal for EDU allowance allocation. MID echoes the concerns of the M-S-R Public Power Agency (M-S-R), as addressed in their comments, and further stresses the following points:

1. The percentage of Renewable Portfolio Standard (RPS) energy factored into the cost burden calculation for determining EDU allocation should apply to retail load instead of net energy for load. This change would help align the cap-and-trade program with the RPS program, which is codified as state law. The RPS program requires procurement of eligible renewable energy based on each load serving entity's retail sales (Public Utilities Code §§399.13 and 399.30). This conflicts with Staff's proposal for the calculation of EDU allowance allocation based on net energy for load. As presented in Staff's EDU allowance allocation proposal, Staff assumes more energy from renewable resources than the RPS program requires, which understates the cost burden that EDUs will face from other generation.
2. Staff proposes too steep of a decline in allocated allowances to EDUs over the period of 2021-2030. Under Staff's allocation proposal, MID would experience an immediate decline in allowance allocation of 45% from 2020 to 2021. On top of this drastic reduction of allowances, EDUs would be forced to absorb a roughly 15% decrease in allocated allowances from 2021-2030 due to the increase of RPS-eligible renewable energy targets from 33% to 50%, and would absorb a further 40% decrease in allocated allowances from 2021-2030 because of the additional application of the cap adjustment factor (~3.4% per year).

Because of the decline in allocated allowances, the electricity sector (i.e. the ratepayers) will be responsible for reducing emissions by approximately 50% from 2021 to 2030, which is more than the State's goal of 40% below 2020 emissions levels. The added cost of compliance from electric ratepayers, who will bear an unequally high share of emissions reductions compared to other sectors, is compounded by the cost of procuring increasing amounts of RPS-eligible energy to achieve those emission reductions. MID urges Staff to reconsider applying both the RPS target increases and cap adjustment factor to the EDU cost burden calculation, and instead work with EDU stakeholders to select a less severe decline factor.

3. MID appreciates Staff's recommendation to retain the RPS adjustment post-2020. The alternative proposal to replace the RPS adjustment with an allowance allocation that did not account for the full amount of MID's RPS-eligible resources would have cost MID's ratepayers millions of dollars per year in additional compliance costs. However, MID is concerned that a portion of energy from the specified renewable facility that is sold as unspecified energy to a third party will be directly delivered to California without MID's knowledge. Such transactions diminish the value of MID's RPS-eligible resources by precluding usage of the RPS adjustment. MID looks forward to continued cooperation with Staff on this issue.
4. MID continues to oppose allocation of allowances directly to covered industrial entities for their electricity use. MID uses the value of its allocated allowances to protect its ratepayers from increases in electricity rates, and as such has not increased its rates since 2011. Allocating allowances directly to covered industrial entities is unnecessary and provides no real benefit to the industrial entity since their electricity costs will increase commensurate with the value of their electricity use allocation. ARB states that entities have complained of unfair treatment of receipt of allowance value in POU territories, but has provided no evidence or analysis to show that the difficulties experienced by these entities outweigh the detrimental effects to all other POU customers. Furthermore, this allocation methodology change allows covered industrial

entities to receive a double-benefit from allocated allowances. They would receive allowances directly from ARB and also receive the benefit of programs that benefit all POU customers (such as procurement of renewable resources) but that would be funded by allowances meant to mitigate the remaining customers' compliance cost. MID strongly urges Staff to remove the proposal to allocate directly to covered industrial entities for their electricity use.

Cost Containment

MID believes that changes to cost containment provisions of the cap-and-trade program would be premature responses to temporary conditions that are causing market uncertainty. The cap-and-trade program is still young and a pioneering endeavor in the United States. Any changes that could cause costs to balloon sends the wrong signal to other states that may seek to establish their own market-based emissions trading programs. MID does not support Staff's proposal to retire some or all unsold State-owned allowances of pre-2020 vintages. The program's caps will ensure that the covered portions of the economy meet the mandated emissions reductions goal. Having a surplus of allowances available for purchase at auction, or even in the Allowance Price Containment Reserve (APCR), simply ensures that the aggressive decline in emissions required from 2021 to 2030 does not result in a price spike that could stall the market and put the 2030 target in jeopardy.

MID is also opposed to the possibility of decreasing the offset credit usage limit of 8%. The offset program is an integral part of the program's cost containment provisions, in that it provides flexibility for how entities can satisfy their compliance obligation. Furthermore, the continuation of thriving offset programs allows the State to reach entities that are not covered under the cap-and-trade program and incentivize them to affect real, positive and verifiable change for the benefit of the environment. ARB should not truncate the source of funding that allows these types of offset-generating projects to continue operating.

Emissions Accounting in the CAISO EIM

At CAISO's October 13, 2016 technical workshop, CAISO described three options to help address Staff's concerns regarding unaccounted greenhouse gas (GHG) emissions. These emissions are caused by secondary dispatch within the EIM, in which an out-of-state generator serves the out-of-state load that was previously served by a generator that has been re-dispatched to serve a California energy imbalance. The analysis applied in developing the three options includes a counterfactual that if the market were run without dispatch to California load as a factor, out-of-state resources would be dispatched differently to serve out-of-state load. This counterfactual is made to reach a better understanding of how much the California market actually causes emitting resources to be ramped up, thereby increasing emissions. CAISO's three options under consideration are:

1. Option One would consist, in summary, of a balancing account run against a counterfactual on a periodic basis (e.g., monthly) used to account for proper emissions credit retirement. MID understands that Option One is not possible given ARB's policy concerning inter-temporal benefits.
2. Option Two would involve two runs of the market. The first to determine the counterfactual, showing the dispatch that would have occurred without EIM, and the second to run the market

with EIM, such that the delta between the two runs would show the change in dispatch and emissions due to the EIM for dispatch into California.

3. Option Three would develop a residual emissions rate for energy flows into California, with revenues distributed appropriately to purchase instruments to surrender to CARB.

At ARB's October 21, 2016 workshop Staff presented two options to address secondary dispatch within the EIM:

1. Incremental Deeming: equivalent to CAISO's Option Two.
2. Dynamic Hurdle Rate: similar to CAISO's Option Three with a key difference that energy procured through renewable energy contracts entered into by California load serving entities would not be subject to the emissions hurdle rate.

MID is concerned that CAISO and ARB have presented options in two unrelated forums, and urges ARB to synchronize its efforts with CAISO and merge the stakeholder processes on this issue. ARB must realize that CAISO is integral to establishing the mechanics of whichever solution to secondary dispatch in EIM, if any, is selected, and should not publish regulatory language that is not enforceable because the technology or market framework to implement it does not exist.

MID is concerned that Option Three (a.k.a. Staff's Dynamic Hurdle Rate), while perhaps simpler to implement in the short term, will lead to inefficiencies. Option Three would require "rough justice" to arrive at a hurdle rate, and would unnecessarily add costs to California load. Such costs would create a less efficient market, applying costs to generation that does not really cause such costs. While MID agrees that accurate GHG accounting is important to achieving the State's climate goals, MID does not believe that absolute accuracy should be pursued at all cost. The resulting costs of the proposed hurdle rate solution could easily outweigh the benefits of pursuing this option.

Instead, Option Two (Staff's Incremental Deeming) seems to present an opportunity to use real market data. While MID understands that the technological challenges may make the initial run of the market contemplated under Option Two less precise than the ideal situation, greater precision will be achieved over time. MID believes that Option Two represents a more efficient market-based solution as compared to Options One and Three and recommends further discussion around this option to more thoroughly consider the details and potential outcomes.

MID also recommends moving directly to a market-based solution rather than implementing Option Three which is subject to policy preferences and judgment calls in arriving at the methodology for calculating the hurdle rate and allocating the resultant revenues. In implementing Option Three to start with, it is possible that the option could remain in place longer than is necessary, or, given the press of business and unforeseen prioritization of future initiatives, be made into an essentially permanent solution. For these reasons, MID supports a solution closer to the concept outlined in Option Two, recognizing that it will be imperfect when initially implemented, but confident that it will improve over time.

MID understands that the CAISO would prefer that the option CARB implements to address concerns regarding EIM is also implemented under a Regional ISO, though allowing for the possibility of an

eventual transition from an Option Three scenario to an Option Two scenario. ARB has not yet opined on the transition of this solution for EIM into the potential Regional ISO's markets; however, MID strongly recommends that ARB be mindful of the implications should the selected solution be applied to the much larger day-ahead markets of a regional ISO.

Market Data Transparency

MID opposes the suggestions of the Emissions Market Advisory Committee (EMAC) in which ARB would publish a bar graph of entity holdings versus obligations. Release of such information could be used to make inferences of individual entities' positions (even with masked identities). This will give an unfair advantage to marketers who might anticipate the strategies of compliance entities and thus alter the market in such a way as to put those strategies, and thus the State's emissions goals, at risk. MID cautions against the release of any additional information to the public that is not currently classified as available to the public.

MID appreciates the opportunity to submit these comments. We are committed to continued cooperation with ARB and our peers in the industry to lead the nation's efforts to economically reduce the impact of energy production through a healthy and well-designed cap-and-trade program.

Sincerely,

A handwritten signature in blue ink, appearing to read 'G. Soiseth', with a stylized flourish extending to the right.

Gary Soiseth
Regulatory Administrator
Modesto Irrigation District

Cc: Greg Salyer, MID General Manager
M-S-R Public Power Agency
The Gualco Group



November 4, 2016

Rajinder Sahota
Branch Chief
California Cap-and-Trade Program
California Air Resources Board
1001 I Street
Sacramento, CA 95814

RE: Comments in response to the October 21, 2016 Cap-and-Trade Regulation Amendments Workshop

Dear Ms. Sahota:

A-Gas Americas, Inc. is one the nation's largest reclaimers of refrigerant gasses and a developer of carbon offsets for California's Cap-and-Trade program. A-Gas owned companies have multiple locations across the country, including 6 in the State of California. We have developed millions of CCOs from the voluntary destruction of harmful CFCs gasses. California's Cap-and-Trade program is responsible for the permanent removal of Ozone Depleting Substances that continue to be used in aging equipment in California and across the US.

We would like to offer the following comments:

- 1. GHG emission reductions and Criteria Pollutant reductions are distinctly separate issues.** The various air districts in California have plans in place to reduce criteria pollutants and the effectiveness of those plans should be considered, but not relied on, while looking at changes to the completely different goals of reducing GHG emissions.
- 2. California has an ambitious goal of reducing GHG emissions by 2030 and beyond.** The continued use of a Cap-and-Trade system in California is an important tool to be used to help reach these goals. A well designed Cap-and-Trade system is the most cost effective way to guarantee GHG emission reductions. It should not be considered the only tool, but an important one. A carbon tax does not guarantee reductions like a declining cap does, it will adversely affect the disadvantaged communities as they will also be subject to higher costs on many things with no guarantee of GHG emission reductions.

3. **California has always been a leader when it comes to Environmental regulations.** There is an old saying; “as California goes, so does the rest of the country”. Because of California’s leadership on the issue of Climate Change, we now see other US States and Canadian Provinces following suit. This leadership needs to continue in order to bring the rest of the US, and the World into this type of thinking. After the passage of the landmark bill AB32, California was help as the gold standard. The current cap-and-trade system covers multiple sectors of the economy, calls for deep cuts, and is successful, any attempts to stifle the market could have unforeseen adverse effects.

4. **Offsets are an integral aspect of California’s long-term strategy to mitigate climate risks.** Carbon is a global pollutant and climate risk to California is not jurisdictionally constrained to reductions within the state. Through the facilitation of and influence on global carbon market partnerships, California’s offset program has influenced and will lead to additional GHG emission reductions both at within and beyond state borders. In addition, offsets incentivize climate action and investments for non-covered sectors – some of which are located in disadvantaged communities – while broadly increase clean technology adoption rates.

We understand some of the legitimate concerns that people have with offset projects, particularly those that don’t see their benefits directly in their back yards. As a company, we are heavily invested in offset projects and deeply committed to them going forward because we care about the environment and we are trying to be part of the solution. Offset projects are mistakenly lumped in with some of the very serious air problems facing many communities in California, and we feel that should not be the case. We are honestly trying to help solve a problem that is being addressed by one program, in an arsenal of air quality and climate change programs throughout the State.

The offsets that we generate are Real, Permanent, Verifiable, and Additional. We would not be destroying millions of lbs of valuable CFCs if it were not for this program, and many of the projects that we undertake provide other benefits to multiple communities in the US including in California.

We look forward to continuing to work with ARB to provide feedback and help strengthen this extremely valuable program. If you have any questions please do not hesitate to contact me at any time.

Sincerely,

Jonathan Stack
Vice President of Environmental Services



November 4, 2016

Ms. Rajinder Sahota
Chief, Climate Change Program Planning & Management Branch
California Air Resources Board
1001 I Street
Sacramento, CA 95812

Re: Comments on Staff Proposal for Post-2020 Allocation to Electrical Distribution Utilities

Dear Ms. Sahota:

Thank you for the opportunity to provide comments to the California Air Resources Board's (CARB) "Cap-and-Trade Regulation Post-2020 Allocation to Electrical Distribution Utilities Informal Staff Proposal" (Allocation Proposal). Redding Electric Utility (REU) is a publicly owned utility that serves approximately 44,000 customers. REU is a covered entity under the cap-and-trade program and has been participating since the program began in 2012. REU is additionally subject to California's Renewable Portfolio Standard (RPS) Program that requires electric utilities to procure 50% of their electricity from renewable resources by 2030.

REU supports the cap-and-trade program continuing past 2020; this program is an essential element of California's cost effective carbon reduction plan. Additionally, REU has spent considerable time and money developing an internal policy and program in order to comply with the program, these efforts should not be ignored.

REU supports staff's decision to retain the RPS adjustment. Removing the RPS Adjustment would have cost REU's ratepayers over \$600,000 per year and restricted REU's ability to procure additional renewable resources in order to meet the new 50% goal.

REU supports the continued used of offsets at the current 8% level. This cost containment mechanism provides an opportunity for covered entities to invest in local activities that provide global benefit.

The Allocation Proposal suggests a steep drop in allowances to the electric distribution utilities (EDU) that would essentially require REU to reduce its emissions by 65% rather than the statewide goal of 40%. This proposal as it stands would cost REU over \$7 million and take away from funds available to procure new renewable resources or other carbon reduction



projects. Additionally, the Allocation Proposal assumes Redding's carbon-free contracts with the Western Area Power Administration will continue past 2024; this is not a certainty. If the POUs do not renew their WAPA contracts past 2024, REU would be critically short of allowances resulting in a cost impact of \$24 million to REU's ratepayers.

REU supports an Allocation that accounts for load growth, such as is presented in Option 1, however REU encourages CARB to work with the JUG on an alternative proposal that fully addresses the cost impact to the EDUs.

REU is a member of the Northern California Power Agency (NCPA), the M-S-R Public Power Agency, and the Joint Utility Group (JUG) and additionally supports the comments from these groups on the Allocation Proposal. We look forward to working with you as this process develops.

Respectfully submitted,

A handwritten signature in blue ink that reads "William L. Hughes". The signature is written in a cursive style.

William L. Hughes
Electric Manager/Compliance Officer
Redding Electric Utility



November 4, 2016

California Air Resources Board
1001 I Street
Sacramento, CA 95814

The Glass Packaging Institute (GPI) provides the following comments to the October 14, 2016 ARB issued *Cap-and-Trade Regulation Industry Assistance Factor Calculation Informal Staff Proposal*.

The Glass Packaging Institute (GPI) previously submitted comments to the Initial Statement of Reasons on September 19th, 2016. In our comments, we emphasized the importance of maintaining a 100% industry assistance factor to prevent leakage in the container glass sector. **Unfortunately, staff's informal proposal for post-2020 allocation of allowances would provide only a 76% assistance factor for container glass manufacturers.**

This recommendation, if finalized, will have a significant and potentially devastating impact on the California glass container manufacturing industry, our industry's four plants, and over 2,000 workforce employees with high paying, benefit provided manufacturing careers.

As we noted in our September 19 letter, California's container glass industry competes directly with out of state and international glass plants. Any lost productivity in California's container glass industry as a result of the Cap-and-Trade program will result directly in increase in production of glass containers at these facilities, which are often less regulated than California facilities. This conclusion is born out in studies commissioned by the Board to assess the leakage impact of the program.

Specifically, as highlighted in the May 16, 2016 [Final Report to CARB on Employment and Output Leakage under California's Cap-and-Trade Program](#), *"an increase in California energy prices relative to prices in nearby regions will raise production costs in energy-intensive industries located in California and likely result in short-term (one year) losses in output, employment, and value added for those industries."*

[The Report \(p. 16\)](#) clearly states that no EITE industry participant is impacted more by leakage than glass container manufacturers, who are anticipated to lose significantly in terms of output (17.10%) and jobs (13.31%). These losses will only be exacerbated by future increases in the cost of energy.

According to data culled from the U.S. Census Bureau, Datamyne ® and internal company estimates:

- California glass container demand is 1.7 million tons annually, representing 20% of the total US glass demand.
- Imports account for a significant share of the California glass container supply (28% in California, versus 13% nationally)
- The value of glass containers imported into California in 2009 was \$210 million USD. For 2015, this value more than doubled to \$510 million USD.

According to data collected by the US International Trade Commission (ITC) 2.1 billion additional containers were imported into the US in 2015, then in 2008.

Nationally, imports of glass containers have increased 3-5% annually since 2008.

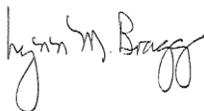
Our industry's trade exposure requires a 100% industry assistance factor to avoid leakage.

Even with a 100% industry assistance factor, California's glass container manufacturers must reduce emissions to meet its compliance obligations since allowance allocations will continue to decline over time regardless of the assistance factor. In short, providing a 100% assistance factor to the container glass industry does not in any way jeopardize the state's GHG reduction goals or give industry a free pass on compliance. Instead, it helps minimize the risk of jobs leakage.

In consideration of the unique, increasing, ongoing and competitive pressures surrounding the California glass container industry, we are requesting 100% industry assistance for the duration of the Cap and Trade program.

Thank you for your thoughtful consideration of our comments.

Sincerely,



Lynn M. Bragg
President



PASADENA WATER AND POWER

November 4, 2016
Submitted Electronically

Ms. Rajinder Sahota
California Air Resources Board
1001 I Street
Sacramento, CA 95814

Re: Pasadena Water and Power Comments on October 21, 2016 Mandatory Reporting and Cap-and-Trade Workshop in connection with the Post 2020 allocation methodology.

Pasadena Water and Power (PWP) appreciates the opportunity to provide the following comments to the California Air Resources Board (CARB) on the October 21, 2016 CARB public workshop on Mandatory GHG Reporting and Cap and Trade Program proposed regulations.

PWP is a publicly owned utility of the City of Pasadena with a service area population of over 141,000 residents within 23 square miles. We are committed to providing safe and reliable water and power with superior customer service at reasonable rates.

PWP supports the continuation of the Cap and Trade Program and market based mechanisms as these are feasible strategies toward continued GHG emission reduction efforts beyond 2020. Additionally, PWP encourages CARB's decision to allocate allowances beyond the 2020 compliance year. However, the post-2020 allocation methodology raises a number of concerns because this approach imposes a 24% reduction in Pasadena's allocation in 2021, while the loads are projected to increase. This is a very difficult decline to manage, as a steep reduction from the 2020 allocation would cause a significant rate impact to our customers. Additionally, the allocation does not provide for an increase in load due to transportation electrification.

The proposed post-2020 allocation methodology is the result of a combination of two limiting factors, (1) compliance with a 50% Renewable Portfolio Standards (RPS); and (2) an annual decline cap adjustment factor (CAF). Attaching double limiting factors to the methodology adversely affects a smooth transition between AB32 2020 goals and SB32 2030 targets. The electricity sector has reduced GHG emissions by its fair share. By applying both a CAF and a 50% RPS to the allocation methodology, Pasadena's 2020 allocation is reduced by over 75% in 2030. A reduction of this magnitude would result in tremendous rate increases. The protection

of the utility ratepayers has been one of the principal purposes for the allocation of allowances to the Electrical Distribution Utilities under AB32.

PWP recommends that CARB reconsider its post 2020 allocation methodology by remaining consistent with its 2013-2020 methodology. While the 2013-2020 allowance allocation provided for a linear decline in the cap by 2 to 3% annually, this was applied using a CAF only, however, the post-2020 allocation methodology applies both a CAF and RPS factor. Additionally, the RPS factor does not account for the procurement of unbundled resources, ¹(Portfolio Content Category 3) by assuming that all RPS procurement to meet the 50% RPS requirement in 2030 is procured with bundled RPS eligible resources.

The 2021-2030 EDU allocation methodology assumes no emission growth for transportation electrification (TE). PWP is requesting that CARB staff continue to talk with stakeholders to ensure that the assured growth due to TE is addressed in CARB's 15 day changes. With regard to the two options for load methodology under consideration, PWP would support load assumptions that incorporate a load increase over time.

PWP appreciates the opportunity to provide comments. Thank you for your consideration. Should you have any questions, please feel free to contact Badia Harrell at (626) 744-7918.

Sincerely,



Gurcharan Bawa
Interim General Manager
Pasadena Water and Power

GSB/BH

¹ SB 350 legislation allows for a maximum of 10% of the procurement of unbundled resources to meet an annual RPS requirement. PUC 399.16(c) (2).



November 4th, 2016

Via Electronic Submission

California Air Resources Board
1001 I Street
Sacramento, CA 95812

Re: Comments of Sealaska Corporation on ARB's October 21 Cap-and-Trade Regulation Workshop and the Proposal to Reduce the Offset Credit Usage Limit

Dear Air Resources Board Staff:

Thank you for this opportunity to comment on the proposals that the California Air Resources Board ("ARB") presented at the October 21 stakeholder workshop, and in particular that portion of the workshop dedicated to AB 197 and Post-2020 Cap-and-Trade Program Design. We write specifically to address the potential design change of reducing the current offset credit usage limit of 8%.

Sealaska Corporation ("Sealaska") is an Alaska Native Regional Corporation established under the Alaska Native Claims Settlement Act of 1971. Our roughly 22,000 shareholders are all descendants of the Tlingit, Haida and Tsimshian Native peoples, the traditional homelands of which are the forests and coastline of Southeast Alaska, extending from Yakutat on the north to the Queen Charlotte Islands of British Columbia on the south. One of Sealaska's responsibilities is to manage approximately 360,000 acres of forestland within these traditional homelands for the benefit of its shareholders. In fulfilling its responsibilities, Sealaska is guided by its values to build excellence in its Native enterprise and take action that strengthens its people, culture and homelands. The first of these values is "Our Land," which has four principles:

- The land is the basis of our collective identity and culture
- Utilizing the land while protecting for future generations
- Sustainable relationship with our lands
- Sustainable community economies

I invite you to visit Sealaska's website (www.sealaska.com) for information about its values, its people and its work.

While Sealaska has engaged in natural resources development and extraction, we see great benefit in participating in ARB's Cap-and-Trade Program to combat climate change by developing a forest offset project. We strongly support California's commitment to combat climate change and forest offset projects are consistent with

Sealaska's values. We are deeply concerned that ARB is considering reducing the current offset credit usage limit post-2020, as it would pose a direct threat to the offset program that includes forest projects such as ours.

The offset program is an important cost flexibility mechanism for compliance entities in California and as such helps to provide stability to the Cap-and-Trade program and California's economy. However, its benefits extend far beyond that, providing important environmental and economic co-benefits both within California and beyond its borders. We know that ARB understands the importance of the latter. California has provided invaluable leadership in both the national and international efforts to combat climate change, for it understands that on this issue it cannot stand alone. We are all in this together – and the offset program has been an effective way to draw others to join California in this critical effort. It has served to build allegiances across boundaries and incentivized actions by diverse interests in the fight against climate change. Such broad and unified efforts will be necessary for any meaningful impact on the problem of global warming.

And offset projects are making real impacts today. Both by legal definition and ARB's strict oversight, offsets make real, quantifiable, enforceable, verifiable, additional, and permanent GHG reductions. Forest offset projects across the country have sequestered millions of tons of carbon. Tangible evidence of the success of the offset program can be seen in the hundreds of thousands of acres of standing, healthy forests. These forests, in addition to sequestering carbon, provide essential wildlife habitat. In Sealaska's case, we intend to include in our forest project areas that border sensitive marine habitat, and thus will help to protect those as well.

Importantly to us and our Native shareholders, California's offset program also provides a means of preserving a way of life that has continued for over ten thousand years. Alaska's rural villages are some of the most economically depressed in the country. Forest offset projects like ours will bring economic benefits to the Native peoples of Alaska, while preserving rather than exploiting our traditional homelands.

Our people empathize with the social and economic marginalization experienced by those communities in California that have suffered at the hands of resource exploitation and industrialization. We too know what it is like to have our health and welfare diminished by the conflict that sometimes arises between meeting compelling economic demands on the one hand and sustaining a healthy environment on the other. The offset program, however, helps to relieve that conflict, providing an opportunity to achieve economic stability *by means of* sustainable conservation. This allows us to protect the needs of our shareholders and preserve our ancient values and way of life.

In sum, reducing the usage limit on offset credits not only would raise the cost of the Cap-and-Trade Program for compliance entities (which costs likely would be passed onto consumers), it would undermine all of these important co-benefits. It would cripple an important tool to get others to join California in the fight against climate change, and would greatly reduce the environmental and economic co-benefits that the offset program brings, often to communities that are disadvantaged. For all of these reasons, Sealaska respectfully requests that ARB not pursue this proposal to reduce the current offset credit usage limit beyond 2020.

Sincerely,

Sealaska Corporation

A handwritten signature in black ink, appearing to read "Anthony Mallott", written in a cursive style.

Anthony Mallott
President and CEO



CALIFORNIA STEEL INDUSTRIES, INC.

1 California Steel Way
Fontana, CA 92335
(909) 350-6300
Fax (909) 350-6223

November 4, 2016

Mr. Richard Corey
Executive Officer
California Air Resources Board
1001 I Street
Sacramento, CA 95814

RE: Comments by California Steel Industries, Inc., on Post-2020 Cap & Trade Plans

Dear Mr. Corey:

We appreciate the opportunity to provide comments and to express our deep concern with the Informal Staff Report released by ARB on 10/21/2016, which discusses and outlines the current plan for post 2020 Cap & Trade under AB32/SB32.

While we know that this is not the Final Scoping Plan, this version of the informal Staff Report is quite alarming for California Steel Industries, Inc. (CSI). A main component in the formula for GHG Allocations, the Assistance Factor, will be reduced drastically in the case of Hot Rolled, Cold Rolled, Pickled, and Galvanized Steel Sheet Production (NAICS Code 331221). As we understand it, this will result in a drastic reduction of the credits we are allocated, which means CSI's Cap & Trade liability post-2020 will be significantly increased and could prove untenable for us.

BACKGROUND

CSI is the largest steel producer in the Western U.S. and one of the last survivors of the domestic steel industry in California. We have about 1,000 well-paying jobs at our facilities near Fontana in San Bernardino County, and we are proud of our positive impact on the Inland Empire. In fact, we have never had a layoff of regular employees in our 32-year history. We also recently partnered with local community colleges for a regional training center called InTech Center. To make that happen, CSI made available at no cost a 33,000 square foot building, which is being operated by Chaffey College and serving hundreds of local trainees. The Intech Center provides instruction in electrical and mechanical technical fields and other industrial specialties, for high school students, prospective employees, and current employees of area businesses.

CSI produces about 1.5 million tons per year of steel sheet in various forms, using purchased steel slabs as our raw material. Steel slabs weighing about 25 tons each are reheated in natural gas-fired furnaces and hot rolled in our rolling mill. Some of the resulting coils are sold as Hot Rolled sheet or converted to Pipe. The rest of the Hot Rolled coil is further processed downstream as Cold Rolled sheet, Pickled sheet and Galvanized sheet.

On average, CSI received 193,828 GHG credit allocations per year during the first four years of the AB32 program. Based on the Staff Report's proposed new Assistance Factors, CSI would

only receive about 27,000 GHG credit allocations per year post 2020. This amount is estimated to cover less than 13% of CSI's projected future annual GHG emissions. As you are well aware, no one knows the future cost of GHG credits. However, as an example, at just \$20 per ton of GHG credit, assuming no increase in steel production, the increased annual purchase requirement for CSI will cost approximately \$3.4 million per year. These cost increases will reduce CSI's ability to grow our business, to create and retain good jobs, to provide pay increases and profit sharing to our employee team members, and to supply excellent employee benefits.

The California Manufacturers & Technology Association (CMTA) has previously submitted comments regarding Industry concerns of the ARB studies that were used as a basis for the Staff Report. These studies were noted as flawed. In our case, the studies and the Staff Report do not take into consideration the unique nature of CSI's business and the global competition/situation that "makes or breaks" our business and the company's ability to remain competitive.

The proposed Assistance Factor reduction will result in CSI's competitiveness being severely threatened as **we will be the only Hot Rolled steel sheet facility in the U.S. facing tens of millions of dollars of new compliance costs** in coming years, for what is ostensibly a global climate change "demonstration" effort. Our foreign competitors in China and other nations, as well as our domestic competitors, will be happy to undercut our costs and take away our business, if they can. We are at high risk for losses to these competitors as we endure unique, CSI-only regulatory costs, which no other steel sheet rolling operations must bear.

The Assistance Factor reduction especially disadvantages CSI against in-state competitors. Unlike CSI, our steel sheet competitors in California have no hot rolling capability. They use Hot Rolled sheet from other states and nations as their feedstock to produce Cold Rolled and Galvanized sheet, which competes with CSI's similar products. Their Hot Rolled sheet feedstock will not be burdened with these additional costs. Since we produce our own Hot Rolled sheet in California, and use that as our feedstock for Cold Rolled and Galvanized product, our costs will be increased even in comparison to our in-state sheet competitors.

Furthermore, any resulting loss of CSI's steel production will simply be replaced by less efficient production in other states and other nations. This will be accompanied by additional shipping distances resulting in greater truck and rail emissions. Altogether, this means increases, not decreases, in global GHG emissions, and an accompanying decrease in steel manufacturing jobs and associated supply chain jobs in California.

The proposed cuts in Industry Assistance are unfair from another standpoint – **there are no existing technologies available to make any significant decrease in GHG emissions from natural gas fired furnaces such as used to preheat steel for rolling.**

The EPA published in 2012 "Available and Emerging Technologies for Reducing Greenhouse Gas Emissions from the Iron and Steel Industry." It is important to note that this report **shed no light on any reasonably available highly effective technologies.** CSI, as a longstanding producer in California, is **easily among the most efficient steel rolling operations in the U.S., if not the world.** We have already implemented many technologies for energy efficiency and will continue to do so regardless of the ARB's final stance. Additionally, we have already spent

millions of dollars on emission controls of various types not typically employed elsewhere in the world. However, these technologies typically address only indirect GHG and/or particulate emissions, with no effect on our direct GHG emissions, which are based solely on natural gas consumption.

There is simply little that we can do to reduce direct GHG process emissions except cut production of rolled steel, and that will only allow our out-of-state competitors the opportunity to take advantage of our situation by producing more steel elsewhere for sale to our California and Western U.S. customers.

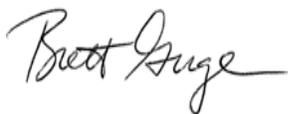
Finally, CSI already pays one of the highest electricity rates in the global steel industry, due in large part to the strong portfolio of renewable energy we use, as mandated for public utilities in California. We have great incentive to use energy efficiently, and daresay there is no “greener” steel sheet production facility in the U.S. This is another reason why regulatory policies should be assisting us to stay in business and grow and prosper in California – rather than placing steel production and related jobs under undue cost pressure, with highly questionable effectiveness at lowering global GHG emissions.

OUR REQUEST

Regretfully, the initial position taken by ARB on CSI’s post-2020 Industry Assistance Factor is unbalanced and is injurious to the environment and the economy in the Golden State. We hope to work together to correct these potentially devastating impacts. California needs the 1,000 well-paying, middle class jobs that we provide, as well as those at our numerous in-state California vendors and customers.

We respectfully request a meeting as soon as possible with you and the appropriate ARB program staff to discuss post-2020 scenarios. We remain committed to working cooperatively with ARB to find balanced solutions that satisfy California’s environmental and economic concerns.

Sincerely,



Brett Guge
Executive Vice President, Finance & Administration
California Steel Industries, Inc.

cc: Eddie Chang, Deputy Executive Officer, California Air Resources Board
John Dunlap, Dunlap Group
D.J. Smith, Smith, Watts & Hartmann
Audra Hartmann, Smith Watts & Hartmann



Michael E. Van Brunt, P.E.
Director, Sustainability

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November 4, 2016

California Air Resources Board
1001 I Street
P.O. Box 2815
Sacramento, California 95812

Re: CARB's Cap and Trade Workshop, Convened October 21, 2016

Thank you for the opportunity to provide comments in response to the California Air Resources Board's (CARB's) October 24th Cap and Trade workshop. We fully support CARB's work to reduce greenhouse gas emissions in the state. Covanta is a national leader in developing, owning and operating facilities that convert municipal solid waste ("MSW") into renewable energy (energy-from-waste or "EfW" facilities). We operate two such facilities in California, one located in Stanislaus County and the other located in the City of Long Beach.

We believe that CARB should retain the limited exemption for Waste-to-Energy (WTE) facilities through the end of the 2nd compliance period contained in this year's 45-day amendments to the regulation. We were surprised to see the sudden reversal in direction, as the initial reason for the exemption, that WTE facilities actually reduce GHG emissions relative to landfilling, an uncapped sector, has not changed. In fact, the scientific & policy recognition of the GHG benefits achieved through the diversion of waste from landfill to WTE is stronger than ever.

WTE facilities were initially exempted on the basis of science and to ensure parity of treatment across the waste management sector. With CalRecycle's recognition of the GHG benefits of WTE relative to landfilling (see excerpt below), it was clear that including WTE in the cap and trade program while landfills were excluded would result in unequal treatment within the waste sector, and potentially result in leakage of GHG emissions from a capped source, WTE, to an uncapped source, landfilling.

"Published LCA studies and best available published direct measurement data support CalRecycle staff's general conclusions. CalRecycle staff concludes that the three existing California WtE facilities provide net avoided methane emissions over waste otherwise disposed in a California landfill. The net avoided emissions exceed non-biogenic emissions from burning of the fossil fuel based components such as plastic in the WtE facility."¹

Since the initial exemption of the existing WTE facilities in 2012, the recognition of WTE as a source of GHG mitigation has grown. In 2014, CARB itself, concluded that WTE offers GHG reductions relative to landfilling:

“Preliminary staff estimates ... indicate that combusting waste in the three MSW Thermal facilities in California results in net negative GHG emissions, ranging from -0.16 to -0.45 MT CO₂e per ton of waste disposed, when considering that the waste would otherwise be deposited in landfills resulting in higher emissions.”²

In 2013 and 2014, the Center for American Progress and Third Way have both reviewed WTE and validated its GHG benefits.^{3,4} In addition, the Joint Institute for Strategic Energy Analysis (JISEA) operated on behalf of the U.S. Department of Energy’s National Renewable Energy Laboratory, the University of Colorado-Boulder, the Colorado School of Mines, the Colorado State University, the Massachusetts Institute of Technology, and Stanford University published a report in 2013 after a review of solid waste management options for Boulder’s municipal solid waste concluded WTE was a better option than landfilling:

“We find that MSW combustion is a better alternative than landfill disposal in terms of net energy impacts and carbon dioxide (CO₂)-equivalent GHG emissions.

“Life cycle assessment studies published in the literature have generally been consistent in suggesting that MSW combustion is a better alternative to landfill disposal in terms of net energy impacts and CO₂-equivalent GHG emissions. The results from this study match that expectation. In this report, WTE leads to a higher reduction in emissions compared to landfill-to-energy disposal per kWh production.”⁵

Here in California, Berkeley Law released a report earlier this year in response to a request from the Governor’s office, looking at the merits and demerits of energy recovery options for wastes remaining after reaching the state’s 75% recycling goal. The authors conclude that:

“Harvesting these leftover materials as solid waste energy sources could provide multiple environmental benefits:

- complementing intermittent renewable energy, such as wind and solar, to offset fossil fuel-based energy sources and associated greenhouse gas emissions; [and]
- avoiding landfill emissions of methane (a potent greenhouse gas that is 28-34 times as strong as carbon dioxide over 100 years) by diverting wastes to energy, particularly organic wastes;”⁶

Especially relevant, given California’s dependence on the cap & trade program in developing its state measures plan to meet the EPA’s new Clean Power Plan requirements, is the U.S. EPA’s treatment of WTE under those requirements. In contrast to a public comment made at the September Board meeting, WTE is not a covered source.⁷ In fact, WTE is a compliance option for

reducing GHG emissions from electricity generation under the CPP: WTE facilities are considered zero carbon power under the CPP's accounting structure and new EfW facilities are eligible to generate Emission Rate Credits (ERCs).⁸ Inclusion of WTE in California's cap and trade program would put it in direct conflict with the CPP.

Concurrently, new data show that the methane emitted by landfills and other sources is even more damaging than previously thought. Methane is the second largest contributor to global climate change.⁹ A short lived climate pollutant (SLCP) increasingly under international scrutiny, methane has a much larger climate impact than previously reported and its atmospheric concentrations continue to rise (Figure 5).¹⁰ According to the IPCC's 5th Assessment Report, methane is 34 times stronger than CO₂ over 100 years when all of its effects in the atmosphere are included and 84 times more potent over 20 years.¹¹

In response to the growing concern about methane, CARB has developed a *Proposed Short-Lived Climate Pollutant Reduction Strategy* for California. The use of a the 20-year global warming potential of 72, nearly three times larger than the GWP used in CalRecycle's 2012 analysis, further underscores the benefits of EfW relative to landfilling:

"The use of GWPs with a time horizon of 20 years better captures the importance of the SLCPs and gives a better perspective on the speed at which SLCP emission controls will impact the atmosphere relative to CO₂ emission controls."¹²

California's WTE facilities provide other important benefits as well. The facilities in Long Beach and Stanislaus are the only two locations in California permitted to destroy narcotics. Since 1988, SERRF has destroyed 11.2 million pounds of confiscated narcotics and drug paraphernalia for over 121 cities, counties, state, and federal law enforcement agencies. Stanislaus has processed over 216 tons of confiscated narcotics, firearms and drug paraphernalia in 2016 for over a 100 cities, counties, state and federal law enforcement agencies.

We recognize that the steps the California Legislature and CARB have taken to divert organics from landfilling will impact the composition of the waste stream that is managed in WTE. However, we do not think it is appropriate to presume the results of these actions, or their effect on the GHG benefits of WTE relative to landfilling. Most importantly, the benefits of WTE and other diversion technologies like anaerobic digestion and composting is not diminished by the success achieved in landfill diversion, particularly when these technologies will likely play the largest role in that success. Instead, the GHG benefits of these technologies should be evaluated against the baseline scenario without policy actions like SB 1383. Additionally, while SB1383 has set a target to reduce organics disposal by 50% by 2020 relative to 2014, it expressly forbids even the adoption of regulations that would implement that target until 2025.

CARB
November 4, 2016
Page | 4

We agree that a long-term strategy and solution is necessary. We only ask that in developing such a solution, CARB treat landfills and WTE on a level playing field based on their relative lifecycle GHG emissions for the waste streams they receive. Since our initial exemption was based on science and the objective for a level playing field, our ultimate inclusion in the cap and trade program should be assessed similarly. Such an assessment should be based on the latest available science and data, including those changes in the waste stream measured and observed as a result of successful implementation of organics diversion.

Thank you very much for the opportunity to comment. Please let us know if you have any additional questions and thank you for your work on this important issue.

Sincerely,



Michael E. Van Brunt, P.E.

¹ CalRecycle. 2012. CalRecycle Review of Waste-to-Energy and Avoided Landfill Methane Emissions. Available at: <http://www.calrecycle.ca.gov/Actions/PublicNoticeDetail.aspx?id=735&aiid=689>

² See Table 5 of California Air Resources Board (2014) *Proposed First Update to the Climate Change Scoping Plan: Building on the Framework, Appendix C – Focus Group Working Papers, Municipal Solid Waste Thermal Technologies*

³ Center for American Progress (2013) Energy from Waste Can Help Curb Greenhouse Gas Emissions <http://www.americanprogress.org/wp-content/uploads/2013/04/EnergyFromWaste-PDF1.pdf>

⁴ Third Way (2014) *Power Book: Energy from Waste*, <http://powerbook.thirdway.org/filter-web-app/energy-from-waste>, accessed November 26, 2014.

⁵ Joint Institute for Strategic Energy Analysis (2013) *Waste Not, Want Not: Analyzing the Economic and Environmental Viability of Waste-to-Energy (WTE) Technology for Site-Specific Optimization of Renewable Energy Options*. <http://www.nrel.gov/docs/fy13osti/52829.pdf>

⁶ Berkeley Law Center for Law, Energy & the Environment (2016) *Wasting Opportunities: How to Secure Environmental & Clean Energy Benefits from Municipal Solid Waste Energy Recovery*. <https://www.law.berkeley.edu/research/cee/research/climate/waste-to-energy/>

⁷ 40 CFR 60.5845

⁸ 40 CFR 60.5800

⁹ See Figure SPM.5 of IPCC (2013) *Summary for Policymakers*. In: *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Stocker, T.F., et al. (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA https://www.ipcc.ch/pdf/assessment-report/ar5/wg1/WG1AR5_SPM_FINAL.pdf

¹⁰ World Meteorological Organization (2014), *WMO Greenhouse Gas Bulletin: The State of Greenhouse Gases in the Atmosphere Based on Global Observations through 2013*, 10, September 9, 2014. Available at: <https://drive.google.com/file/d/0BwdvoC9AeWjUd0IPWXBMU1VmNGc/view>

¹¹ The IPCC concluded that “it is likely that including the climate-carbon feedback for non-CO₂ gases as well as for CO₂ provides a better estimate of the metric value than including it only for CO₂.” See p714 & Table 8-7 of Myhre, G. *et al.* (2013) *Anthropogenic and Natural Radiative Forcing. In: Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Stocker, T.F., *et al.* (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.
https://www.ipcc.ch/pdf/assessment-report/ar5/wg1/WG1AR5_Chapter08_FINAL.pdf

¹² CARB (2016) *Proposed Short-Lived Climate Pollutant Reduction Strategy*
<https://www.arb.ca.gov/cc/shortlived/meetings/04112016/proposedstrategy.pdf>

Comment Log Display

Below is the comment you selected to display.

Comment 20 for Cap-and-Trade Regulation Amendments Workshop (ct-amendments-ws) - 1st Workshop.

First Name: Peter

Last Name: Weiner

Email Address: peterweiner@paulhastings.com

Affiliation: Crockett Cogeneration LLC

Subject: Cap-and-Trade Regulation Amendments

Comment:

The following comments are not specific to the subject of the recent Workshop, but are pertinent to the proposed Amendments as a whole. For the reasons expressed below, we were not notified in the August 2 Public Notice of certain proposed Amendments, and only recently became aware of them. In any event, we ask that you accept these comments for the record.

COMMENTS BY CROCKETT COGENERATION, LLC ON PROPOSED AMENDMENTS TO THE CALIFORNIA CAP ON GREENHOUSE GAS EMISSIONS AND MARKET-BASED COMPLIANCE MECHANISMS REGULATION

Background: Legacy Contracts and the Proposed Amendments

When the AB 32 Cap and Trade Program was first implemented, the Board provided allowances to IOUs and various other covered entities, subject to a declining cap. It became apparent that some "legacy contracts" (now defined in 17 CCR Section 95802 (203)) were not covered by the Board's original allocation of allowances, and that there were inequities with regard to legacy contract treatment. Legacy contract holders appeared before the Board to plead their case, and the Board directed staff to consider and act upon these concerns. Accordingly, the staff proposed in 2013 and the Board in 2014 adopted provisions to assist these legacy contract holders.

Legacy contract holders with IOU or industrial counterparties lent themselves to a solution in which allowances were transferred from one party to another. However, for legacy contracts without an industrial counterparty—with several diverse and unique examples—it became necessary to allocate allowances based on previous emissions. The Board chose 2012 as that reference year. The Board also conditioned allowances on proof that the legacy contract holders continue to try to get their counterparties to absorb the cost of allowances. In some cases this proved possible, in other cases it proved impossible.

In 2014 the Board decided that for legacy contracts with an industrial counterparty, transition assistance would be provided

for the life of the contract (17 CCR Section 95870(g)(2)). However, for those without an industrial counterparty, the Board limited transition assistance to the end of the second compliance period (Id., subdivision (g)(1)).

At the time of its decision the Board understood that there was only one such legacy contract without an industrial counterparty that was covered by the regulation, Crockett Cogeneration, that extended beyond 2017 (Crockett extends until 2026). The Board urged Crockett to continue to negotiate with its counterparty, C&H Sugar, and to return to the Board later if it could not do so. No promises were made to extend the transition assistance period, but the door remained open for conversation.

On August 2, 2016, the Board issued its NOTICE OF PUBLIC HEARING to consider proposed amendments to the California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms Regulation (hereinafter "Public Notice"). The 27 page summary of proposed amendments mentions legacy contracts only once (page 10), and does not discuss the Board's proposal to delete all provisions of the Regulation that pertain to legacy contracts without an industrial counterparty.

Although we understand the Board's position that its deletion of these provisions did not need to be noticed because the program in the current regulation sunsets after the second compliance period (2017), we believe that the Administrative Procedure Act calls for that type of notice when an entire program is being deleted from the regulation entirely. As an example, had the Public Notice set forth the planned deletion of the program, Crockett Cogeneration would have been on notice that if it wanted to argue for an extension of transition assistance into the third compliance period, it would need to ask also that these provisions be amended rather than deleted. (The referenced deletions occur in the definition section, 95802, section 95870, and section 95894, among others.)

Crockett Cogeneration

Crockett Cogeneration provides steam (heat) to C&H Sugar. C&H Sugar uses the steam provided by Crockett Cogeneration to first produce all the electrical energy required for operation of the refinery and secondly to supply all the thermal processes required to refine sugar and produce its products. The steam sales contract does not provide for any pass-through for the type of costs created by the Cap and Trade Regulation. C&H, were it to have emissions of its own, would readily qualify as an energy-intensive trade-exposed (EITE) industrial entity covered under the Cap & Trade program. It is the only cane sugar refiner west of the Mississippi, and competes nationally and internationally based on price. As a result, C&H has been unwilling to shoulder any of the load of GHG allowance costs, including the cost of joining the system and reporting.

Crockett Cogeneration is equitably as entitled to transition assistance as any other legacy contract generator that is provided that assistance for the life of its contract. Given Crockett's

inability to re-negotiate its contract with its nonindustrial counter-party, we ask the Board's consideration of the fairness of extending transition assistance for the life of Crockett's contract (2026), subject to all of the same conditions that have been heretofore required for such assistance.

Thank you for your consideration,
Peter Weiner

Attachment:

Original File Name:

Date and Time Comment Was Submitted: 2016-11-04 12:42:02

**To: Rajinder Sahota, Chief
Climate Change Program Evaluation Branch, Industrial Strategies Division
California Air Resources Board, 1001 I Street, Sacramento, California 95814
Online Submission:**

https://www.arb.ca.gov/lispub/comm2/bcsubform.php?listname=ct-amendments-ws&comm_period=1

**COMMENTS ON CALIFORNIA AIR RESOURCES BOARD'S
CAP-AND-TRADE REGULATION AMENDMENTS WORKSHOP**

**Compliance Offset Methodology
Short-Lived Climate Pollutant Strategy**

*Replacement of Foam Blowing Agent from High-GWP Materials to Low-GWP Materials in
Manufacturing and Use
November 4, 2016*

This memo is submitted to the Air Resources Board (“**ARB**”) with respect to adopting further regulations and requirements to add an additional Protocol under the AB32 regulations for creating Air Resources Board Offset Credits (“**ARBOCs**”). The comments in this memo focus on recent ARB legislation and highlights the important environmental and cost containment benefits associated with the adoption of a recently approved American Carbon Registry (“**ACR**”) Methodology.

Introduction

In April 2016, the “*Emission Reduction Measurement and Monitoring Methodology for the Transition to Advanced Formulation Blowing Agents in Manufacturing and Use*” (“**Methodology**”) was published by ACR. Since the adoption of this Methodology there has been significant interest from both large and small foam manufacturers across the U.S. to implement projects associated with this Methodology. More importantly, several projects are currently undergoing the validation and verification process to produce voluntary offsets through ACR.

This Methodology creates offsets primarily through the transition away from hydrochlorofluorocarbons (“**HFCs**”) in foam manufacturing and use. HFCs have a high global warming potential (“**GWP**”) and are the principal blowing agent (“**BA**”) for most polyurethane foams (“**PUF**”) ¹ manufactured in the United States. A BA is used to propel liquid plastic resin to produce the foam that is used in PUFs. Foam BAs are used in the manufacturing of items like refrigerators, buildings, automobiles, furniture, packaging, etc.

¹ Defined in the methodology as “foam created through the mix of polyurethane chemical and a BA”.

This Methodology was adopted by the ACR in April, 2016 after completion of the ACR methodology review, peer review and approval process.

This Methodology is similar to the CDM methodology AMS-III.N2 and rests on the reporting formulae established by IPCC for HFC emissions. It is the result of innovations to develop near-zero-GWP BAs and approvals of such by the U.S. EPA under its Significant New Alternatives Policy (“SNAP”) Program. The Methodology includes not only a credit for early action to use low-GWP BAs, but also yields credits for BAs which go beyond the forthcoming Montreal Protocol Amendments and U.S.EPA SNAP requirements³. This Methodology has been supported by industry participants and non-profit organizations such as the International Emissions Trading Association (“IETA”). The methodology has also been included in the climate regulations issued by the State of Washington as an eligible offset methodology.⁴

The methodology is consistent with and supportive of the ARB Short Lived Climate Pollutant Policy (“SLCP”) and would substantially advance implementation of California's Climate Protection legislation and objectives.

Foam Supplies urges the inclusion of this Methodology in the cap-and-trade program as it provides an alternative to high-GWP materials in foam BA and offers opportunities to switch seamlessly from high-GWP to near-zero or low-GWP BAs. This Methodology identifies four applications for blowing agents for PUFs⁵ which meet the low-market penetration Performance Standard test: Residential Appliances; XPS Board and Billet Manufacturing; Two-Component Rigid PU Spray Foam, and four end uses which use the Injected Rigid PUF manufacturing method. Several projects are underway using the Methodology.

A compliance offset mechanism for foam BAs is a valuable tool to support ARB efforts to reach the crucial but yet ambitious State overall target greenhouse gases (“GHG”) target of 40 percent below 1990 by 2030⁶ (“SB 32”). Pursuing its leadership on environmental policies, the California legislator codified ARB’s emissions target for short-lived climate pollutants (“**SB 1383 or the Super Pollutant Legislation**”), and ordered its enforcement by January 2018⁷. Specifically, the law directs ARB to implement a “comprehensive strategy to reduce emissions of short-lived climate pollutants to achieve a reduction [...] in hydrofluorocarbon gases by 40 percent [...] below 2013 levels by 2030”⁸. According to

² Available at <https://cdm.unfccc.int/methodologies/DB/1P2JT8SH9N4BE14JIL3641BQOB0FCR>

³ Reductions of 15% emissions compared to 2012 level by 2030. <https://www.whitehouse.gov/the-press-office/2016/09/22/leaders-100-countries-call-ambitious-amendment-montreal-protocol-phase>

⁴ <http://www.ecy.wa.gov/programs/air/rules/docs/UnofficialRuleLanguageChapter173442WAC.pdf>, p.27; WAC 173-442-168 8(d).

⁵ Defined in the methodology as “foam created through the mix of polyurethane chemical and a BA”.

⁶ SB 32 (September 8, 2016), Cal. H&S Code, §38566, relating to greenhouse gases. Available at: https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB32

⁷ Cal. H&S Code §39730.5

⁸ SB 1383 (September 19, 2016) Cal. H&S Code, at §39730.5, 39730.6, 39730.7 and 39730.8; and adding Chap. 13.1 to Part 3 of Division 30 of the Public Resources Code, relating to methane emissions. Available at: https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB1383

the Proposed Short-Lived Climate Pollutant Reduction Strategy (“**SLCP Reduction Strategy**”), reaching this target represent a reduction of 24 million metrics tons of CO₂e- compared to 2013 levels⁹.

Therefore, the Methodology should be included in the cap-and-trade program because it advances California’s strategy to reduce the greenhouse gases emissions, by providing a cost effective solution to eradicate seamlessly HFCs in PUF, while contributing to early health, environmental and economic benefits in designated disadvantaged communities¹⁰.

1. The Methodology foster state’s efforts to reach SLCP ambitious target

For the reasons discussed below, ARB should consider the adoption of this Methodology as it is an innovative market-based approach to reduce HFCs in the foam manufacturing industry and is also aligned with the Super Pollutants Legislation and proposed SLCP Reduction Strategy.

- It would be an important tool to **reach higher targets** than those stipulated in the Amendment of the Montreal Protocol¹¹ by allowing the pursuit of a 40% reduction pathway, compared to 2013 pathway.
- In the SLCP Reduction Strategy, ARB recognized that “Even with a strong international agreement to phase down the use of HFCs, additional opportunities remain to reduce their emissions in California in the near-term and through 2030 at a low cost”¹². Indeed, a compliance offset mechanism for foam BAs is a practical solution which incentivizes foam manufacturers to go beyond the use of **any HFCs**, even those which the EPA would continue to allow to be used indefinitely.
- The adoption and use of this Methodology could **potentially generate millions of offset credits annually** and encourage the **voluntary replacement** of high-GWP BAs with low or near-zero GWP BAs.
- HFC emission sources in California are expected to grow by more than 60 percent through 2030, with 17 percent of that growth attributed to the foam industry¹³. Even with the implementation of the recent international Montreal Protocol Amendment and a national phase down, additional action must be pursued to dramatically reduce these emissions.
- This Methodology can produce very substantial emission reductions, as shown in the Table 1 below.

⁹ ARB, *Proposed SLCP Reduction Strategy*, April 11, 2016 at page 10, 86

¹⁰ Upon bill 535 (De Leon), *CalEPA designated disadvantaged communities, for the purpose of allocating 25% of cap-and-trade proceeds to projects in priority these areas.*

¹¹ <https://www.whitehouse.gov/the-press-office/2016/09/22/leaders-100-countries-call-ambitious-amendment-montreal-protocol-phase>

¹² ARB, *Proposed SLCP Reduction Strategy*, April 11, 2016 at page 85

¹³ ARB, *Proposed SLCP Reduction Strategy*, April 11, 2016 at page 84,85

Table 1 – Market Size of Applications Considered

Market Size of Applications Considered

Work Paper: Potential Offset Credits ¹				
Foam Application	Sales in 2014 (N.A.) (metric tonnes)	Emission Factor	Baseline B.A.	Annual ARBOCs from Conversion using 100 year GWP
Rigid PUF injected	7282.7	17%	134a	1,108,791 ²
Rigid PUF residential appliances	15,039	8.25%	245fa assumed	986,934
XPS block/boardstock	2334	31.75%	134a assumed	3,000,000 (est)
PU Spray		28.5%	245fa	See Footnote ³

1. Do not quote or cite. Discussion document.

2. Based on all sub-applications in Rigid PUF injected, currently eligible sub-applications yield a somewhat lesser potential amount.

3. Caleb report suggests almost 1 million tonnes.

2. *The Methodology provides early benefits in disadvantages communities areas*

Since AB 32 enactment, the CARB is bound to embed, in its emission rules and regulations, *environmental justice recommendations* elaborated by the Environmental Justice Advisory Board (“EJAC”)¹⁴. The preoccupation of the legislature is that regulations pursuing California’s emissions target are protective of the state’s disadvantaged communities exposed to poor air quality. The adoption by the current legislature of SB 32 and its companion bill AB 197, as well as SB 1383, takes one step further California’s commitment to include environmental justice in the regulatory process. Those laws contain specific language requiring additional measures and efforts to *mitigate low-income Californians’ vulnerability to climate change*¹⁵. Thus, California has now a comprehensive legal framework on climate justice.

¹⁴ Cal. H&S Code §38591(a)

¹⁵ Cal. H&S Code, §38566, “Continuing to reduce greenhouse gas emissions is critical for the protection of all areas of the state, but especially for the state’s most disadvantaged communities, as those communities are affected first, and, most frequently, by the adverse impacts of climate change, including an increased frequency of extreme weather events, such as drought, heat, and flooding. The state’s most disadvantaged communities also are disproportionately impacted by the deleterious effects of climate change on public health.”

Cal. H&S Code, §39730 “To the extent possible, efforts to reduce emissions of short-lived climate pollutants should focus on areas of the state that are disproportionately affected by poor air quality”.

For the reason discussed below, innovative market-based mechanisms such as the Methodology have necessarily an important role to play in the achievement of California's climate laws and regulations.

- The adoption of the Methodology would provide means to *restore balance* between California's citizens in accordance with the recent legislative developments on environmental justice.
- To eliminate GHG emissions while implementing measures favorable to disadvantages communities requires *early action with a long-term plan advancing clean technologies* as suggested by the latest EJAC's recommendations¹⁶.
- The Methodology offers an innovative approach relying on *state of the art and environmentally friendly materials* that would facilitate the switch to low-GWP emissions foam BAs. In fact, near-zero GWP foam BAs developed in the Methodology are clean technologies approved by the U.S. EPA under its SNAP Program.
- The adoption of this ARBOCs would facilitate the deployment of low-GWP emissions foam BAs for insulation in the construction of *new "green buildings"* and *retrofitted buildings* within disadvantaged communities¹⁷.
- The Methodology provides a *comprehensive approach* fulfilling EJAC's recommendations, which reduce emission of foam BAs throughout the life of the material from manufacturing to end-of-life¹⁸.
- The importance of an *integrative and collaborative approach* is encouraged to tackle climate change. On this, EJAC's recommendations suggest to "tap on the expertise and relationships of the EJAC members and their networks to ensure broad public awareness"¹⁹. Thus it seems logical to include foam manufacturers located in disadvantaged areas and incentivize them to switch to clean foam BAs.
- The Methodology gives *economic incentive to foam manufacturers*, a large portion of which are small businesses, for switching early to low-GWP foam BA. In accordance with the SLCP Reduction Strategy, the implementation of the Methodology will relieve manufacturers from high up-front costs of new materials²⁰.

¹⁶ Initial Recommendations for Discussion Draft Version of 2030 Target Scoping Plan Update August 26, 2016, at p20.

"Emphasize regulations that force the advancement of clean technologies. Ensure that near-term technologies do not adversely impact communities and long-term investments moves towards zero emissions". Accessible at https://www.arb.ca.gov/cc/ejac/ejac_recommendations082616revised.pdf

¹⁷ EJAC's recommendations at p7 "Provide direction to industry on best practices for rapidly moving toward widespread design and construction of green buildings within disadvantaged and low-income communities, and incentivize developers to adopt the standards and implement them".

¹⁸ EJAC's recommendations at p1. "both short and long-term activities need to result in positive, immediate and measurable impact in these communities".

¹⁹ EJAC's recommendations at p1.

²⁰ ARB, Proposed SLCP Reduction Strategy, April 11, 2016 at page 85

- Foam manufacturers will be more inclined to ***voluntarily transition away*** from the materials if they can benefit from that change. This is aligned with EJAC’ recommendations which encourage to “Incentivize behaviors that protect and improve disadvantaged communities; both on a large scale and at a community level”²¹.
- The proposed ARBOC would provide ***emissions reduction*** as detailed in Table 1. Those reductions of potent gases will improve the air quality in disadvantaged communities, and consequently reducing environmental and health damages.
- The adoption of this Methodology as an offset mechanism for foam BAs will have a ***direct and localized positive outcome*** on areas disproportionately affected by poor air quality.

Geographically, much of the pollution burden areas are the Central Valley and Southern California. Emissions from foam BAs manufacturing and use are no exception. ARB should therefore ***prioritize action within communities where foam BAs manufactories are located*** through the adoption of the Methodology²².

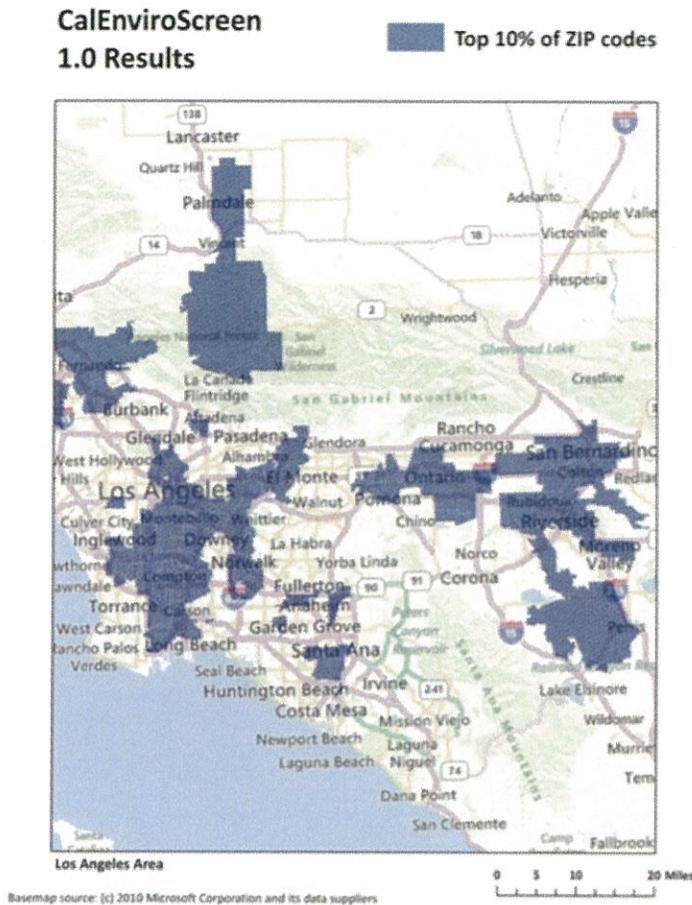
The Figure 1 indicates in the Los Angeles area the top 10% ZIP codes with the highest score in terms of pollution²³.

²¹ EJAC’s recommendations at p.2

²² EJAC’s recommendations at p. 3 “ARB must prioritize actions and investments in California EJ communities before looking at other Californian communities or outside of California”.

²³ CalEnviroScreen 1.0 tool

Figure 1 - Top 10% Highest Scoring Census ZIP Codes, Los Angeles Area²⁴



Through the California Communities Environmental Health Screening (“CalEnviroScreen”)²⁵ we can identify the level of pollution in areas where a foam BAs manufactory is located. The Figure 2 depicts the pollution levels in areas where there are foam BAs manufactories – the pollution level is color coded green, orange and red, with red indicating areas with the highest level of pollution.

²⁴ <https://www.arb.ca.gov/cc/ejac/calenviroscreen-2013.pdf>

²⁵ The Office of Environmental Health Hazard Assessment (“OEHHA”) gathered information on California air pollution

Figure 3: Foam Manufacturing facilities in Los Angeles Area²⁶

Therefore, there is an opportunity here to use the Methodology to *significantly drive the level of pollution down using a direct and localized action on areas disproportionately affected by poor air quality*. This approach is consistent with EJAC's recommendations to target local emission reductions at manufacturing levels to ensure a better balance between "reducing emissions at low cost while maximizing benefits for all Californians"²⁷.

Conclusion

For all these reasons, an offset mechanism for foam BAs through methodology developed by Foam Supplies and adopted by the ACR should be considered by ARB as a *solution for dramatically reducing the emissions of HFC*. The Methodology presents the advantage to *target emissions in disadvantaged areas* with *localized action* resulting in *immediate benefits* kept *within the community* where the manufactory operates. Therefore, the adoption of an offset mechanism for foam BAs will have a *direct and localized positive outcome* on areas disproportionately affected by poor air quality. This outcome will definitely serve the purpose of emission reductions legislations as well as California's model for climate justice.

²⁶ 101732965

²⁶ <http://oehha.ca.gov/calenviroscreen/general-info/calenviroscreen-30-draft-indicator-and-results-maps>

²⁷ EJAC's recommendation at p.1. "Emphasize regulations that force the advancement of clean technologies. Ensure that near-term technologies do not adversely impact communities and long-term investments moves towards zero emissions". "ARB must better balance reducing GHG and reducing costs (cost compliance) with the other AB 32 goals of improving air quality in EJ communities while maximizing benefits for all Californians".

ERIC GARCETTI
Mayor

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DAVID H. WRIGHT
General Manager

November 4, 2016

Ms. Rajinder Sahota
California Air Resources Board
1001 "I" Street
Sacramento, CA 95814

Subject: Los Angeles Department of Water and Power's Comments on Proposed Amendments to the California Greenhouse Gas Cap-and-Trade Regulations

The Los Angeles Department of Water and Power (LADWP) appreciates the opportunity to provide comments to the California Air Resources Board (ARB) regarding potential amendments to the Mandatory Greenhouse Gas (GHG) Reporting and Cap-and-Trade Regulations that were discussed at the ARB workshop held on the October 21, 2016. The primary focus of LADWP's comments is the proposed new methodology for allocating post-2020 allowances to Electric Distribution Utilities (EDUs) under the GHG Cap-and-Trade Regulation, as detailed in the workshop presentations and the informal CARB staff proposal released on October 14, 2016.¹ LADWP's comments also address several other issues that ARB raised during the workshop, including the treatment of unsold allowances with a vintage year of 2020 or earlier, the publication of additional market data, and ensuring that EDUs can claim the Renewable Portfolio Standard (RPS) adjustment for covering GHG emissions for imported RPS-eligible firmed/shaped renewable electricity.

In submitting these comments, LADWP reaffirms its strong support of the AB 32 and SB 32 goals of achieving substantial GHG emission reductions in a cost-effective manner that protects its ratepayers and minimizes impacts to low-income communities. LADWP appreciates the opportunity to submit these comments to improve the effectiveness and workability of ARB's Cap-and-Trade Regulation.

As LADWP has stated in previous comments, it is very difficult to assess the full ramifications of the proposals to amend the California Cap-and-Trade Regulation and

¹ See *Cap-and-Trade Regulation, Post-2020 Allocation to Electrical Distribution Utilities, Informal Staff Proposal*, dated October 14, 2016.

whether they are workable, efficient, and provide adequate protections for LADWP's ratepayers, including low-income customers because the proposed amendments for continuation of the program beyond 2020 are not fully developed. Notwithstanding the evolving nature of ARB's proposal on key regulatory details, LADWP's primary concern so far identified is the substantial under-allocation of allowances to LADWP from 2021 to 2030, which is estimated to increase costs to LADWP ratepayers by \$500-\$600 million (based on projected auction floor price of allowances).

LADWP recommends that ARB not rush the regulatory process for amending the Cap-and-Trade Regulation and that, at the very least, allow stakeholders sufficient time to comment on the entire rulemaking each time that ARB releases future 15-day amendment packages to the original August 2 proposal.

I. EDU Allowance Allocation – Informal Staff Proposal

Proposed Option 1 (Change Load) vs. Option 2 (Fixed Load)

LADWP recommends applying proposed Option 1 on a regional basis. Option 1 recognizes that the load level will not remain constant at 2020 levels, but rather change for each region within the State throughout the post-2020 allowance allocation period. By contrast, LADWP does not support the approach proposed in Option 2, which assumes California load is fixed at 2020 levels from 2021 to 2030 and thereby does not address the reality that the State is increasingly focused on the electrification of sources (e.g., transportation and other sectors of the economy) to meet its future GHG emission reduction goals and that local air regulatory agencies must implement electrification-related control measures in order to meet federal ambient air quality standards.

The importance of electrification as a key emission control strategy for meeting local air quality goals is clearly evidenced by the 2016 Air Quality Management Plan (AQMP) that the South Coast Air Quality Management District (SCAQMD) is currently developing for the South Coast Air Basin (SCAB). The AQMP is a primary planning document that lays out the potential future rules, requirements, incentives, and other regulatory actions upon which the SCAQMD intends to implement in the SCAB in order to meet the federal ambient air quality standards for criteria air pollutants, such as ozone and particulate matter. According to the Draft Environmental Impact Report (EIR)² for the 2016 AQMP, SCAQMD has proposed over 40 control measures that could result increases in electricity demand for the electric power sector. The potential increases in electricity demand would result from electrification-related control measures that are expected to increase the number of near-zero and zero emission

² South Coast Air Quality Management District Draft Environmental Impact Report, 2016 Air Quality Management Plan, September 2016

technologies or control measures that are achieved through the installation of control equipment (that increase electricity demand) but achieves a net air quality benefit in the local air shed.

The Draft EIR states that the potential electricity usage increase for Los Angeles, Orange, Riverside, and San Bernardino counties due to the proposed electrification-related control measures would exceed baseline electricity consumption by 7.8 percent (by 2023) to 12.7 percent (by 2031).³ In addition, even with the implementation of an aggressive end-use energy efficiency program, substantial increases in electricity demand would remain significant. Because of the forecasted electricity demand due to these electrification-related control measures that would reduce criteria pollutants as well as GHG emissions, LADWP believes that it is unrealistic to assume that EDU loads would remain flat at 2020 levels for the 2021 to 2030 period. Therefore, LADWP recommends that ARB adopt the proposed Option 1 on a regional basis in order to ensure that ARB's post-2020 allowance allocations are more representative of actual operation of the LADWP system and other electric utility systems.

ARB Proposed Application of a Cap Adjustment Factor for EDU Allowance Allocations

The initial staff proposal states that EDUs would be allocated allowances to cover their cost burden associated with fuels used over the 2021 through 2030 period. The allowance allocation is intended for ratepayer protection. ARB is proposing an allowance allocation methodology that falls short of achieving this important goal for the reasons discussed below.

ARB is proposing to reduce allowance allocations by the application of a Cap Adjustment Factor of about 3.4 percent each year. The application of the Cap Adjustment Factor is in addition to the reductions that LADWP would achieve through the shutdown of its remaining coal-fired generation at the Intermountain Power Plant in Utah, substantial increases in renewable energy generation, and other measures it intends to undertake to reduce its GHG emissions system-wide. As a result of combining these utility-specific reduction efforts with the Cap Adjustment Factor, the proposed 2030 allocation to LADWP would be an 82 percent reduction from LADWP's 2020 allowance allocation. Furthermore, this allocation level would have the effect of requiring an 88 percent reduction from LADWP's 1990 GHG emission levels (assuming purchase of no additional allowances) – a reduction level that is over twice as much as the SB 32 goal of achieving a 40 percent GHG emission reduction from 1990 levels by 2030.

³ Projections based on CEC Electricity Consumption by County. Energy Consumption Database System. Assumed an average increase in electricity of 1 percent per year.

In addition to imposing a disproportionate GHG reduction obligation on LADWP through the proposed allowance allocation (as compared to the statutory reduction target), this reduction requirement would be very costly to LADWP's ratepayers and thereby not address ARB's stated intent to protect ratepayers. We urge ARB to consider the cost burden of implementing GHG reduction actions such that each sector pays for its fair share of the GHG reduction goal mandated under SB 32. The importance of CARB correcting this flaw in the allocation methodology is underscored by the fact LADWP has been making unprecedented major capital investments in the following areas that will result in significant GHG emissions reductions on a LADWP system-wide basis:

- Replacing existing coal resources with non- or low-emitting replacement generation;
- Expanding our reliance on renewable energy in order to keep LADWP on the path to meet the RPS goals of 33 percent by 2020 and 50 percent by 2030;
- Modernizing LADWP's generating fleet in the South Coast Air Basin by replacing its existing generating units with high efficient, state-of-the-art natural gas combustion turbines;
- Implementing major projects and measures for improving end-use energy efficiency;
- Electrifying the transportation sector and other sectors of the economy; and
- Developing increased capacity for energy storage.

LADWP will continue to make these types of major capital investments to further decarbonize its electric utility system. For example, the 50 percent RPS is one major measure by which LADWP and other electric utilities will achieve a significant share of the statewide 40 percent reduction by 2030 goal. Furthermore, electric utilities will play a special role in helping the state achieve its 40 percent reduction by 2030 goal by helping the transportation and industrial sectors reduce their emissions through electrification.

Imposing the Cap Adjustment Factor on top of the utility-specific GHG reductions LADWP will achieve through compliance with the RPS and the SB 1368 requirement will result in costs to LADWP's ratepayers of \$500 to \$600 million from 2021 to 2030. These costs would be in addition to the approximate \$900 million LADWP will be spending to implement the RPS program. Over 20 percent of LADWP's ratepayers are on its low-income and lifeline programs and will be impacted by this additional cost. For these reasons, we urge ARB to reconsider its approach to applying an across-the-board Cap Adjustment Factor to the EDU sector's allowance allocations, in addition to the utility-specific GHG emissions reductions that LADWP is expected to achieve over the 2021-2030 period.

Net Energy for Load Data

The informal staff proposal states that ARB would allocate allowances to each EDU according to its cost burden. “Cost burden” is defined as the anticipated incremental cost of power to serve load due to the requirement to surrender compliance instruments in the Cap-and-Trade Program. For EDUs that submit S-2 data to the California Energy Commission (CEC), ARB proposes to use the CEC’s 2015 Integrated Energy Policy Report (IEPR) demand forecast and expected generation data from resources reported in the 2015 S-2 forms. Unfortunately, the proposed post-2020 allowance allocations for LADWP do not achieve this objective due, in part, to the underlying data that ARB is using to calculate the proposed allowance allocations. Specifically, ARB is proposing to use *Form 1.5a-Statewide California Energy Demand Revised/Final Forecast, 2016-2026, Mid Demand Baseline Case, Mid AAEE Savings, Net Energy for Load* to determine LADWP’s allowance allocations. LADWP has found significant discrepancies between the Net Energy for Load (NEL) it has reported to the CEC on its S-2 forms (and subsequently included in its 2015 Integrated Resource Plan) and the levels that CEC states as LADWP’s projected NEL in the Form 1.5a of the Mid-Demand AAEE demand forecast.

CEC staff stated that the reason why CEC’s 2016-2026 demand forecast shows a much lower NEL (as compared to LADWP’s own forecast) is that CEC deducted the load associated with additional achievable energy efficiency (AAEE) and higher solar photovoltaic forecast. AAEE is defined as future energy efficiency programs that are not yet approved or funded. Accordingly, LADWP recommends that the Mid-Demand Baseline No AAEE forecast scenario be used instead of the Mid-Demand Baseline Mid-AAEE forecast so that all of the EDUs will be on an equal footing.

LADWP looks forward to continuing to work with ARB and CEC staffs on these technical, but very important, matters for determining the post-2020 allocation of allowances. We stand ready to ensure that the most accurate data is used for the allocation calculations.

Proposed Calculation of RPS Load

ARB assumes that an EDU would meet its RPS targets based on a linear increase in renewable energy from 33 percent of *total load* in 2020 to 50 percent in 2030. ARB is proposing to use this approach as it is consistent with the method used to calculate the 2013 to 2020 allowance allocations. Since RPS percentage compliance is based on retail sales instead of NEL, LADWP believes that it is more appropriate that the amount of renewable energy for each EDU be based on the approach set forth in the Public Utilities Code Section 399.11: “The Legislature finds and declares all of the following:

(a) In order to attain a target of generating 20 percent of total retail sales of electricity in California from eligible renewable energy resources by December 31, 2013, 33 percent by December 31, 2020, and 50 percent by December 31, 2030, it is the intent of the Legislature that the commission and the Energy Commission implement the California Renewables Portfolio Standard Program described in this article (emphasis added).”

ARB Use of Global Warming Potential Factors

LADWP notes that ARB is using Global Warming Potentials (GWP) from the Intergovernmental Panel on Climate Change (IPCC) Third Assessment Report. LADWP recommends that ARB use updated GWP factors from the IPCC Fourth Assessment Report regarding the appropriate emission factors used to calculate 2021-2030 allocation since those GWPs will be used for compliance in the 2021 to 2030 period.

Shifting EDU Allowance Allocations to the Industrial Sector

ARB has proposed to discontinue the allocation to EDUs the allowances associated with energy used at “energy intensive trade exposed” (EITE) facilities. Instead, the ARB proposal would allocate these allowances directly to EITE facilities representing their electricity consumption using a formula that includes Product-Based Benchmarks. ARB’s stated purpose of this reallocation of allowances is to mitigate electricity cost increases for Cap-and-Trade Regulation compliance costs that would otherwise be borne by EITE sources by providing this supplemental allocation of allowances directly to those sources. Under this approach, ARB would “subtract from an EDU’s allocation an amount equivalent to the emissions resulting from power that serves industrial covered entities that are customers of each EDU.”

LADWP believes that ARB’s proposal is unlikely to accomplish ARB’s goal of leakage prevention for the reasons described in its prior comment letter of September 19.⁴ As stated before, LADWP recommends that the most efficient and effective way to mitigate cost impacts to EITE facilities (and thereby avoid resulting leakage) is for the ARB to retain the current approach and not shift any allowances from EDUs to EITE sources, at least in the case of publically owned utilities, such as LADWP.

Allocation for Electrification

LADWP looks forward to working with ARB and CEC staffs to address methodologies to quantify the net emissions decrease as a result of electrification efforts as well as the emissions increase due to increased demand. As the transportation sector accounts for a significant portion of California’s GHG emissions, electrification of the transportation

⁴ <https://www.arb.ca.gov/lists/com-attach/42-capandtrade16-UmsFLI1tUDoLIAQ1.pdf>

sector could potentially have a significant impact in reducing overall GHG emissions and criteria pollutants. In support of transportation electrification, LADWP will be heavily investing in electric vehicle charging infrastructure and promoting electric vehicle technology. In order to achieve the transportation electrification goal as described in its Integrated Resource Plan (580,000 electric vehicle equivalents by 2030), LADWP has estimated that it will be investing \$1.4 billion by 2030. Providing an allowance allocation for electrification can mitigate the disincentive to invest in electrification.

Furthermore, LADWP believes that similar efforts will be necessary as ARB moves forward with the electrification of industrial sources and other sectors of the economy.

II. Treatment of Unsold Allowances

During the October 21 workshop, CARB indicated that it could retire some or all unsold State-owned allowances with vintage year 2020 or earlier. Although there are unsold State-owned allowances today, it is unknown what the demand for allowances will be in the future given the significant reductions that would be needed post-2020. LADWP supports ARB completing a cost-containment evaluation before it moves forward with any proposal to retire some or all of the unsold state-owned allowances, whether vintage 2020 or earlier or post-2020 vintage allowances.

III. Additional Market Data Publication Under Consideration

ARB currently publishes information on the transfer quantities and average prices of allowances annually. During the workshop, ARB indicated that staff is considering the possibility of publishing the information more frequently and referred to the Emissions Market Advisory Committee's paper of February 2014, which includes recommendations for market data publication.

As a general matter, LADWP believes that the disclosure of market information should be balanced against the need to protect individual covered entities from market manipulation. Although it may be more time intensive for ARB staff, LADWP believes that publishing the transfer quantities and average prices of allowances on a quarterly basis would be reasonable as ARB's auctions are done on a quarterly basis.

With respect to the recommendations to provide an index of the concentration of net positions in the market, publishing this information may not provide a full picture of the market. Information related to non-covered individuals and entities would not be included and these entities may hold, in aggregate, a significant number of allowances. For example, in the SCAQMD's NO_x RECLAIM cap-and-trade program, commodity

traders, mutual funds, and private investors invest in and own RECLAIM Trading Credits (RTCs) and seek profit from trading them. These investors have been involved in a significant portion of the trades with respect to both value and volume of RTCs. The proposal's definition of long position (applying the emissions from a previous year as estimates for the remaining three-year compliance cycle) may not provide an adequate view of potential excess allowances in the market for the post-2020 period as the required emission reductions are more significant from year-to-year. Also, the Cap-and-Trade Regulation requires each covered entity to surrender at least 30 percent of the allowances representing 30 percent of its GHG emissions during the first and second years of a 3-year compliance period, and 100 percent of the required allowances at the end of a compliance period. Judgment on an entity's compliance status based on information shown before retirement/reconciliation of allowances would be premature and could cause confusion amongst those that are not familiar with the complexities of the Cap-and-Trade Regulation.

Instead, LADWP recommends that ARB publish an annual carbon market report similar to what the SCAQMD publishes annually for the RECLAIM cap-and-trade market. In SCAQMD's *Annual RECLAIM Audit Report*, allocation and trading issues that are addressed include;

- Number of registered transactions and associated values;
- Average annual prices of emission credits;
- Emission credit supply compared to reported emissions;
- Information on market participants (e.g., investors' impact on the RECLAIM trading credit market);
- List of facilities that ceased operation; and
- Compliance status of facilities (e.g., number of facilities that failed to reconcile emissions and the reasons why).

LADWP believes that aggregating the information and preparing an overall market report will provide market information to the public in a user-friendly format.

IV. RPS Adjustment

LADWP supports ARB's proposal to retain the RPS adjustment provision. However, the application of ARB's current guidance and interpretation of the RPS adjustment related to reporting and verification requirements severely limits the usefulness of the RPS Adjustment and so risks imposing significant additional costs on LADWP's and other California ratepayers for zero-emission generation for which they are already paying in order to comply with the RPS. LADWP is ready and willing to continue discussions with ARB to develop a workable solution.

V. Conclusion

LADWP supports ARB's efforts to revise the current Cap-and-Trade Regulation in order to ensure the achievement of the GHG emission reduction goals of AB 32 and SB 32. To that end, LADWP appreciates the opportunity to provide these comments in order to improve the effectiveness and workability of ARB's Cap-and-Trade Regulation in a manner that protects its ratepayers and minimizes impacts to low-income communities. If you have any questions, please contact me at (213) 367-0403 or Jodean Giese at (213) 367-0409.

Sincerely,



Mark J. Sedlacek
Director of Environmental Affairs

JG:vf

C: Ms. Rajinder Sahota, ARB
Ms. Mary Jane Coombs, ARB
Mr. Jason Gray, ARB
Mr. Bill Knox, ARB
Mr. Craig Segall, ARB
Ms. Jodean Giese



November 4, 2016

Richard Corey
Executive Officer
California Air Resources Board
1001 I Street
Sacramento, CA 95812-2828

RE: Southern California Edison Comments on the Cap-and-Trade Workshop - 10/21/2016

Mr. Corey,

Southern California Edison (SCE) respectfully submits these informal comments to the California Air Resources Board (ARB) on the Proposed Regulatory Order addressing changes to the Cap-and-Trade regulation. These comments are meant to be read in addition to the California Joint-Utility Group (JUG) comments which will be submitted during this regulatory proceeding.

SCE supports a well-designed Cap and Trade program to help the state achieve its post-2020 goals.

A well-designed Cap-and-Trade Program can help keep total program costs down while achieving environmental goals. SCE also supports ARB's post-2030 annual economy-wide cap-setting methodology. However, a review process should be put into place to program costs and feasibility going forward. This is particularly appropriate considering the large degree of uncertainty that exists when considering California's multi-decade effort to reduce greenhouse gases.

Comments on the Electrical Distribution Utility Post-2020 Allowance Allocation Proposal

SCE agrees with ARB staff that alleviating customer cost burden is the right guiding principle for post-2020 allocation in the electric sector. However, SCE also agrees with JUG comments that seek to expand the definition of what should count as 'cost burden'. Please refer to JUG comments for a fuller treatment of the utilities' list of reasonable costs that should be covered through ARB's allowance allocation methodology. But in summary, SCE and the JUG recommend that ARB's cost burden principle should be expanded to include:

- Recognition of continued investment in EE programs, as in the previous allocation.
- Recognition of load growth due to fuel switching and increased electrification
- Continued recognition of Qualifying Facilities contracts

SCE is concerned with the reduction in electric sector allocation between 2020 and 2021, and the rapid rate of decline in electric utility allocations due to the dual impacts of a significant cap adjustment factor and assumptions about utility compliance in the RPS Program. ARB staff has proposed a significant decrease in allowance allocation for EDUs from 2020-2030, which would directly reduce the biannual Climate Credit returned to customers, at a time when the state's climate policies desire to see an increase in the utilization of electricity as an end-use fuel. As California seeks to encourage fuel switching in sectors and across technologies that have traditionally relied on fossil fuels, the state should ensure that electricity remains as price competitive as possible. ARB staff should work

with stakeholders to determine ways the electric sector can continue to help achieve the state's 2030 goals, while smoothing out the transition in pre- and post- 2020 allocation methodologies.

SCE agrees with other California utilities that call for changes in the way our State's RPS program is represented in the post-2020 allowance allocation calculations. The denominator used to calculate compliance with the State's RPS program is retail sales and not load (at the generation level).¹ Accordingly, ARB staff should calculate RPS generation levels based on retail sales and not based on load.

The post-2020 Allowance allocation is most reasonably calculated using loads without additional achievable energy efficiency (AAEE). As the California Energy Commission (CEC) notes, AAEE savings are associated with programs that are neither finalized nor funded, even if the CEC believes they are reasonably expected to occur.² SCE agrees with other California utilities that this uncertainty should be removed from allocation calculation.

ARB should continue to remove disincentives for increased electrification in Transportation and other end-uses through the allowance allocation process. SCE would like to highlight the need for ARB staff to continue its work with stakeholders to understand a methodology for allocating allowances due to increased electrification. As the state continues towards its long-term climate targets, the emissions intensity of delivered electricity will continue to fall, making it an ever more attractive option as an end-use fuel. Electricity's role in powering transportation systems, industrial boilers, and building heating are just a few examples of the applications that may increase the emissions attributable to SCE (due to the nature of ARB's current accounting system) but would result in clear emission reductions from a societal perspective. SCE looks forward to discussing options to quantify these cross-sectoral effects and determine a reasonable method for delivering allowances to utilities where they are warranted.

Comments on Post-2020 Cap-and-Trade Market Design and Data

Cost containment should continue to be a key element of market design. Cost Containment proposals should not just focus on what the state can do in the event of a sudden allowance price spike, but instead should also consider market design choices that could prevent a spike from occurring in the first place. This regulatory package includes several proposals that could result in the tightening of allowance supply and/or proposals that could increase the costs of compliance for regulated entities.

On the treatment of unsold allowances, SCE agrees with other California utilities who believe that removing allowances from the market into the APCR after two years is premature and could have the unintended consequence of significantly increasing the costs of the Cap-and-Trade program. The Cap-and-Trade program has been subject to significant uncertainty due to regulatory, judicial, and legislative controversies. A first-of-its-kind greenhouse gas market could be expected to face such challenges, and is still clearly feeling the effects of lingering uncertainty. SCE and JUG members suggest that ARB should continue monitoring market performance and allow current rule challenges to be settled to understand how demand may bounce back after additional certainty appears in the market. The mechanism to hold unsold allowances out of the market for a time should be structured to return them to the market at prices lower than the proposed APCR \$60 plus premium over the floor price. Otherwise, if unsold allowances are removed from circulation into the APCR, prices could spike higher on a rebound than they would if unsold allowances were allowed to continue in circulation in some fashion.

¹ See: http://www.cpuc.ca.gov/rps_homepage/

² See: <http://www.energy.ca.gov/2013publications/CEC-200-2013-005/CEC-200-2013-005-SD.pdf>

SCE calls on ARB to encourage offset supply, ensure the ability to use offsets up to the quantitative usage limit, and to pursue reasonable linkage opportunities with other jurisdictions. All of these proposals will help control the costs borne by utility customers while enabling Cap-and-Trade to deliver the emission reductions necessary to achieve the state's long-term climate goals. SCE and JUG members believe cost containment can increase the effectiveness of California's Cap-and-Trade program and demonstrate leadership to jurisdictions considering their own climate policies – this is especially true in the case of offset policy.

ARB should postpone the CAISO EIM GHG accounting proposal until stakeholders have more time to analyze potential market impacts and offsetting effects through the ongoing CAISO stakeholder process. A recent focus on 'secondary emission effects' that result from the California Independent System Operator (CAISO) EIM optimization has led the ARB to propose a solution that is one-sided. On August 26, CAISO released a study demonstrating that the EIM dispatch actually displaced emitting generation for a net benefit to the atmosphere in the first half of 2016. In light of this information, Southern California Edison and JUG members do not support the current method proposed in the regulation for addressing the secondary emissions issue, as it would not take into account the emission reductions attributable to renewable exports. SCE agrees with JUG members in suggesting that additional opportunities for public input and discussions with all relevant agencies on this issue should be held after the first Board hearing of these amendments and before the release of 15-day language. ARB's proposal could set a precedent for future market expansion that could erode the environmental and cost benefits of that very expansion. SCE has reiterated these comments with CAISO.³

SCE makes two requests in regard to market data transparency. In the GHG auction notices, ARB should describe explicitly how many unsold allowances there are, who they are owned by, and how long they have been unsold for. Also in the GHG auction notices, ARB should make it explicit what the source is for previous vintage allowances that are being reintroduced to auction due to penalty, violation or accounting error.

Thank you for your time, and consideration of the comments presented in this letter.
Sincerely,



Dawn Wilson

Director, Environmental Affairs and Sustainability

³ <http://www.caiso.com/Documents/SCEComments-RegionalIntegrationCaliforniaGreenhouseGasCompliance-TechnicalWorkshop.pdf>



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November 4, 2016

Mr. Richard Corey, Executive Officer
California Air Resources Board
1001 I Street
Sacramento, CA 95812-2828

RE: Comments on October 21, 2016 Cap-and-Trade Workshop

Dear Mr. Corey:

San Diego Gas and Electric Company (“SDG&E”) respectfully submits its comments to the California Air Resources Board (“ARB”) on the potential changes to the California Cap-and Trade Regulation discussed at the October 21, 2016 workshop (and in the two papers posted with the workshop notice). SDG&E appreciates the continued opportunity to work with ARB staff on improving the Cap-and-Trade regulation and extending the program beyond 2020. SDG&E offers comments on the following five issues discussed in the workshop:

- 1. The Cap-and-Trade program should not be altered to deal with local air quality problems.**
- 2. Continuation of the customer ‘cost burden’ principle past 2020 is the right approach to determining utility allowance allocations, but the Informal Staff Proposal double counts expected reductions and underestimates the cost burden.**
- 3. Inter-agency coordination is necessary to ensure that policies seeking to reduce greenhouse gases from the electric sector are complementary. SDG&E appreciates the proposed continued use of the Renewable Portfolio Standard (RPS) Adjustment, but requests clarifying the language of direct delivery to achieve consistency across agencies regarding the greenhouse gas (GHG) emissions benefits of out-of-state renewable energy built by California load serving entities pursuant to the State’s RPS program.**
- 4. Inter-agency coordination is necessary to ensure consistent market signals are provided to the electric sector to enable cost-effective compliance. SDG&E appreciates the ARB change in the approach to “secondary dispatch emissions” in the California Independent System Operator (CAISO) Energy Imbalance Market (EIM) market, but believes ARB needs to reconsider its position that a change is needed in the regulation.**
- 5. Continuation of a smooth, gradual transition in the amount natural gas utilities consign to the auction post-2020 is preferred to avoid rate shock.**

ARB Should Not Change the Cap-and-Trade Program to Deal with Local Air Quality Issues

SDG&E supports a well-designed Cap and Trade program to help the State achieve its post-2020 goals. A well designed market mechanism can keep total program costs down while achieving the State’s GHG goals. SDG&E generally supports the Cap-and-Trade program extension post-2020 as proposed since

the market design includes mechanisms to control costs including the use of offsets, appropriate linkages with other jurisdictions, and the continuation of the Allowance Price Containment Reserve.

A Cap-and-Trade program for GHG should not attempt to address local air quality issues since the criteria pollutant emissions associated with a GHG reduction vary dramatically depending on the type of emission source.^{1,2} It is much more efficient and effective to deal with local air quality issues through Scoping Plan complementary measures targeted to the type of GHG emissions sources with high criteria co-pollutant emissions that are located in disadvantaged communities.³

Relieving electric customer ‘cost burden’ is the right approach to continuing utility allowance allocations past 2020, but the Informal Staff Proposal falls short.

First, the Informal Staff Proposal double counts expected reductions, and hence underestimates the cost burden, by including both the change from the 50 percent RPS and the cap adjustment factor. The reduction should only be the larger of the two reductions. ARB Staff should not expect that electric utilities will reduce emissions by 40 percent from expected emissions in 2020 in addition to the reductions that will occur in achieving a 50 percent RPS.

Second, if a load forecast is used, it should be a California Energy Commission (CEC) forecast that excludes load reductions from renewable distributed generation and energy efficiency. The reason for using a load forecast that excludes these factors is to acknowledge investments in renewable distributed generation and energy efficiency are part of GHG reduction efforts. The primary reason that some load forecasts, like SDG&E’s, are flat is that they already include large amounts of rooftop solar and energy efficiency. By using an electric distribution company load forecast that includes rooftop solar and energy efficiency, these significant investments are ignored when assessing allowance allocation. Otherwise stated, electric distribution companies with high levels of rooftop solar and energy efficiency should not be disadvantaged because of their more aggressive pursuit of these GHG measures, just as ARB has not disadvantaged electric distribution companies that have aggressively acquired renewables.

Finally, SDG&E supports the ARB in finding a conservative way to allocate allowances to the electric sector for electrification activities that reduce GHG emissions from other sectors. This effort is consistent with the legislative intent of SB 350, which is to help offset the ratepayer impacts of vehicle electrification through Cap-and-Trade allowance allocations. Any effort should not require expensive metering to document increased load, but rely on estimates from the expected emissions based on the type and number of units of technology installed, and adjusted for the RPS percentage.

¹ Brian Tarroja, PhD., Senior Research Scientist, Advanced Power and Energy Program, University of California, Irvine, “Transition to a Low-Carbon Economy: Air Quality Considerations,” 2015 Integrated Energy Policy Report Workshop, July 24, 2015, slide 16, shows eliminating the entire electric sector GHG emissions would have minimal impact on air quality compared to other GHG emission sources.

² For example, the electric sector has very low criteria pollutant co-benefits since those emissions have been controlled through local air quality regulations. See California Energy Commission, “2016 Draft Integrated Energy Policy Report Update,” Table 2, page 38, showing electricity production is less than 1% of most criteria pollutants while 12 percent of Statewide GHG in 2014.

³ See the analysis of University of California economics professor, Meredith Fowlie, in her Energy at Haas blog article, “Is Cap and Trade Failing Low Income and Minority Communities?,” October 10, 2016.

Inter-agency coordination is necessary to ensure that policies seeking to reduce greenhouse gases from the electric sector are complementary. ARB should reconsider its guidance on the RPS adjustment.

SDG&E appreciates ARB not eliminating the RPS Adjustment so that the Cap-and-Trade regulation continues to recognize the State’s program to reduce GHG through increasing renewable generation. SDG&E requests that ARB revise the guidance language defining “direct delivery” to require renewable energy credits (RECs) for direct delivery for out-of-state eligible California RPS resources only.⁴ This approach would harmonize ARB regulations with CEC, California Public Utilities Commission (CPUC), and Federal Trade Commission (FTC) treatment of RECs as inclusive of all environmental attributes.⁵ This modification to the guidance language would also be consistent with the contracts signed by California load serving entities pursuant to the RPS program requirements, as well as in compliance with legislative direction that ARB coordinate with other state agencies to avoid duplicative or inconsistent requirements and ensure that early movers (such as SDG&E) receive the appropriate credit for their GHG reduction activities.⁶ Further, this treatment would not impact other out-of-state non-RPS renewables or RPS renewables contracted for by other states, avoiding any legal issues.⁷

⁴ Eligible California RPS resources include electricity procured from an eligible California renewable energy resource reported pursuant to MRR that meets the following conditions to be included in the calculation of the RPS adjustment: The electricity importer must have: (1) Ownership or contract rights to procure the electricity and the associated RECs generated by the eligible renewable energy resource; or (2) A contract with an entity subject to the California RPS that has ownership or contract rights to the electricity and associated RECs generated by the eligible renewable energy resource, as verified pursuant to MRR.

⁵ In D.07-05-057 and D.08-08-028, the CPUC indicated the REC contains all the green attributes including “any avoided emissions of carbon dioxide (CO₂), methane (CH₄), nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride and other greenhouse gases (GHGs) that have been determined by the United Nations Intergovernmental Panel on Climate Change, or otherwise by law, to contribute to the actual or potential threat of altering the Earth's climate by trapping heat in the atmosphere.” The CPUC stated that when a REC is retired “all its attributes are retired.” Similarly, the CEC has the same interpretation per CEC-300-2015-001-ED8-CMF, page 83. Federal Trade Commission letter dated February 5, 2015 to Mr. R. Jeffrey Behm concerning statements Green Mountain Power Corporation made to the public about the renewable energy generation facilities it operates, “In addressing these issues in the Green Guides, the Commission did not provide specific guidance on the content of REC-related claims made by power producers who generate renewable energy as a substantial portion of their business. However, **it did warn that power providers that sell null electricity to their customers, but sell RECs based on that electricity to another party, should keep in mind that their customers may mistakenly believe the electricity they purchase is renewable, when legally it is not.** Accordingly, it advised such generators to exercise caution and qualify claims about their generation **by disclosing that their electricity is not renewable.**” [Emphasis added] In D.07-05-057 and D.08-08-028, the CPUC indicated the REC contains all the green attributes including “any avoided emissions of carbon dioxide (CO₂), methane (CH₄), nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride and other greenhouse gases (GHGs) that have been determined by the United Nations Intergovernmental Panel on Climate Change, or otherwise by law, to contribute to the actual or potential threat of altering the Earth's climate by trapping heat in the atmosphere.” The CPUC stated that when a REC is retired “all its attributes are retired.” Similarly, the CEC has the same interpretation per CEC-300-2015-001-ED8-CMF, page 83.

⁶ See Cal. Health & Safety Code §§ 38501(f-h), 38561(a), 38562(b)(1 and 3) and (f).

⁷ ARB may want to consider all RPS resources to 1) avoid double-counting the GHG attribute, and 2) allow entities like Pacificorp to import null power from RPS resources into the EIM. ARB Staff’s current interpretation of “direct delivery” does not require RECs. A resource built to meet RPS requirements in other states would be counted as zero GHG by the State owning the REC, and ARB would count the null power (power without the REC) delivered to CA as zero-GHG as well.

At the October 21, 2016 workshop, ARB proposed to treat RPS eligible resources differently from other out-of-state renewable resources in the EIM, assigning zero GHG to the RPS eligible resources and avoiding an average emissions rate adder. While SDG&E is not endorsing the ARB approach in the EIM market, the fact that ARB would propose treating RPS eligible resources differently from other renewables shows ARB may be amenable to a different treatment of direct delivery requirements for RPS eligible resources owned or contracted for by California load serving entities.

Failing to address this direct delivery issue would continue the current direct contradiction between the Cap-and-Trade program regulations and the CEC, CPUC and FTC interpretation of the RPS program. The continuation of this contradiction is inconsistent with the direction provided by the California Health & Safety Code,⁸ which seeks to ensure consistency across programs and avoid penalizing early action to reduce GHG emissions. Misalignment of RPS treatment between agencies, as is currently the case, will only lead to perverse results such as allowing a third party to claim zero-GHG benefits for which they have no contractual rights.

Inter-agency coordination is necessary to ensure consistent market signals are provided to the electric sector to enable cost-effective compliance. ARB should reconsider its position that changes are needed in the EIM market.

With so many policies and programs guiding SDG&E towards a decarbonized future, it is necessary to ensure that the agencies, and the programs they administer, work together. Cross-agency initiatives include Integrated Resource Plans, 50% RPS requirements, the CAISO expansion, and utility requirements to develop and propose transportation electrification programs to the CPUC. With the electric sector playing an important role in the state's long term climate change strategy, it is imperative that state agencies work to create a synergistic regulatory environment with the common goal of reducing greenhouse gases, whether or not it is deemed to reduce GHG "for California" in the ARB GHG accounting framework.

One clear example of the need for consistency is the recent focus on "secondary emission effects" that result from the CAISO EIM optimization. The CAISO has shown the EIM provides a net benefit to the environment through increased electricity market trading and the associated reduction in curtailment of renewable energy in California. However, it is the opinion of ARB Staff that the EIM market has resulted in an incomplete accounting of the GHG emissions associated with imported power that serves California's load and that GHG "for California" is increased.

However, ARB regulations, as currently implemented, assign a zero GHG compliance obligation to imported power whose e-tags indicate the energy was generated from out-of-state resources with no emissions. In the same manner, the CAISO modeling determines imported EIM energy by selecting the lowest cost out-of-state electricity willing to be "deemed delivered" to California and receive a Cap-and-Trade compliance obligation. SDG&E can see no difference between the ARB's current treatment of the power in the bilateral market and the current CAISO treatment of that exact same type of power in the EIM market.

⁸ See Cal. Health & Safety Code §§ 38501(f-h), 38561(a), 38562(b)(1 and 3) and (f).

Further, the CAISO's counter-factual analysis showing that there is no net GHG impact on the environment as compared to not having the EIM should be enough to let the EIM market continue as is. AB 32 includes a list of considerations for ARB to include in its program development, one of which is "overall societal benefits, including reductions in other air pollutants, diversification of energy sources, and other benefits to the economy, environment, and public health." The ARB is required to consider the societal benefits including the benefits to the economy and the environment. The fact that the EIM reduces GHG in the western U.S. should be a significant environmental benefit that should be considered since GHG is a global pollutant and the entire purpose of AB 32 is to reduce GHG.

The ARB should leave the Cap-and-Trade regulation as is with respect to the EIM since ARB is not imposing an added burden on similar transactions in the bilateral market. The imposition of new requirements may adversely affect the operation of the EIM, and the EIM has been shown to provide GHG reductions in California and the Western U.S. through efficient dispatch of resources and reduced curtailments of renewable energy.⁹ The application of a hurdle rate or an average emissions rate adder is a blunt force instrument that is divorced from the specific market conditions that exist within each settlement interval in the EIM. SDG&E is concerned that a hurdle rate or average emissions rate adder will unnecessarily interfere with efficient market decisions by market participants both within, and outside of, California.

ARB should maintain a smooth, gradual transition in the amount natural gas utilities consign to the auction to avoid rate shock.

The existing Cap-and-Trade Regulation sets forth a minimum consignment of natural gas suppliers' allocation of allowances that began at 25% in 2015 and increases by 5% per year, so that full consignment will be achieved by 2030. Allowances not consigned to auction may be retired for a natural gas supplier's compliance without the otherwise associated costs showing up in customer rates. This approach helps transition the cost of GHG-reduction into natural gas rates so that no rate shock is experienced. ARB's proposal to have 100 percent consignment in 2021 does not address the reasons for a gradual transition adopted just three years ago, which are still valid today. SDG&E urges ARB to continue with the consignment rate that was developed as an effective way to reduce impacts to California businesses and customers that use natural gas and maintain their support for the Cap-and-Trade program.



Adrianna B. Kripke
Senior Environmental Counsel
San Diego Gas & Electric Company

⁹ CAISO, Senate Bill 35 Market Study, "The Impacts of a Regional ISO-Operated Power Market on California," pages I-44-49.



November 4, 2016

Rajinder Sahota
Branch Chief
California Cap-and-Trade Program
California Air Resources Board
1001 I Street
Sacramento, CA 95814

Re: Proposed Amendments to California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms Regulations

Dear Ms. Sahota:

I am writing on behalf of Air Liquide Large Industries U.S. LP (“Air Liquide”) in response to CARB staff’s informal proposals to amend the California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms Regulations presented at the October 21, 2016 Mandatory GHG Reporting and Cap-and-Trade Program Workshop.

Air Liquide is the world’s leader in industrial and medical gases. Air Liquide and its affiliated companies operate twenty facilities and employ nearly 2,000 people in California. Air Liquide’s California operations include two hydrogen production facilities that supply hydrogen to refineries in El Segundo and Rodeo.

Air Liquide has consistently supported California’s Cap-and-Trade Program. Air Liquide has submitted comments in the past and submits the comments below to ensure that the program (1) maintains a level playing field among market participants who are subject to the program, (2) achieves its GHG reduction goals in the most efficient manner possible, and (3) does not unnecessarily harm California businesses generally or the industrial gas sector specifically.

1. **CARB should not promulgate command-and-control regulations.** Staff notes that the Environmental Justice Advisory Committee has recommended that CARB abolish the Cap-and-Trade Program after 2020 and instead impose command-and-control regulations on GHG emissions. Air Liquide strongly opposes this recommendation. The purported basis for this recommendation is the possibility that facilities located in economically challenged areas may purchase allowances or offsets rather than reduce emissions of GHGs, and that those facilities will therefore fail to reduce concomitant emissions of criteria and toxic air contaminants. But the state and federal governments already have in place a comprehensive scheme of air pollution control laws that are designed to assess and mitigate emissions of those air contaminants, and it would be

extremely unwise and inefficient to attempt to reduce them indirectly—as an intended side effect—of the AB 32 emissions reduction program. Not only would such an approach be less efficient than a cap-and-trade program, it would imperil industry support for AB 32’s goals. Local air quality should be addressed through laws that are specifically designed to address criteria and toxic air contaminants.

2. **CARB should not reduce the use of offsets.** Regulated entities are currently allowed to satisfy up to 8 percent of their compliance obligations with offset credits. The 8-percent limit should not be reduced. Offsets reduce the cost of the Cap-and-Trade Program for regulated entities and allow low-cost reductions in GHG emissions to be used before higher cost reductions are attempted. The argument against offsets is similar to the argument against Cap-and-Trade generally, and is based on the assumption that the Cap-and-Trade Program can be used to reduce emissions of non-GHG contaminants (see Comment #1 above). Rather than eliminating offsets, the state and federal governments should address local air quality concerns through the laws that are specifically intended for that purpose.
3. **CARB should not increase the proportion of allowances that are auctioned.** Reducing allowance allocations to covered entities will have no effect on the reductions in GHG emissions achieved by the Cap-and-Trade Program, because the cap decline occurs regardless of whether allowances are freely allocated or auctioned. Regulated entities will already have a significant deficit of free allowances during the third compliance period. Even if all sectors continued to receive a 75 percent allowance allocation, industrial assistance allocations would fall to approximately 38 percent of initial allocations by 2030 due to the application of the cap-decline factor. Any reduction in industry assistance from 2020 levels will result in an additional indirect tax on consumers.
4. **CARB should provide industry assistance for process emissions that are unrelated to energy efficiency or combustion.** In determining the assistance factor for hydrogen production, CARB should provide industry assistance for process emissions that result from the basic chemical reactions that underlie the hydrogen production process. The Cap-and-Trade Program is designed to lower carbon dioxide emissions by driving increases in energy and combustion efficiency. However, the basic chemistry of the hydrogen production process produces carbon dioxide. To produce hydrogen, methane, propane, or other light hydrocarbons are combined with steam under pressure in the presence of a catalyst to form hydrogen, carbon monoxide and carbon dioxide. These “process emissions” cannot be reduced, and the reaction cannot be made more “efficient,” because the carbon dioxide emissions result from the stoichiometry of the reaction that produces hydrogen. CARB should provide industry assistance allowances for these emissions in setting assistance factors for the hydrogen production sector.

Rajinder Sahota
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5. **Air Liquide opposes retirement of unsold state-owned allowances.** The slight surplus of state-owned allowances is the result of depressed growth in California. If and when the state returns to a higher growth rate, unsold allowances will allow growth without an unnecessary spike in allowance prices, while still maintaining the state's progress towards achieving its AB 32 goals.
6. **Air Liquide is continuing to analyze CARB's proposed assistance factors based on domestic and international leakage risk.** Air Liquide anticipates submitting additional comments on this issue in future comment periods.

Air Liquide appreciates CARB's demonstrated willingness to engage stakeholders, including Air Liquide, and to address their comments and concerns in proposed regulations. Air Liquide also appreciates the opportunity to provide comments on staff's presentation and looks forward to further discussions with CARB on the issues addressed above.

Very truly yours,



Dwayne Phillips

Director
Hydrogen/Syngas On-Sites Business Unit

Coalition for Sustainable Cement Manufacturing & Environment

1107 9th Street, Suite 930 | Sacramento, CA 95814 | (916) 447-9884

November 4, 2016

Ms. Mary Nichols
Chairman
California Air Resources Board
1001 "I" Street
Post Office Box 2815
Sacramento, California 95812

Subject: **Comments on October 21, 2016 Public Workshop on Amendments to the Cap-and-Trade Regulation and the Post-2020 Industry Assistance Factor Informal Proposal**

Dear Ms. Nichols:

The Coalition for Sustainable Cement Manufacturing and Environment ("CSCME"), a coalition of all five cement manufacturers in California,¹ provides these comments on the California Air Resources Board's ("CARB's") October 21, 2016 public workshop on amendments to the Cap-and-Trade Regulation and the Post-2020 Industry Assistance Factor Informal Proposal that were released in conjunction with the workshop.

I. THE CURRENT ALLOWANCE ALLOCATION FRAMEWORK HAS EFFECTIVELY ADDRESSED THE RISK OF LEAKAGE TO THE CALIFORNIA CEMENT INDUSTRY

CARB's current approach to allocating allowances to the industrial sector has been successful, at least to date, at achieving its intended objective, which is to minimize emissions leakage.

1.1 The Current Framework Is Based On Sound Fundamental Principles

The current allowance allocation framework is constructed on a foundation that has several key strengths that are based on sound fundamental principles.

First, the current approach is based on verifiable data. CARB's current methodology for determining leakage risk relies on publically available, verifiable, and regularly updated data from California's MRR database, the Census Bureau's Annual Survey of Manufacturers, and the Census Bureau's Economic Census.

Second, based on this verifiable data, CARB developed an allowance allocation framework through transparent analysis. Specifically, in Appendix K, CARB clearly lays out the component factors that determine industries' leakage classification and assistance factor – emissions intensity and trade intensity – and the formulas for calculating those factors. Not only is CARB's current framework

¹ The Coalition includes CalPortland Company, Cemex, Inc., Lehigh Southwest Cement Company, Mitsubishi Cement Corporation, and National Cement Company of California Inc. There are ten cement plants located in California, eight of which are currently operating.

transparent and well-documented, it represents the most straightforward solution to the complex challenge of determining leakage risk.

Third, the framework utilizes accepted measures of leakage risk that are broadly understood and in use across other jurisdictions and cap-and-trade schemes, including the EU ETS, Australia's CPRS, and the cap-and-trade proposal from the American Community and Energy Security Act of 2010 (Waxman-Markey).

1.2 Under The Current Framework, the Industry Survived Its Most Vulnerable Period in History

The California cement industry is a prime example of how the current allowance allocation framework has supported the survival of the California cement industry, while also achieving the overall objectives of the Cap-and-Trade program. A summary of the recent history of the California cement industry is necessary to understand this key point.

When AB 32 was adopted in 2006, the California cement industry consisted of 10 cement plants operating at high utilization rates and producing over 11 million tons of cement clinker per year. As a result of the unprecedented recession, production declined by almost 40 percent by 2011, and two cement plants closed their doors. Since this unprecedented trough in demand, the cement industry has begun to heal, but cement production and associated GHG emissions still remain roughly 20 percent below pre-recession levels.

As the California economy and the cement industry were turning around from the Great Recession, CARB developed and implemented its Cap-and-Trade program. The program included an allowance allocation framework that recognized the severe vulnerability of the California cement industry and its unique characteristics by providing sufficient allowances to prevent leakage to imports while also incentivizing GHG reductions. CARB's approach was effective in preserving the continued but modest recovery of the cement industry and in reducing the cement industry's GHG intensity.

In short, since the adoption of AB 32 and the implementation of CARB's Cap-and-Trade program, the California cement industry has experienced the most severe economic downturn in modern history, weathered a slow recovery, and regained its footing without experiencing leakage to imports and while reducing its GHG intensity.

1.3 The Industry's Survival Under the Current Framework is Good News For All Stakeholders

The survival of the California cement industry under an allocation framework that is based on sound fundamental principles is good news for all stakeholders.

First, it is good news for the California economy. Cement is critical for economic growth in California. It is the key material needed to construct buildings, roads, bridges, and other infrastructure and is essential to support California's transition to a sustainable green economy. A growing California economy with modernized and sustainable infrastructure leads to more and higher paying jobs and provides the necessary foundation for post-2020 sustainable development.

Second, the California cement industry's survival under the current framework is good news in terms of climate change. Cement produced in California has a lower GHG footprint than cement produced overseas and shipped across the ocean to California. An allowance allocation framework that is effective at minimizing leakage ensures that California's local consumption is met by local production. In the case of cement, this means consumption of lower GHG intensive cement that is readily available in California's local markets with minimum transportation emissions. Failure to minimize leakage will shift California consumption to imports, increase global GHG emissions, and undermine the fundamental objectives of California's Cap-and-Trade program.

Finally, an allowance allocation framework that effectively minimizes leakage is good news in terms of environmental justice. California will still require cement, and cement demand may increase to support a growing California economy and transition to a sustainable green economy. An allowance allocation approach that causes leakage will result in a shift of California consumption to imported cement. Cement imports must be off-loaded in the ports, loaded on heavy trucks, and transported through California's most disadvantaged and densely populated communities. By contrast, as explained in more detail below, the vast majority of cement production in California is in very sparsely populated areas. Accordingly, an allowance allocation framework, such as the current approach, that effectively minimizes leakage also minimizes the environmental justice impacts of California's cement consumption.

II. THE CALIFORNIA CEMENT INDUSTRY STRONGLY OPPOSES CARB'S PROPOSED CHANGES TO THE ALLOWANCE ALLOCATION FRAMEWORK

On September 19, 2016, CSCME submitted extensive comments regarding CARB's August 2, 2016 Draft Regulation and Initial Statement of Reasons ("ISOR"). These comments provided detailed analysis regarding the policy and technical flaws in CARB's proposed approach to revising the assistance factors applicable to the cement industry. On October 14, 2016, CARB released an initial Informal Staff Proposal on Industry Assistance Factor Calculation ("AF Proposal"), which was updated on October 21, 2016.

Despite the scope and detail of CSCME's comments, CARB's AF Proposal does not reflect any changes to the methodology proposed in the ISOR. Rather, CARB reaffirmed its reliance of this methodology and released the specific assistance factor that it proposes to apply to the cement industry. If confirmed, CARB's assistance factor combined with the cap adjustment factor and potential changes to applicable benchmarks will cause severe leakage in the California cement industry.

2.1 CARB's Proposed Changes to the Post-2020 Allowance Allocation Framework Has Severe and Fundamental Flaws

In these comments, CSCME will not reiterate all of the fundamental flaws associated with CARB's application of the leakage studies that were discussed in its September 16, 2016 comments. Rather, CSCME will simply highlight several key cross-cutting concerns that are systemic in CARB's proposed approach.

First, CARB's approach lacks transparency. Although CARB has now released the data on the International Market Transfer Rate, the underlying data, assumptions, and calculations remain undisclosed for both the international and domestic leakage studies. As a result, CARB is revising its allowance allocation approach based on studies that are effectively a "black box", with stakeholders being forced to accept the results and the significant adverse consequences of how they are applied without any peer review of the studies and without any means to verify the models, methodologies, and calculations.

Second, CARB's approach lacks accountability. CARB is proposing to apply the specific metrics from the studies directly to the cement industry. Yet, the underlying data on which the studies are based is inaccessible to stakeholders and to CARB's own staff. This results in CARB abdicating its regulatory role to a few academics without any meaningful ability for them or for CARB to be accountable for the consequences.

Third, CARB's approach lacks applicability to the California cement industry. The studies assess potential leakage in the future based on past changes in electricity and natural gas prices. The cement industry relies almost exclusively on coal for its combustion, and thus, even if past responses to energy prices could be used as a surrogate for future leakage risk, the studies cannot estimate leakage risk for an industry that uses an entirely different source of energy. Moreover, the studies do not take into account process emissions, which compose over half of the emissions from the cement industry. Finally, the studies do not consider the key characteristics of the cement industry, including the fungible nature of the product and the requirement to maintain high capacity utilization. These characteristics limit the ability to pass through higher compliance costs and require cement companies to absorb costs until the point at which doing so is unsustainable, forcing plants to close down. Thus, rather than recognizing the extensive limitations of the studies, CARB either is ignoring them or is making arbitrary adjustments to the detriment of sound policy-making for the California cement industry.

Finally, CARB's approach lacks durability. CARB's process will create legal and political vulnerabilities, threatening the long-term viability of the program. For example, CARB is unable to update or revise the studies to account for developments in a particular industry or in the California economy as a whole. In addition, as explained below, CARB's proposed framework effectively predicts a severe recession in California and the elimination of the cement industry absent sufficient allowance allocation, but CARB fails to recognize this enormous vulnerability when actually developing proposed assistance factors.

2.2 CARB Continues to Apply the Leakage Studies in a Manner That Ignores the Authors' Explicit Warnings

CARB proposes to use the results of the leakage studies to calculate specific assistance factors for specific industries, as opposed to using them to assess the general reasonableness of the current risk classifications. CARB's proposal to use the results to calculate specific metrics ignores the authors' explicit warnings that their results cannot be used for this purpose.

The warnings are particularly stark for the application of the International Market Transfer Rate, which takes the results of the International Leakage Study beyond those of the Domestic Leakage Study by

attempting to translate estimated output drop into a speculative surrogate for market transfer and associated emissions leakage. The authors of the International Leakage Study could not have been more clear when making this leap in their analysis:

The natural next step is to translate these responsiveness measures to corresponding measures of market transfer and associated emission leakage. However, pushing on to this next step amounts to pushing up against the limits of the data. Given the noisiness of these estimates, **we cannot estimate the transfer rate for any given industry with any degree of confidence.**

Even the authors of the Domestic Leakage Study have warned against applying the results in more than a general way to assess the impact on a “typical” industry. At a recent conference, one of the authors of the Domestic Leakage Study noted repeatedly that the results of the study are not “useful” when it comes to assigning specific impacts to specific industries.

This obviously begs the question of why CARB staff is attempting to apply these results to specific industries, especially when the researchers themselves have indicated that this is an improper application of their results? At the workshop, CARB staff indicated that they had discussed these reservations with the authors and did not have concerns. However, such conversations just further highlight the lack of transparency of the process. Given the absence of any record of these informal discussions, stakeholders have no opportunity to comment on whether the authors are or are not standing by the explicit statements in their studies and on what basis CARB may be relying on these conversations to develop the assistance factor applicable to the cement industry.

These informal and non-public conversations and the duration and tax-payer expense of developing these studies cannot justify CARB ignoring the extensive limitations of the studies, particularly given the inevitable real-world costs associated with CARB’s approach in terms of both job losses and emissions leakage.

2.3 CARB’s Application of the Results of the Leakage Studies is Arbitrary and Inconsistent

Not only does CARB’s proposed framework apply the results of the leakage studies in direct contravention of the authors’ explicit warnings, it applies the studies in an inconsistent and arbitrary manner.

First, CARB’s application and integration of the domestic and international leakage studies into a single assistance factor is the equivalent of combining “apples and oranges”, and can only be achieved by the application of arbitrary and inconsistent methods and ad hoc adjustments to the studies’ key results. Specifically, unlike the International Leakage Study’s market transfer rate (which, it should be noted, is not the result of the study’s core modeling exercise but rather back-of-the-envelope calculations by the studies’ authors after the modeling component was complete), the Domestic Leakage Study does not calculate or assume a “transfer rate” on top of its estimated output response. As a result, CARB cannot

add together the output measures from the two studies to estimate a “complete” leakage estimate for each industry without making an adjustment to one measure or the other.

CARB’s solution to the problem posed by the mismatched study results is to apply an arbitrary 7 percent “cutoff” rate to the Domestic Leakage Study’s domestic drop measure. Unfortunately, CARB’s informal staff proposal does not explain or justify its selection of 7 percent as an appropriate threshold for cutting off domestic drop. Moreover, the application of an arbitrary cutoff rate to the domestic drop measure is inconsistent with CARB’s acceptance of the International Leakage Study’s international market transfer rate estimates, ultimately contributing to the “apples and oranges” nature of the assistance factors that result from the domestic and international leakage studies

Second, CARB’s alternate regression-based estimates of the international market transfer rate are conceptually flawed and arbitrary as they compare to CARB’s application of the Domestic Leakage Study’s assistance factors. Specifically, CARB’s regression approach uses the study’s international market transfer estimates as the left-hand variables, which means that this so-called “alternate” approach is really just a slight variant of a problematic metric. CARB’s decision to average the alternate regression measure with the “raw” international market transfer measure in order to arrive at the international “share” of the assistance factor represents a conceptually flawed and inconsistent approach to setting assistance factors.

Finally, CARB proposes to account for process emission when calculating its “alternative” measures via regression analysis, as opposed to the far more logical, simple, and transparent approach of directly adjusting the studies’ results based on the share of process emissions in any given industry. For instance, the Domestic Leakage Study suggests that the cement industry’s output would decline by 20.5% if it fully passed through a carbon price of \$24.88, though this result only accounts for combustion-related emissions. Adjusting this result to account for process emissions would result in a 66.1% decline in output and an “output domestic assistance factor component” of 0.90, as opposed to the 0.60 assistance factor calculated under CARB’s current approach.² Simply put, CARB’s approach to account for process emissions is not only ill-conceived and unnecessarily complex, but it results in a dramatic and systematic downward bias in the cement industry’s assistance factor.

2.4 The Result of CARB’s Misapplication of the Leakage Studies is an Illogical Result that Runs Counter to CARB’s Mandate to Minimize Leakage Risk.

When applied cumulatively, as CARB has done, the modeled results from the international and domestic leakage studies indicate that, in the absence of leakage assistance, a carbon price of just \$22.62 (a price that is consistent with the expected price floor in 2020) would result in a 29 percent output decline in

² As described in CSCME’s previous comment letter, the study’s results can be adjusted to account for process emissions by dividing the output or value added response associated with combustion-related emissions for a given industry (e.g., 20.5% for the cement industry) by the share of combustion-related emissions for that industry (e.g., 0.31 for the cement industry, according to 2014 CARB emissions data). This adjustment assumes that the response function between output (or value added) and carbon costs is linear, which is consistent with the approaches used in both studies and CARB’s application of the studies. It also recognizes that there is no material distinction between the carbon costs associated with combustion-related emissions and process-related emissions.

the average California industry.³ To put this into perspective, U.S. industrial production tends to fall by roughly 5 percent per year during a “typical” recession and fell 18 percent per year in the Great Recession. Accordingly, the results of the leakage studies effectively predict that, absent high levels of leakage assistance, the cap-and-trade program would push California into a severe industrial recession.

Moreover, the results of the leakage studies – and the International Leakage Study in particular – are even more alarming in the case of the California cement industry. Specifically, the International Leakage Study estimates that, under a carbon price of just \$10, cement industry output would fall by 72 percent, accounting for both combustion and process emissions. Assuming an inverse linear relationship between the allowance price and the output effect, it would take a carbon price of only \$13.90 (a conservative price assumption that is below the \$17 strategic price floor in 2022) to produce a 100 percent decline in California cement industry output. However, the International Leakage Study’s back-of-the-envelope estimate of the international market transfer rate for cement implies that only 4 percent of this output decline would be displaced by international production. Although unaddressed and unexplained by CARB or by the study’s authors, the study’s results imply that the 96 percent “residual” decline in California cement production is due to a massive drop in demand for cement. However, a demand response of this magnitude would require a demand elasticity for cement of roughly -8.0, which is exponentially greater than the most conservative estimates of cement’s demand elasticity.

Despite these unexplained implications, CARB has proposed an assistance factor of only 0.71 for the cement industry, which represent a 29 percentage points decline from an assistance factor of 1 in the third compliance period. Given the output decline projected by the International Leakage Study alone, an assistance factor of 0.71 implies that the California cement industry could sustain an output decline of well beyond 30 percent without a significant increase in economic or emissions leakage. Such a conclusion is clearly nonsensical, and serves to highlight the illogical implications of both the international study’s key conclusions and the manner in which CARB has chosen to apply them.

III. CARB’S PROPOSED CAP ADJUSTMENT FACTOR SHOULD BE REFINED TO REFLECT AVAILABLE DATA

During the workshop, CARB presented its “Proposed 2021-2030 Cap Adjustment Factors.”⁴ This proposal provides that sectors, such as cement, that have greater than 50 percent process emissions and high leakage risk will be subject to a nonstandard decline in the cap adjustment factor. The proposed nonstandard decline is simply one-half the standard decline applicable to other industries. Given that CARB now has data to calculate the actual amount of process emissions applicable to the cement industry and given that the cement industry’s process emissions are well-above 50 percent, CSCME requests that CARB undertake a more precise calculation of the nonstandard reduction to the cap adjustment factor based on the actual share of process emissions in the total GHG emissions of the California cement industry.

³ This output decline is even larger when accounting for the impact of process emissions.

⁴ CARB Workshop Presentation, Additional Proposals Related to Allowance Allocation (October 21, 2016) at 47.

IV. THE ADOPTION OF MORE COMMAND-AND-CONTROL MEASURES WILL UNDERMINE CLIMATE CHANGE AND ENVIRONMENTAL JUSTICE OBJECTIVES

In September 2016, a number of academics released an advocacy paper entitled “A Preliminary Environmental Equity Assessment of California’s Cap-and-Trade Program.”⁵ This advocacy paper has been widely cited as a basis to impose additional command-and-control measures on California industries. The paper “suggests” conclusions by drawing inferences from disclosed data, while ignoring and failing to report complete data or placing disclosed data in context. The paper’s conclusions are thus technically flawed from a research perspective and are highly misleading, particularly when used to support policy recommendations applicable to the cement industry.

4.1 The Cement Industry’s Absolute GHG Emissions Increased as the Natural Economic Consequence of its Slow Recovery from the Great Recession

The paper asserts that the Cap-and-Trade program is failing in terms of environmental equity because absolute GHG emissions in certain industries, highlighting cement as an example, were higher after the implementation of the program. The authors reach this conclusion by simply comparing the cement industry’s absolute GHG emissions for two years prior to the implementation of the Cap-and-Trade program with the industry’s absolute GHG emissions for two years after the implementation date. However, the paper fails to disclose the necessary context for this simplistic point-to-point comparison.

As discussed above, the output of California’s cement industry declined by almost 40 percent in the aftermath of the Great Recession, bottoming out in 2011. California cement production has been recovering ever since. As a result, according to CARB data, absolute GHG emissions for the California cement industry remain 20 percent lower than prior to the recession. In other words, after demand plummeted during the Great Recession, California cement production and associated combustion and process GHG emissions similarly declined. As demand reversed course, California cement production began a slow recovery and its absolute GHG emissions followed the same trend.

Notably, the authors make no attempt to assess whether the trend in absolute GHG emissions for the California cement industry is comparable to the increase in GHG emissions in other states, in the United States, or globally. Absence such a comparison, the paper fails to control for other factors that may be causing the relevant effect, such as recovery from the Great Recession, and thus reaches highly misleading conclusions.

Accordingly, rather than any failure of the Cap-and-Trade program, the increase in the cement industry’s absolute GHG emissions were a direct result of the natural economic consequences of a slow economic recovery in California. Importantly, the Cap-and-Trade program actually achieved its intended effect. During this same period of slow recovery and since the passage of AB 32, CARB data demonstrates that the California cement industry’s emissions intensity has declined.

4.2 California Cement Plants Are Located in Remote and Sparsely Populated Areas

⁵ Lara J. Cushing, et al., A Preliminary Environmental Equity Assessment of California’s Cap-and-Trade Program, Research Brief, September 2016.

The paper asserts that disadvantaged communities are located close to large emitters, including the cement industry. However, despite clearly having collected the relevant data, the paper does not disclose that cement plants tend to be located in exceptionally remote and sparsely populated areas, especially relative to other major emitters.

California's cement plants are located in the most remote areas of California. CSCME examined the population density within 2.5 miles of the 86 highest GHG emitting facilities in California based on CARB data. Based on similar methodology used in the paper, CSCME calculated that the average population living within 2.5 miles of the eight cement plants is 4,467, as compared to an average population of nearly 50,000 across the other large emitting industries. In fact, excluding the single cement plant located near a high-population and non-disadvantaged community, the population surrounding the average cement plant falls to 506, with a range from 69 to 1,638.

In addition, California's cement plants tend not to be located within or immediately around disadvantaged communities. Slightly more than 3,000 people living below 200 percent of the federal poverty line live within 2.5 miles of a cement plant, compared to more than 1.3 million people for the other large emitters. In other words, the number of impoverished people living in close proximity to a cement plant represents only 0.2 percent of the total impoverished population living around all large emitting facilities in California. Moreover, the number of people living in poverty within 2.5 miles of the average cement plant is just 410, compared to 17,000 for the average facility across the other large emitting industries.

Finally, cement plants are located far from "disadvantage communities" (SB 535 defines "Disadvantaged Communities" as those falling in the bottom 25 percent by CalEnviroScreen score). On average, the nearest disadvantaged community to a cement plant is 22.5 miles away, compared to only 10.1 miles for the large emitters in other industries.

4.3 More Command-and-Control Measures Would Have Severe Unintended Consequences

The authors of the paper rely upon a general observation that large emitters are located close to disadvantaged communities and a specific observation that absolute GHG emissions in the cement industry have increased (without the context provided above) to assert that the imposition of additional command-and-control measures will have a positive impact on disadvantaged communities. This assertion is inapplicable to the California cement industry.

In addition to being wholly unjustified based on demographics, the imposition of additional command-and-control measures on the California cement industry will have disastrous consequences for the industry, given it has limited access to additional cost-effective GHG reduction options that are not already mandated under existing state and federal command-and-control requirements. Additional measures will ensure that California production is replaced with imports.

Such displacement of California production with imports could result in less environmental equity, because it will substantially increase port, trucking, and rail activity in some of California's most disadvantaged and densely populated communities. For example, each 1 million metric tons of cement that is displaced by imports will generate roughly 40,000 more heavy truck trips per year through

communities that are more densely populated and more disadvantaged than those that surround cement plants.

Apart from this localized impact, cement imports will have a much higher GHG footprint than California-produced cement. The California industry is already one of the least GHG intensive in the world, due to the measures already effective in California's energy sector and due to the impact of the Cap-and-Trade program. Imported cement would have a much higher GHG footprint from direct and indirect emissions, including emissions from transporting cement across the ocean.

Finally, the imposition of additional command-and-control measures would be inconsistent with AB 197. This new law requires CARB to continue complying with the requirements in AB 32, including that any regulations must be equitable, minimize costs and maximize total benefits to California, ensure that activities to comply do not disproportionately impact low-income communities, consider cost-effectiveness, consider overall societal benefits, and minimize leakage. In the context of these requirements, AB 197 then specifies that CARB must also consider the social costs of the emissions of greenhouse gases and prioritize direct emissions reductions. Importantly, the California cement industry, its employees, and the communities that it serves are a critical part of California and the benefits or harm to these California interests must be considered together with the interests of disadvantaged communities. As demonstrated in these comments, any new command-and-control measures (as well as CARB's proposed allocation framework) would be inconsistent with applicable requirements under AB 197 because all of these California interests would be harmed.

In sum, the imposition of additional command-and-control regulations on the cement industry is likely to exacerbate GHG emissions leakage without delivering any real environmental equity benefits.

V. RECOMMENDATIONS

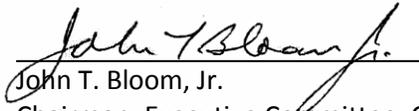
Given the numerous concerns with the leakage studies, as demonstrated extensively in CSCME's comments and by the authors of the studies, CSCME recommends that CARB use the results of the studies to confirm CARB's current leakage risk categories and determine which industries may be misclassified and/or deserve additional scrutiny.

Alternatively, if CARB uses the studies to develop industry-specific leakage estimates (despite widespread concerns), it should only do so in a manner that prevents arbitrarily adjusting different metrics across the two studies, which would exacerbate the impact of the concerns in developing revised assistance factors. Rather than cumulating the results on an "apples-to-oranges" basis and then attempting to arbitrarily align the results with additional unsubstantiated adjustments, CARB should align the methodologies on an "apples-to-apples" basis (e.g., output drop) using the same factors calculated for the international and domestic components so that any metrics are internally consistent, logical, and compatible with CARB's mandate to minimize the risk of leakage.

CSCME strongly urges CARB to reject efforts to apply additional command-and-control regulations to the cement industry. Such a draconian approach would have severe and irreversible consequences, including greater emissions leakage without delivering any real environmental equity benefits.

CSCME appreciates the opportunity to provide these comments and recommendations, which are intended to provide constructive and detailed input on CARB's Draft Regulation and ISOR. As in the past, CSCME welcomes the opportunity to work with CARB toward successful implementation of AB 32.

Sincerely yours,



John T. Bloom, Jr.

Chairman, Executive Committee, Coalition for Sustainable Cement Manufacturing & Environment
Cemex

cc:

Richard Corey, California Air Resources Board
Rajinder Sahota, California Air Resources Board
Jason Gray, California Air Resources Board
Mary Jane Coombs, California Air Resources Board
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Derek Nixon, California Air Resources Board



November 4, 2016

Clerk of the Board
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Submitted Electronically:

<https://www.arb.ca.gov/lispub/comm2/bccommlog.php?listname=ct-amendments-ws>

RE: October 21, 2016 Workshop and the Informal Staff Proposal for the Industry Assistance Factor Calculation

Dear Chairwoman Nichols and Members of the Board:

Agricultural Council of California (Ag Council) and Dairy Institute of California appreciate the opportunity to submit comments in response to the October 21, 2016 workshop and the Informal Staff Proposal for the Industry Assistance Factor Calculation (Staff Proposal).

Ag Council is a member-supported organization advocating for more than 15,000 farmers across California, ranging from small, farmer-owned businesses to some of the world's best-known brands. Ag Council works tirelessly to keep its members productive and competitive, so that agriculture can continue to produce the highest quality food for the entire world.

The Dairy Institute is a California dairy processor trade association founded in 1939. Dairy Institute represents milk and dairy processor on legislative, regulatory and economic policy.

A number of our member companies participate in the cap-and-trade program, and as a result, we wanted to take the opportunity to comment on two key points:

- First, we strongly oppose the Air Resources Board's (ARB) proposed post-2020 approach to allowance allocation that uses the non-peer reviewed results of two academic studies and continues to categorize food processing in the medium leakage category.
- Second, we understand that ARB is considering adopting measures in response to Assembly Bill (AB) 197 and environmental justice (EJ) concerns. We would like to express our opposition to these new approaches because they are ill suited for the cap-and-trade program and will not advance the goals that we all share, including cleaner air, lower global greenhouse gas (GHG) emissions, and a growing economy.

CARB'S PROPOSED POST-2020 FRAMEWORK

At the onset of the cap-and-trade program, ARB devised an allowance allocation method that included emissions intensity and trade exposure metrics, which resulted in the food processing sector being designated as "medium" leakage risk. However, the original data collected by ARB

failed to recognize that most of California's food processing industry is highly seasonal and does not take into account the international competitive pressures of the world markets.

In 2011, Board Resolutions 11-32¹ directed staff to investigate potential improvements to the industrial allowance allocation to better meet the AB 32 objective to minimize emissions leakage to the extent feasible. In response, ARB commissioned three emissions leakage studies to inform the development of assistance factors (AFs) for allowance allocation. Two of these were broad-sector studies, which analyzed both international emissions leakage² and domestic leakage.³ The third study specifically focused on production and emission leakage from California's food processing industry.⁴ The purpose of the third study, approved in Resolution 11-32, was to acquire the data necessary to determine an accurate AF for food processors, as the current leakage risk factors were not scientifically supported.

The results of all three studies were released in May 2016 and in August 2016, staff released Appendix E, Staff Report: Initial Statement of Reasons (August 2, 2016). In the opening second paragraph, staff states:

*"In commissioning the three studies, staff had intended to develop a revised methodology by which revised AFs, not including transition assistance, could be calculated and applied in the third compliance period (2018-2020). These revised AFs would be at sector-specific levels necessary to minimize potential emissions leakage. After additional thought and discussion with stakeholders, staff decided to extend transition assistance through the third compliance period, at levels set in the 2013 regulatory amendments. Any revised AFs that may be proposed as part of 15-day comment period would be implemented starting in the fourth compliance period (post-2020)."*⁵

In this statement, staff is giving new direction for the application of the leakage studies and on October 21, 2016 staff put out a proposal that outlines ARB's revised methodology for calculating AFs. The new methodology is informed by the international and domestic leakage studies. Staff is not proposing to use the data from the food processing leakage study. When asked why, staff stated that the Hamilton et. al. study was too conservative and looked at data from research reports, not real world data. It is our understanding that data was collected from existing food processing facilities however, some of the assumptions were outdated. For example, in Ag Council's September 19, 2016 comments, they pointed out that the authors cite milk utilization data from 2001, when there is more recent data available from CDFA.⁶ Substantial public sector funds were spent to support this study and after many years of research, we urge ARB to revisit and review its findings. If the study was updated, it will likely demonstrate the inability to pass on the cost of this program in the food processing industry.

¹ <https://www.arb.ca.gov/regact/2010/capandtrade10/res11-32.pdf>

² Fowle, M.L., Reguant, M., Ryan, S.P. (2016). Measuring Leakage Risk. University of California Berkeley.

³ Gray, W., Linn, J., Morgenstern, R. (2016) Employment and Output Leakage under California's Cap-and-Trade Program: Final Report to the California Air Resources Board. Resources for the Future.

⁴ Hamilton, S. F., Ligon, E., Shafran, A., Villas-Boas, S. (2016). Production and Emissions Leakage from California's Cap- and-Trade Program in Food Processing Industries: Case Study of Tomato, Sugar, Wet Corn and Cheese Markets. Orfalea College of Business, Cal Poly San Luis Obispo.

⁵ <https://www.arb.ca.gov/regact/2016/capandtrade16/appe.pdf>

⁶ <https://www.arb.ca.gov/lists/com-attach/73-capandtrade16-UTIGYVEgVSsKbQNT.pdf> (page 4)

We have additional concerns that neither the international nor the domestic leakage studies look at market demand when estimating leakage and they do not take into account the uniqueness of producing food. The leakage studies should include an analysis on upstream and downstream cost impacts if ARB is to use the results of the leakage studies to calculate specific AFs for specific industries.

For example, California dairy processing plants currently participating in ARB's cap-and-trade program are continually competing against both domestic and international competitors for those markets. Space in both markets is neither stable nor reliable, and is readily filled by the most price attractive competitor. The only factor reliably determining the successful competitor in either domestic or international markets is price. The costs imposed by regulatory compliance have been challenging for dairy processors and the proposed dramatic increase in those costs would be highly problematic. This is because such costs cannot be absorbed without making California dairy product processors much less competitive against their domestic and international counterparts, who do not carry such costs. The rationale that increased costs can be passed along or offset in domestic and international markets is disproven by the current situation, where California milk powder exports have dropped precipitously as California prices have remained higher than prices in competing Oceania and other powder supplying regions. As in the international space, domestic market sales are determined by competitive pricing. There is no offset or placeholder in either market when the cost of operation rises markedly above competitors.

We hope that ARB will reevaluate its AF methodology and implement the cap-and-trade regulation in a way that more accurately portrays the international and domestic pressures on the California agricultural sector. Failure to minimize leakage will not just have direct consequences for California food processing, its employees, and the communities that it supports; it will have a negative impact on global GHG emissions. As locally produced food declines in state and production increases out of state or abroad, it is likely that a more GHG intensive process will be used and emissions associated with shipping will increase overall GHG emissions. This outcome directly conflicts with ARB's original purpose of analyzing and minimizing leakage risk at all.

ARB's RESPONSE TO EJ CONCERNS

Due to a recently released research brief, *A Preliminary Environmental Equity Assessment of California's Cap-and-Trade Program*⁷ and the passage of AB 197, staff has been asked by Board Members at ARB to review program effectiveness for direct emission reductions. Therefore, staff is considering several potential program design changes.

Offsets Usage Limit

Staff is considering lowering the offset usage limit for post-2020. Offsets are a proven and cost-effective means of meeting AB 32 compliance obligations. They are also an effective means of achieving significant GHG emissions reductions here in California and globally, since carbon dioxide pollution knows no boundaries. ARB's original parameters that GHG reductions due to offsets meet the criteria of being real, additional, quantifiable, permanent, verifiable, and enforceable, have slowed growth of the program. California is paving the way on climate change programs and as a result, is a global leader. It is important that California maintain and build a

⁷ http://dornsife.usc.edu/assets/sites/242/docs/Climate_Equity_Brief_CA_Cap_and_Trade_Sept2016_FINAL2.pdf

strong offset program to demonstrate to the world that offset programs can be successful. We should not continue to restrain the ability of offsets to reduce emissions. ARB should expand and expedite the use of offsets, which is consistent with ARB's statutory obligation to achieve the maximum technologically feasible and cost-effective GHG emissions reductions.

Treatment of Unsold Allowances

Staff is considering changes to the treatment of unsold allowances by retiring some or all unsold allowances with vintage year 2020 or earlier. The cap-and-trade program was designed to address periods when allowance demand is low through an auction price stabilizing mechanism. It is very important that this change be subject to a cost-containment evaluation so that we continue to meet AB 32's statutory objective, to develop market mechanisms as cost-effectively as possible.

Cost-Burden Approach

Staff is considering shifting to a cost-burden approach for the industrial allowance allocation methodology. We have questions with this new potential approach:

- How would this approach take into account the current goal under AB 32 to minimize leakage?
- How does this approach account for the ability of the agricultural industry, including food processors, to pass on regulatory costs to consumers, given domestic and international competition and continually fluctuating global markets?

Prior to shifting approaches, we urge ARB to study the impacts of these potential changes in an effort to minimize leakage.

In closing, we recommend that ARB hold off on implementing a decrease in assistance factors for post-2020. Our members haven't even experienced the result of a decrease to 75 percent in the assistance factor that will occur in the third compliance period (2018-2020). It is not possible to predict the extent that the increase in carbon prices will affect food processing and more importantly emissions leakage. Before considering refining the assistance factor, ARB should at least keep the same assistance factor as the third compliance period for 2021-2023 and review actual emissions leakage data. Food processing plants carry with them billions of dollars in facility investment and thousands of employees. Regulatory uncertainty and change in direction that make producing food less viable are highly damaging and can prove irreversible.

We appreciate your consideration and the opportunity to comment. Our intention in these comments is to avoid simply shifting emissions to other locations outside of California. Should you have any questions or need anything further from us, please feel contact Rachael O'Brien at (916) 443-4887 or via email at Rachael@agcouncil.org.

Respectfully,



Emily Rooney
President
Agricultural Council of California



Rachel Kaldor
Executive Director
Dairy Institute of California



November 4, 2016

Rajinder Sahota
Chief, Climate Change Program Evaluation Branch, Industrial Strategies Division
California Air Resources Board
1001 I Street, Sacramento, California 95814

Thank you very much for the opportunity to comment on the staff presentation and discussion from the October 21, 2016 Mandatory GHG Reporting and Cap-and-Trade Program Workshop. Bluesource applauds the painstaking work that the Air Resources Board has done over many years to design a program that tackles the global climate issue in a sustainable way. As a company that exists for the purpose of making positive environmental impacts, we are greatly concerned about some recent criticisms of ARB's program design, particularly attacks on offsets and claims made about correlations between Cap and Trade and local air pollution.

Before addressing our concerns, we want to acknowledge the very real problems disadvantaged communities face with respect to local air pollution and our desire to see these problems improve. Disadvantaged communities around the world are *also* facing environmental injustices due to climate change, and the impacts of that problem are just as tangible. Our company is deeply passionate about making positive changes in our local and global communities, and nothing in this letter is intended to minimize the problems caused in disadvantaged communities by any type of pollution. Our concerns, rather, stem from the intermixing of these problems and tactics being taken to advance one cause to the detriment of the other.

Cap and Trade is... and is not...

Cap and Trade is one leg of California's holistic approach to address GHG emissions. Its intent is to lower these emissions across the most impactful sectors of California's economy in a way that does not burden consumers any more than necessary or make California a less competitive place to do business. These two objectives benefit all Californians, particularly those that spend a higher percentage of their income on energy and transportation fuel (typical in low-income households). The environmental benefits are of local *and* global scale as California is subjected to the risks of climate change as are many other communities around the world. Uneconomic solutions, however, could place meaningful cost burdens on these consumers and could even result in job loss in such communities and across California if businesses are forced to relocate out of state due to competitiveness concerns. This would of course have the compounding effect of leakage from California's robust climate goals, lessening the true positive effect of its programs.

Cap and Trade is not, nor was it ever intended to be, a means to address local air pollutants. There are a series of policies in place in California to accomplish this, so to say that Cap and Trade is ineffective at



reducing local air pollutants is like saying a toothbrush is an ineffective hairbrush. It may be a true statement, but a toothbrush was never intended to brush hair. Local air pollutant reductions should be handled by local air pollutant policies.

A greenhouse gas is... and is not...

A GHG emission contributes to global climate change. The emissions governed by Cap and Trade have little or no local health effects, yet they are being blamed for adverse impacts they have no part in causing. Furthermore, just because a facility emits both GHGs and other local pollutants does not mean that the same single action can or should be taken to address both.

An offset is... and is not...

A California offset is a real reduction in GHGs verified to arguably the most rigorous standard the world has seen to date. Moreover, an offset usually creates far more co-benefits than an allowance (or the emission reductions caused by the total number of available allowances being reduced): Forest carbon offsets preserve biodiversity and enhance water quality. Livestock projects reduce odors and provide jobs. ODS projects provide monetary incentives to recycle old, inefficient appliances. The list goes on, but let's look outside of California to see what an offset is really capable of:

Offset projects have a tremendous effect on disadvantaged communities around the world. Bluesource's affiliate, The Paradigm Project, has distributed hundreds of thousands of efficient cookstoves to the world's most poor in east Africa and central America. This effort, funded entirely by offsets, has impacted over 1 million people, saved 30% of household income per family and hundreds of productive hours per family, and has significantly reduced medical visits and even death caused by lower respiratory disease among women and children. If anything, we need more offsets like these in California's program to spur on these types of investments.

An offset is not a get-out-of-jail-free card. Statements have repeatedly been made by those that oppose offsets that since large emitters use offsets as part of their compliance strategy, they do so *instead of* reducing emissions locally. This false conclusion assumes an either/or scenario (either offsets *or* local emission reductions), when in fact it is **impossible** for facilities to just use offsets to meet their compliance obligation. Let us not forget that a mere 8% of a facility's obligation can be met with offsets, whereas the rest must come from allowances, whose decreasing availability over time represents actual reductions from these covered industries mostly *within* California. With large emitting facilities representing the vast majority of total emissions, it is inescapable that these facilities will have to make direct, local reductions as the availability of allowances declines. This will happen as the program is currently designed, even with the use of offsets.



A Preliminary Assessment?

The recently released report, “A Preliminary Environmental Equity Assessment of California’s Cap-And-Trade Program,” is indeed preliminary and incomplete, yet conclusions are being drawn and actions are being taken as if it is comprehensive and final. The authors acknowledge that “further research is needed before firm policy conclusions can be drawn,” yet despite these acknowledgements, attempts are being made to use this report to influence policy conclusions.

Our observation is that this report is far too early and limited in scope to assess how the program is really working. The timeframe only covers 2013-2014, meaning the data doesn’t even cover the massive expansion to the fuels sector brought about in the second compliance period. Let’s also acknowledge this first compliance for what it is: the very beginnings of a very long-term program. Compliance and flexibility in the early years of the program are at their lowest cost and greatest ease. While critics will point to this as a failure, this was an intentional and critical part of the program design! The transition to a low-carbon economy must be smooth in order to avoid disastrous economic consequences, and ARB’s program design is accomplishing this. Let’s not point to the first two years of a program designed to take 17+ years to achieve its goals and say that it’s not working fast enough or not working at all.

Furthermore, statements, assumptions and conclusions eliminate contributing data or misrepresent contributing factors, leading to erroneous conclusions. For example, increases in emissions from power generation should account for the SONGS closure and drought-induced hydro generation limitations during those years, neither of which were attributable to Cap and Trade. A much more comprehensive and balanced analysis representing the program’s full breadth will be necessary to draw accurate conclusions.

Thank you very much for the opportunity to comment on these very important issues. We look forward to continuing to help California achieve its ambitious climate goals.

Sincerely,

A handwritten signature in black ink, appearing to read "Kevin Townsend".

Kevin Townsend
Chief Commercial Officer
Bluesource



Tim Carmichael
Agency Relations Manager

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November 4, 2016

Rajinder Sahota
Chief, Climate Change Program Evaluation Branch
California Air Resources Board
1001 I Street – P.O. Box 2815
Sacramento, CA 95812

Re: SoCalGas Comments on the October 2016 Cap-and-Trade Regulation
Amendments Workshop

Dear Ms. Sahota:

On behalf of the Southern California Gas Company (SoCalGas), we respectfully submit the following comments in response to the California Air Resources Board's (ARB) Proposed Amendments to the Cap-and-Trade Regulations presented at the October 21, 2016 Workshop (Workshop). Our comments address four issues: 1) Post-2020 Cap Adjustment Factors, 2) Post-2020 Allowance Consignment requirements, 3) Allowance Price Containment Reserve, and 4) Offset Credit Usage Limits.

I. POST-2020 CAP ADJUSTMENT FACTORS

Support a Continuation of Current Cap Adjustments Factors for Allowance Allocation – SoCalGas strongly supports a continuation of the rate of decline under current regulations (approx. 1.86% factor decline per year) for Post-2020 cap adjustment factors (CAFs). The proposed CAFs, as presented on slide 47 of the Staff presentation, would nearly double the annual rate of decline from current CAFs for “Standard” sectors (1.86% to 3.4%). As illustrated in Figure 1 below, the direct allocation allowance gap widens with each year. By 2030, Standard sectors would receive only 50% under the proposed changes compared to 67% of direct allocation allowances that should occur under existing regulations. This change would result in significant costs to ratepayers as we discuss in the next paragraph.

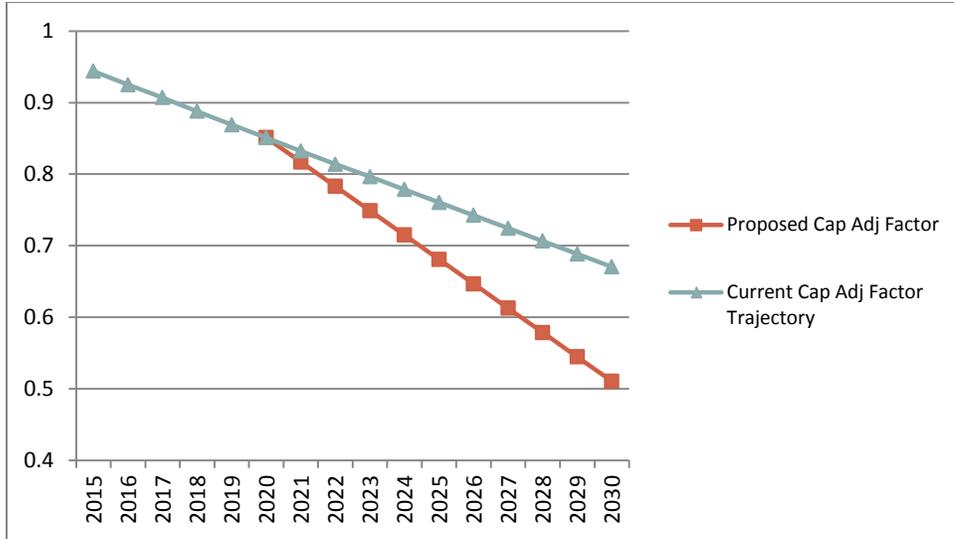


Figure 1 Cap Adjustment Factors: Current Decline Rate vs. Proposed Decline Rate

We direct Staff’s attention to the fact that reductions in direct allocation allowances will increase the cost pass-through while simultaneously decreasing the amount of consignment allowances that are used to mitigate costs for impacted customers through issuance of Climate Credits. As shown in Table 1, the proposed CAFs are estimated to generate lower Climate Credit value than that of the current regulations, when compliance costs are at their highest. This mismatch between credits and costs will result in rate impacts to utility customers that can be avoided by maintaining current regulations. A gradual step-down in emission caps coupled with the gradual increase (five percent per year) in consignment requirements is a more prudent approach to safely introduce a price signal while ensuring consignment revenue for distribution of Climate Credits to eligible natural gas utility ratepayers.

Table 1 Year 2030 Estimated Annual Residential Climate Credit and Compliance Cost for SoCalGas¹

CAF and Consignment Scenario	Climate Credit	Compliance Cost
Current Regulations ²	\$63	\$59
Proposed Changes ³	\$48	\$59

¹ All values are shown in real 2016 dollars; consignment values assume a low allowance price scenario, derived from the auction floor price in 2016 escalated by 5% a year and adjusted 2% a year for inflation.

² Current Regulations - using the 5% consignment rate in the current regulation with current cap adjustment factors.

³ Proposed Changes include 100% consignment in 2021 and post-2020 cap adjustment factors for “Standard” sectors presented in slide 47 of the Staff Presentation at the Workshop.

II. ALLOWANCE CONSIGNMENT REQUIREMENTS

Support Current Consignment Level Increases of 5% per year – SoCalGas urges ARB to maintain the current 5% annual increase in required allowance consignment levels for natural gas suppliers. At the Workshop, Staff proposed the most aggressive of three options presented at a previous March 29 Workshop – 100% consignment starting in 2021. Our estimates indicate that moving to full consignment so quickly is a dramatic departure from current regulations and creates significant rate shock to our customers. Table 2 below provides the compliance cost comparison between two scenarios for year 2021, when the proposed consignment would first have its impacts: 1) a continuation of current consignment and CAF levels and 2) the proposed decreased CAFs and accelerated consignment. As shown below, the compliance cost per therm would nearly double to \$0.09. This would result in the average annual compliance cost for residential, commercial and large commercial customers to increase by 65% or more from the rate impact of current regulations.

Table 2 Sample Rate Impacts for Year 2021: Comparing Current Regulations and Proposed Changes⁴

	Current Regulations⁵	Proposed Changes⁶
Total Compliance Cost (\$ Millions)	\$215	\$356
Compliance Cost per Therm	\$0.05	\$0.09
Average Annual Compliance Cost Per Customer		
Residential	\$23	\$38 (65% increase)
Commercial	\$186	\$309 (66% increase)
Large Commercial	\$3,882	\$6,430 (67% increase)

⁴ Ibid., 2.

⁵ Ibid., 2.

⁶ Ibid., 2.

Furthermore, any acceleration of consignment requirements overlooks the documented reasoning for a more gradual transition to a full price signal,⁷ and is simply unsupported by any new information presented by staff. The original consignment level is an approach that remains sound today. The following points outline reasons why a continuation of 5% annual consignment increase is the most judicious approach:

1. The idea that full-price pass-through more closely aligns the natural gas utilities with the electric distribution utilities' allocations fails to recognize the fundamental difference in the assessment of compliance obligations between natural gas utilities and electric distribution utilities. The compliance obligation is allocated directly to the gas utility based on retail sales, compared to point-of-generation or import in the electric sector. While the State's natural gas suppliers and other RNG stakeholders are working to increase the number and volume of natural gas alternatives, such as renewable natural gas, supply is currently too low to replace conventional natural gas at any significant scale. This necessitates a longer transition period to full rate impact for consumers.
2. Staff presented the position that increased consignment will incentivize greenhouse gas reductions. We respectfully request that Staff provide evidence that supports their claim before implementing the most aggressive consignment option presented to stakeholders. Our cost analysis presented in this comment letter and in meetings with ARB Staff, on the contrary, demonstrates that the proposed CAFs and consignment changes will have very significant negative impacts on utility ratepayers. Furthermore, the literature suggests that price increases at the residential and small commercial level do little to decrease consumption behavior.^{8,9} A report co-sponsored by the California Energy Commission and the California Environmental Protection Agency found that "there are fewer and less obvious opportunities for consumers to reduce their demand for natural gas in response to price as compared to electricity."¹⁰ SoCalGas confirmed these findings during recent resource planning activities and in implementation of energy efficiency programs. Therefore, given the likelihood of severe impacts to ratepayers, SoCalGas urges that Staff suspend the proposed changes until further study justifies such changes.

⁷ See page 16 of the September 2013 Initial Statement of Reasons-Proposed Amendments to the California Cap on Greenhouse Gas emissions and Market-Based Compliance Mechanisms

⁸ California Climate Change Center, *Price Impact on the Demand for Water and Energy in California Residences*, (CEC-500-2009-032-F) (2009).

⁹ Bernstein, M.A., Griffin, J., *Regional Differences in the Price-Elasticity of Demand for Energy*, National Renewable Energy Laboratory, (Subcontract Report NREL/SR-620-39512) (2006).

¹⁰ California Climate Change Center, *supra* at 5.

3. Changes to current consignment requirements introduce regulatory uncertainty around procurement activities for all market participants by suggesting that ARB staff may suddenly modify allocation frameworks. The current levels of consignment for natural gas suppliers were carefully negotiated and designed to provide a balanced transition to a full carbon price-signal, mitigate market risk, and manage costs for California's natural gas customers. Altering the rate of consignment, particularly by adopting the most aggressive option proposed, upsets this careful balance and fails to recognize the time needed to implement carbon reduction activities by both utilities and consumers.

SoCalGas believes it is imperative for ARB to consider cost impacts from the Cap-and-Trade regulation in light of all future customer bill impacts for both natural gas and electricity, and to take into account the totality of utility bill increases that all Californians will be facing, especially low income households and small businesses. This is particularly important given that utility customers cannot currently distinguish between rate increases due to California's greenhouse gas programs and increases imposed by other regulatory changes.

III. ALLOWANCE PRICE CONTAINMENT RESERVE

Moving unsold allowances to the Allowance Price Containment Reserve (APCR) after 24 months is premature – SoCalGas does not support Staff's proposal to move allowances that remain unsold for 24 months into the APCR. As proposed, this market intrusion could create pricing spikes in the short-term due to an artificial undersupply of allowances. Many have attributed the recent soft market to uncertainty about the future of the Cap-and-Trade program resulting from the legal challenges it faces and lack of legislation to extend the program beyond 2020. While these external influences on the market could temporarily cause market participants to hesitate and take stock, that does not justify a deliberate shifting of allowances into the APCR creating an artificial scarcity to inflate prices. Unsold allowances may be needed to meet short term demand with no ability to access volumes without purchasing the highly priced APCR allowances, leading to increased market pricing over short time periods. This condition would be exacerbated by the proposal to collapse the three reserve-price tiers into one. Indeed, the only beneficiary of such interference in the marketplace is the State who will be getting more for the allowances it sells, at the expense of California residents and businesses who will have to pay more for natural gas and electricity.

Recommend Maintaining Three Price Tiers – SoCalGas is concerned that collapsing the existing three reserve price tiers to one will increase the chances of extreme price spikes and price volatility in the linked California and Quebec Cap-and-Trade carbon market. The risk for this market behavior is heightened when combined with the proposal to remove surplus unsold allowances from the Auction Holding Account (AHA) and transferring them to the APCR. The result could be very costly for covered entities and damaging to utility ratepayers. The Carbon Market Compliance Association

completed an analysis that found as many as 250 million unsold allowances could be transferred from the AHA to the APCR by 2020.¹¹

IV. OFFSET CREDIT USAGE LIMITS

Urge Against Decreasing the Offset Usage Limits – Emission offset credits provide a critical cost containment function for the Cap-and-Trade program. Cost containment protects California’s ratepayers and businesses, and supports the AB 32 objectives to cost-effectively reduce greenhouse gases. As acknowledged by ARB and other AB 32 stakeholders, California plays a leading role in developing frameworks and markets that achieve climate goals shared by jurisdictions globally to reduce greenhouse gas emissions. Therefore, ARB should strengthen rather than diminish the early-stage offset market by expanding the role of offsets in California’s Cap-and-Trade program. SoCalGas supports actions that contribute to a robust offset market including increasing usage limits, improving and expanding offset protocols, and other actions that instill confidence in the offset market.

In conclusion, SoCalGas believes that the viability and health of the Cap-and-Trade program in post-2020 will be strengthened by considering and adopting our recommendations as outlined in this letter and summarized as follows:

1. We support a continuation of current cap adjustments factors for direct allowance allocations. The proposed alternative will result in significant costs for ratepayers while at the same time reducing the amount of consignment revenue for cost mitigation.
2. We urge ARB to maintain the current 5% annual increase in required allowance consignment levels for natural gas suppliers. Fundamental differences exist between how the natural gas and electricity utilities are treated under the Cap-and-Trade regulations and in the challenges they face to reduce emissions. Accelerated consignment fails to appreciate these differences and will have a severe impact on ratepayers.
3. SoCalGas cautions Staff to not move unsold allowances after 24 months into the APCR, as this will increase the likelihood of short-term price spikes. We also support the current 3-tier APCR structure that functions to reduce price volatility and mitigates price spikes.
4. Finally, SoCalGas supports strengthening the emission offset market, not weakening it by reducing the offset credit usage limits. We share the view that California should demonstrate leadership in all aspects of furthering climate goals, and the development of a robust offset market is a key component to reducing global greenhouse-gas emissions.

¹¹ Carbon Market Compliance Association, “Notice of Public Hearing to Consider Amendments to the California Cap on Greenhouse Gas Emissions and Market-based Compliance Mechanisms Regulation” (Sept. 15, 2016).

Again, SoCalGas thanks you for this opportunity to comment on the October Cap-and-Trade Regulation Amendments Workshop and we look forward to additional dialogue as the amendments move forward. Please contact me if you have any questions or concerns about these comments.

Sincerely,

Tim Carmichael

Tim Carmichael
Agency Relations Manager – Energy and Environmental Affairs
SoCalGas



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**California Independent Petroleum Association Comments
on the Cap-and-Trade Regulation Industry Assistance Factor Calculation
Informal Staff Proposal**

November 4, 2016

California Air Resources Board
1001 I Street
Sacramento, CA 95814

Via electronic submittal to: https://www.arb.ca.gov/lispub/comm2/bcsubform.php?listname=ct-amendments-ws&comm_period=1

The California Independent Petroleum Association (CIPA) appreciates the opportunity to submit the following comments to the California Air Resources Board (ARB) for its consideration. These comments respond to and focus on the October 21, 2016, Mandatory GHG Reporting and Cap-and-Trade Program Workshop related to the calculation of industry assistance in determining allowances under the Cap-and-Trade Program in the post-2020 time frame.

The mission of CIPA is to promote greater understanding and awareness of the unique nature of California's independent oil and natural gas producers and the marketplace in which they operate; highlight the economic contributions made by California independents to local, state and national economies; foster the efficient utilization of California's petroleum resources; promote a balanced approach to resource development and environmental protection and improve business conditions for members of our industry. In-state petroleum production can play a role in helping the state meet its dual goals of a strong statewide economy while reducing GHG emissions in California.

Retaining the industry current Assistance Factor level is the best way to combat the threat of GHG emissions leakage from our industry. CIPA understands the importance of this issue within the Cap-and-Trade Program, but also highlights that failing to maximize the free allocations to California's oil and gas industry prior to a more uniform and ubiquitous carbon price signal worldwide puts California entities at a disadvantage. Crude oil is an international commodity. Any reduction in the Assistance Factor (AF) from its current level will create added pressure for potential leakage of GHG emissions to other regions not similarly regulated. Though a few additional jurisdictions are beginning to start down the road of putting a price on carbon, the transition relief currently provided is still needed, as the threat of leakage from world crude oil imports hasn't decreased since California's Cap-and-Trade Regulation was first adopted.

Uneven regulation of GHG emissions has the unintended consequences of incenting the importation of crude oil. The pull from other markets, less regulated oil-producing regions, is real. California's progressive implementation of emissions targets makes carbon an additional factor affecting costs for petroleum producers. Retaining the current AF for in-state oil producers will continue to ease the disparity caused by the Cap-and-Trade compliance costs.

Further, more stringent 2030 GHG targets should look to coincide with potential advances in emissions-reducing technologies available to industry. The AF is one part of the overall allowance formula; however, maximizing that value provides an opportunity for limited capital to be directed at emission reductions, rather than purchasing compliance obligations.

As noted in both Appendix E of the Cap-and-Trade rulemaking package¹ and the Informal Staff Proposal presented at the workshop,² the Oil and Gas sector was not studied as part of the broader industry leakage analysis. Additionally, the Informal Proposal highlights a lack of quality data and data discrepancies surrounding a variety of sectors, including Oil and Gas. CIPA supports staff's decision to hold off on post-2020 Assistance Factors recommendations until the data surrounding this sector is better understood and more detailed analysis can be performed. We also believe that such an important and complex analysis should not be rushed in the remaining time frame of this rulemaking, and should not be completed in a shortened 15-day amendment package.

As this is an important matter to CIPA members, we are committed to working with ARB on this critical design feature of the Cap-and-Trade Program and look forward to upcoming discussions. Thank you for your attention. Any questions or follow-up comments can be directed to rock@cipa.org.

Sincerely,



Rock Zierman
CEO

317897627.1

¹ <https://www.arb.ca.gov/regact/2016/capandtrade16/appe.pdf>

² <https://www.arb.ca.gov/cc/capandtrade/meetings/20161021/ct-af-proposal-102116.pdf>



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ORA

Office of Ratepayer Advocates

California Public Utilities Commission
505 Van Ness Avenue
San Francisco, California 94102

<http://ora.ca.gov>

THE OFFICE OF RATEPAYER ADVOCATES' COMMENTS ON THE CAP-AND-TRADE
REGULATION AMENDMENTS WORKSHOP DATED OCTOBER 21, 2016

November 04, 2016

I. INTRODUCTION

The Office of Ratepayer Advocates (ORA) is the independent consumer advocate within the California Public Utilities Commission (CPUC), with a mandate to obtain the lowest possible rates for utility services consistent with reliable and safe service levels, and the state's environmental goals.

ORA supports the efforts of the Air Resources Board (ARB) staff to develop regulations for the extension of the Cap-and-Trade Program (Program) beyond 2020, while recognizing complementary policies in California to reduce Greenhouse Gas (GHG) emissions by 2030 and beyond. As stated in the Initial Statement of Reason: "AB 32 also requires ARB to work with other jurisdictions to identify and facilitate the development of integrated and cost-effective regional, national, and international GHG reduction programs."¹

In response to stakeholders' comments, ARB staff is reconsidering its previous proposal to remove the Renewable Portfolio Standard (RPS)² adjustment post-2020 from the Cap-and-Trade regulations. ORA supports the ARB staff's reconsideration of [its] decision to eliminate the RPS adjustment post-2020. The RPS adjustment reduces the GHG compliance obligation for certain out of state resources procured to meet California's RPS goals. The RPS adjustment reduces the cost of compliance with Cap-and-Trade regulations, which is ultimately born by ratepayers, while meeting California RPS program goals.

ORA appreciates this opportunity to comment on ARB's proposals presented during the Cap-and-Trade Regulation Amendments Workshop that was held on October 21, 2016. ORA provides the following comments intended to support the alignment of ARB's proposed amendments to the regulations with the state's current and future policies for reducing GHG emissions. ORA focuses on developing strategies that minimize the cost impact on California's ratepayers, while maximizing the benefits from their investments in current and future programs to achieve the state's GHG reduction goals. As discussed below, ORA recommends that ARB consider changes to its implementation of the RPS adjustment to ensure accurate accounting of ratepayers' obligations for GHG compliance costs.

¹ Staff Report: Initial Statement of Reasons, August 2, 2016 (ARB Staff Report), p. ES-1.

² Public Utilities Code Section 399 et seq.

II. The ARB should align its Current Cap-and-Trade Accounting Rules with California's RPS Program.

The CPUC and the California Energy Commission (CEC) are required to implement the RPS program to attain 20 percent of total sales of electricity in California from eligible renewable energy resources by 2013, 33 percent by 2020, and 50 percent by 2030.³ The RPS statute identifies the electricity products that are eligible to comply with the RPS procurement requirements.⁴ The CPUC and the CEC track RPS procurement through Renewable Energy Credits (RECs) that are assigned to eligible renewable generation.⁵ The RPS program allows procurement of renewable resources through three portfolio content categories (PCC or buckets):

- (1) PCC1, applicable to directly delivered electricity-facilities with a first point of interconnection within the California Balancing Authority (CBA) or with generation scheduled in the CBA;
- (2) PCC2, applicable to incremental electricity and substitute energy; and,
- (3) PCC3, electricity products not qualifying for the first two categories, including unbundled RECs.⁶

Under ARB's Cap-and-Trade program, entities that import electricity to California are responsible for the GHG emissions associated with those imports.⁷ If the imported electricity is procured from a "specified"⁸ source of electricity outside of California, then the associated

³ Public Utilities Code Section 399.11 (a).

⁴ Public Utilities Code Section 399.16.

⁵ Public Utilities Code Section 399.21.

⁶ Public Utilities Code Section 399.16.

⁷ Electricity that is "directly delivered" into California should qualify for PCC 1 of the RPS. ARB requires that imported electricity must meet any of the following criteria to be considered directly delivered into California:

- (A) The facility has a first point of interconnection with a California balancing authority;
- (B) The facility has a first point of interconnection with distribution facilities used to serve end users within a California balancing authority area;
- (C) The electricity is scheduled for delivery from the specified source into a California balancing authority via a continuous physical transmission path from interconnection of the facility in the balancing authority in which the facility is located to a sink located in the state of California; or
- (D) There is an agreement to dynamically transfer electricity from the facility to a California balancing authority." <https://www.arb.ca.gov/cc/reporting/ghg-rep/regulation/mrr-2013-clean.pdf>.

⁸"Specified source of electricity" or "specified source" means a facility or unit which is permitted to be claimed as the source of electricity delivered. The reporting entity must have either full or partial ownership in the facility/unit or a written power contract to procure electricity generated by that facility/unit. Specified facilities/units include cogeneration systems. Specified source also means electricity procured from an asset-controlling supplier recognized by the ARB." Title 17. Public Health-- Division 3. Air Resources--Chapter 1. Air Resources Board--Subchapter 10. Climate Change-- Article 2.

emissions compliance obligation is equal to known emissions. If the electricity is imported from an “unspecified”² source, then the emissions compliance obligation is determined by multiplying a default emission factor (0.428 MTCO_{2e}/MWh) by the amount of electricity (MWh) delivered.

Under the state’s RPS program requirements, a utility may satisfy its compliance obligations in part by purchasing low-emission or carbon-free power generation outside of California that is never delivered to serve load into the state. Under such instances, as is the case under PCC 2 of the RPS program, a utility can apply an RPS Adjustment factor,¹⁰ which would reduce the utility’s GHG compliance obligation under Cap-and-Trade regulations.

The ARB’s Final Statement of Reasons notes that:

“ARB included the RPS adjustment for the specific purpose of reducing the cost of RPS compliance that would be born directly or indirectly by entities that must comply with California’s RPS program. The adjustment is impartially applied to any electricity importer that meets the requirements in section 95852(b)(4) of the cap-and-trade regulation to deliver RPS electricity used for RPS compliance.”^{11 12}

Mandatory Greenhouse Gas Emissions Reporting—Sub article 1. General Requirements for Greenhouse Gas Reporting).

² “Unspecified source of electricity” or “unspecified source” means a source of electricity that is not a specified source at the time of entry into the transaction to procure the electricity.” *Ibid*

¹⁰ The RPS adjustment is calculated as the product of the default emission factor for unspecified sources factor (0.428 MTCO_{2e}/MWh) multiplied by the amount of imported electricity subject to specific requirements under ARB’s regulations. *Ibid*.

¹¹ ARB Final Statement of Reasons for Rulemaking: Public Hearing to Consider Adoption of Amendments to the Regulation for the Mandatory Reporting of Greenhouse Gas Emissions. October 28, 2011, pp. 365-375.

¹² Reference Section 95852(b)(4): RPS adjustment: Electricity procured from an eligible renewable energy resource reported pursuant to MRR must meet the following conditions to be included in the calculation of the RPS adjustment:

(A) The electricity importer must have: 1. Ownership or contract rights to procure the electricity and the associated RECs generated by the eligible renewable energy resource; or 2. A contract with an entity subject to the California RPS that has ownership or contract rights to the electricity and associated RECs generated by the eligible renewable energy resource, as verified pursuant to MRR.

(B) The RECs associated with the electricity claimed for the RPS adjustment must be placed in the retirement subaccount of the entity subject to the California RPS, and party to the contract in 5852(b)(4)(A), in the accounting system established by the CEC pursuant to PUC 399.25, and designated as retired for the purpose of compliance with the California RPS program within 45 days of the reporting deadline specified in section 95111(g) of MRR for the year for which the RPS adjustment is claimed.

(C) The quantity of emissions included in the RPS adjustment is calculated as the product of the default emission factor for unspecified sources, pursuant to MRR, and the reported electricity generated (MWh) that meets the requirements of this section, 95852(b)(4).

(D) No RPS adjustment may be claimed for an eligible renewable energy resource when its electricity is directly delivered.

(E) No RPS adjustment may be claimed for electricity generated by an eligible renewable energy resource in a jurisdiction where a GHG emissions trading system has been approved for linkage by the Board

Utilities are allowed to meet RPS program goals using RPS PCC 2 as defined in Section 399.16 (b) (2) of the Public Utilities Code.¹³ The power that serves load in California procured as PCC 2 can be firmed and shaped (using incremental electricity and substitute energy). However, under ARB's current accounting rules, while PCC 2 renewable power is eligible to meet the RPS program goals for renewable power, a utility may be assigned a GHG compliance obligation for the PCC 2 renewable power.

Due to differences in treatment of such imported power under RPS program rules and the ARB regulations, ratepayers are at risk for paying twice for GHG compliance resulting from RPS procurement. Under ARB regulations, importers of renewable power are required to report and surrender the RECs associated with the imported power in order to claim the RPS adjustments. However, if the imported renewable power is firmed and shaped, ARB does not allow the importer who owns the RECs to claim the RPS adjustment. Instead, where the renewable power is not delivered to California, and an equal amount of substitute power is imported, ARB requires the importer to report the substitute power as unspecified, which is subject to a GHG compliance obligation pursuant to ARB accounting rules. However, if the source of the substitute power is known, importers are required to report that power as specified imports, which is also subject to compliance obligations. While the RPS rules consider the entire output of a renewable energy facility covered by firmed and shaped contracts as renewable energy delivered to California, ARB does not.¹⁴ In this situation, after paying a renewable premium for RECs in compliance with the RPS program, an importing utility (and therefore its ratepayers) is still obligated to pay GHG compliance costs pursuant to ARB rules.

In addition, in the event that a third-party purchases and imports null power (renewable power without the RECs), the imported power is assigned a zero emission factor with no Cap-and Trade compliance obligation. In this situation, despite the fact that the null power is considered and priced as "brown" or non-renewable power under RPS program rules because the RECs have been stripped, the third-party importer has no GHG compliance obligation per the ARB rules, yet the utility that purchased the power for its RECs is not allowed to use the RPS adjustment.¹⁵

Accurate accounting of GHG emissions from imported power serving load in California is important for the integrity of the Cap-and-Trade program, and accurate accounting should not preclude the application of rules that complement the existing RPS regulations. Accurate

pursuant to sub article 12.

(F) Only RECs representing electricity generated after 12/31/2012 are eligible to be used towards the RPS adjustment.

¹³ Under RPS rules, one of the portfolio content categories of eligible renewable energy resources, as defined in PU Code 399.16 (b) (2) is: "Firmed and shaped eligible renewable energy resource electricity products providing incremental electricity and scheduled into a California Balancing Authority."

¹⁴ CEC Guidebook, Renewable Portfolio Standard Eligibility, 3rd ed., January 2008.
[http://www.energy.ca.gov/2007publications/CEC-300-2007-006/CEC-300-2007-006-](http://www.energy.ca.gov/2007publications/CEC-300-2007-006/CEC-300-2007-006-ED3-CMF.PDF)

ED3-CMF.PDF.

¹⁵ Thus, the GHG compliance costs are passed on to ratepayers when (1) a utility imports renewable electricity under RPS PCC 2 to comply with RPS goals, and the underlying power is delivered into California by a third-party; and (2) a utility imports renewable electricity to comply with RPS goals, but the renewable power is not delivered to California, and firmed and shaped power is delivered instead.

accounting should not impose additional emissions compliance costs on ratepayers without providing commensurate environmental benefits. The CPUC and CEC track RPS procurement through RECS. ARB should require entities importing null power (i.e. renewable power without RECS) to procure GHG compliance instruments. Similarly, utilities importing renewable power under PCC 2 should be allowed to claim the RPS adjustment, as long they surrender associated RECs. ORA recommends that ARB staff consider the recommendations proposed by the investor-owned utilities regarding RPS Adjustments provided in response to ARB's questions at the ARB/Joint Utilities Group meeting held in March of 2016.¹⁶ These recommendations would ensure the appropriate treatment of eligible renewable power under RPS program rules, which the California utilities import to meet the RPS program goals.

ARB included the RPS adjustment for the specific purpose of reducing the cost of RPS compliance. If ARB rules are not accurately aligned with existing RPS program rules, GHG compliance costs passed on to ratepayers may increase due to this misalignment. Appropriately applying the RPS adjustment under the Cap-and-Trade regulation is crucial not only to ensure that ratepayers do not pay twice for complying with the state's GHG Cap-and-Trade regulations and the RPS goals, but also to maintain the benefits of Californians' investments in clean energy.

III. CONCLUSION

Both the RPS and Cap-and-Trade programs are designed to combat climate change. Through these programs, the electric sector currently makes significant contributions toward meeting California's GHG reduction goals. The ARB's regulations should recognize and enhance the value that customers provide through their electric rates that include the cost of these programs. To ensure that ratepayers do not pay twice for the same environmental benefits under the RPS and the Cap-and-Trade programs, ARB should revise its accounting procedures to credit RPS investments in renewable power intended to reduce GHG emissions.

Please contact Ayat Osman (ayat.osman@cpuc.ca.gov or (415) 703-1567) with any questions regarding these comments.

/s/ Julie Halligan

Julie Halligan
Program Manager

¹⁶ https://www.arb.ca.gov/cc/capandtrade/meetings/informal/pg_e_comment_7.pdf

November 4, 2016

VIA ELECTRONIC SUBMISSION

Clerk of the Board
Air Resources Board
1001 I Street
Sacramento, CA 95814

Re: Comments of PacifiCorp on the October 21, 2016 Workshop on Proposed Amendments to the California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms Regulation and the Regulation for the Mandatory Reporting of Greenhouse Gas Emissions

PacifiCorp respectfully submits these comments on the October 21, 2016 workshop hosted by staff of the California Air Resources Board (“ARB”) on proposed amendments to the California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms Regulation (“Cap-and-Trade Program”) and the Regulation for the Mandatory Reporting of Greenhouse Gas Emissions (“MRR”).

PacifiCorp does not own or operate emitting resources in California and is subject to the Cap-and-Trade Program and MRR solely as an electricity importer: PacifiCorp imports energy into California through service to its California retail load, bilateral wholesale sales, and the Energy Imbalance Market (“EIM”). PacifiCorp’s comments are provided in two parts: one from its perspective as a Multi-Jurisdictional Retail Provider (“MJRP”) serving retail load in California and one from its perspective as an electricity importer via the EIM.

I. MJRP Comments

A. As an MJRP, PacifiCorp is uniquely situated in California

PacifiCorp is a multi-state utility that provides retail electric service to approximately 1.8 million retail customers located in California, Idaho, Oregon, Utah, Washington and Wyoming. In California, PacifiCorp serves approximately 45,000 customers in Del Norte, Modoc, Shasta and Siskiyou counties. PacifiCorp’s service territory is predominantly rural and approximately 39 percent of California customers are eligible for PacifiCorp’s California Alternate Rates for Energy (“CARE”) low-income assistance program. PacifiCorp is regulated under the state jurisdictions of each of the states in which PacifiCorp has retail service territory. PacifiCorp operates two Balancing Authority Areas (“BAAs”) that span its six-state service territory and as a load-serving entity it operates its multi-state territory as a single, integrated system. Consistent with its integrated system operations, the majority of its system generating resources (both PacifiCorp-owned and contracted generation) are allocated across the entire system rather than on a state-by-state basis.

Currently, PacifiCorp is the only MJRP under the Cap-and-Trade Program and MRR—its compliance obligation as an MJRP is calculated differently from other utilities in California in that it is based on a system emission factor. Each year, PacifiCorp reports its total emissions to ARB including a calculated system emission factor which is then multiplied by PacifiCorp’s retail load to determine the compliance obligation. Further, PacifiCorp, due in large part to the nature of its multi-jurisdictional service territory, has unique compliance requirements under California’s renewable portfolio standards (“RPS”). For example, PacifiCorp and the other small and multi-jurisdictional utilities are not required to comply with the product content category requirements of the RPS. The California Legislature and the California Public Utilities Commission (“CPUC”) have adopted such provisions for small and multi-jurisdictional utilities to ensure that the utilities are not disadvantaged simply by the location of assets and that their customers are not unduly burdened due to relatively small size of their home utility.

B. Post-2020 electrical distribution utility allowance allocation

PacifiCorp reiterates its support of ARB’s “cost burden” approach to post-2020 utility allowance allocations. As defined by ARB, the cost burden is the anticipated incremental cost of power to serve load due to the requirement to surrender compliance instruments in the Cap-and-Trade Program. PacifiCorp supports this approach because, as noted above, a large number of PacifiCorp’s California customers are eligible for PacifiCorp’s low-income assistance program. It is critically important to ensure that PacifiCorp’s customers in California are protected from significant rate increases over time as well from sharp increases from one year to the next.

Any methodology developed to calculate the true cost burden on PacifiCorp’s retail customers associated with the Cap-and-Trade Program must take into account the manner in which PacifiCorp’s compliance obligation is calculated and the manner in which PacifiCorp complies with the California RPS. Specifically, the methodology should take into account PacifiCorp’s unique regulatory requirements in California, including the fact that PacifiCorp is not required to file an S-2 resource plan or meet the product content category requirements of the RPS. Failure to take these considerations into account will result in an allowance allocation that is not aligned with the cost burden.

Though PacifiCorp is not subject to the product content category requirements of the California RPS, PacifiCorp is subject to RPS requirements in two other of its state jurisdictions—Oregon and Washington. In developing its Integrated Resource Plan (“IRP”), PacifiCorp forecasts a preferred portfolio of resources representing how PacifiCorp anticipates it will serve load over time as well as meet the RPS requirements of its respective jurisdictions, including California. In its IRP, PacifiCorp also takes into account planned coal retirements. The emissions intensity of PacifiCorp’s preferred portfolio multiplied by its California load forecast is therefore the best forecast of PacifiCorp’s compliance obligation, and therefore cost burden, under the Cap-and-Trade Program. The proposed formula included in ARB’s informal proposal does not reflect PacifiCorp’s unique circumstances.

In its informal proposal, ARB staff put forth proposed allowance allocations for all California electrical distribution utilities. PacifiCorp’s allowance allocation in 2020 is approximately 770,000 allowances. In its informal proposal, PacifiCorp’s allowance allocation in 2021 would

be approximately 380,000. PacifiCorp's allocation would be reduced by approximately 50 percent from 2020 to 2021. ARB has not provided justification for the "cost burden" approach that would justify such a dramatic single year reduction. Regardless, ARB should avoid dramatic cliff-type reductions in order to protect customers and allow utilities time to develop compliance strategies.

C. Post-2020 program elements

At the October 21, 2016 workshop, ARB staff presented new concepts for a post-2020 program that consider: 1) a shift away from the Cap-and-Trade Program to more prescriptive regulations in lieu of a post-2020 Cap-and-Trade Program; and 2) assuming a market-based program continues, retiring a portion of the unsold state-owned allowances of vintage year 2020 or earlier. The latter is justified, according to ABR staff, in part, to recognize that emissions are declining faster than anticipated and discussion at the workshop implied that mandatory retirements could be part of wrapping up the market-based program.

With respect to the adoption of a more prescriptive program, it is unclear how such a shift would impact PacifiCorp's customers because those customers' cost burden is entirely based on emissions associated with imported electricity. However, from a policy perspective, a program designed to reduce greenhouse gas emissions aimed at mitigating the global problem of climate change should not be redesigned to address local air quality concerns. In particular, a more prescriptive approach to regulating imported emissions, which are by definition emissions that occur outside of California, would not address the local air quality concerns raised. In general, PacifiCorp supports efforts to address local air quality concerns; however, the mechanism for doing so is not via an existing greenhouse gas program. Rather, adherence to the federal Clean Air Act and continuation of the State's work on its State Implementation Plan serves as a more direct and meaningful mechanism to address local air quality impacts. PacifiCorp looks forward to reviewing and commenting on further refinements to the concepts raised at the October 21 workshop.

With respect to the proposal to retire unsold allowances of pre-2020 vintage, PacifiCorp is concerned that in the long-term this will make the aggressive post-2020 goals more difficult and expensive to achieve. As explained at the October 21, 2016 workshop, retiring unsold allowances is responsive to the fact that emissions are falling faster than expected. However, the fact that emissions are declining faster than expected in the early years does not mean that emissions will continue to decline as quickly in future years, nor does it mean that unsold allowances will not have value in the future or be needed to meet the more aggressive reductions contemplated through 2030 and beyond. Removing unsold allowances because emissions are currently declining could also be seen as penalizing entities who took action early to reduce emissions in an effort to reduce a future burden. The state has not modified its greenhouse gas goals to reflect its overachievement. ARB should not unilaterally take it on itself to effectively do so.

II. Energy Imbalance Market Reporting Requirements

With respect to accounting for emissions associated with energy imported into California via the EIM, PacifiCorp's interest is in preserving the value and integrity of the EIM including the

associated customer cost savings and renewable integration benefits. PacifiCorp is concerned that the adoption of the currently proposed regulatory amendments, as well as the options most recently presented at an October 13, 2016 CAISO technical meeting and the October 21, 2016 ARB workshop, would needlessly jeopardize continued interest and participation in the EIM as well as continued interest in the development of a regional organized energy market. PacifiCorp is strongly opposed to such an outcome and therefore provides comments urging a different approach by both the CAISO and ARB than is currently underway. PacifiCorp has provided similar comments to the CAISO as part of its current stakeholder process addressing greenhouse gas emissions accounting in a regional independent system operator. Those comments are attached hereto as Attachment A.

A. CAISO and ARB stakeholder processes

At a technical meeting held October 13, 2016, the CAISO indicated that it is working with ARB staff through this stakeholder process to address greenhouse gas accounting concerns in the current EIM design. PacifiCorp believes that the ARB and CAISO stakeholder processes should be aligned. It is PacifiCorp's understanding that the CAISO is planning on making any necessary changes to the EIM optimization and market rules by January 1, 2018, which is when ARB also plans to implement proposed changes to greenhouse gas reporting for EIM imports. However, ARB's current schedule includes a final board hearing in Spring 2017 for changes that will take effect beginning in 2018. Assuming final adoption of the reporting changes by ARB in the spring of 2017, there is unlikely to be sufficient time for the CAISO to implement market changes including obtaining any necessary approvals from the Federal Energy Regulatory Commission ("FERC") needed to implement any required market changes. As will be discussed in detail below, PacifiCorp is concerned that the current options for market changes outlined during the technical meeting and the October 21, 2016 workshop may raise Federal Power Act and competitive concerns that may not be approved by FERC. If FERC does not approve the EIM market changes implemented to reflect regulatory amendments already adopted by ARB, EIM entities may be in the position of needing to comply with ARB reporting requirements that are inconsistent with the EIM optimization and FERC mandates. This uncertainty could lead to diminished interest in participating in the EIM and negatively impact current participants.

PacifiCorp strongly urges the CAISO and ARB to conduct a joint stakeholder process so that the issues and timelines associated with these complex issues can be resolved in the most efficient and definitive manner. PacifiCorp is also concerned that ARB staff is not providing sufficient process and clear communication given the complexity of the issues it has raised. No other cap-and-trade program in the United States regulates imported emissions. Attempting to accurately and fairly incorporate carbon price signals into an interstate energy market when only one state regulates imports is highly complex. The inaccurate or unfair incorporation of carbon costs and obligations can disrupt the market and in the worst case, cease its effective operation altogether. Given the complexity of this issue and the potential severity and consequences associated with failing to resolve it effectively, ARB staff should either delay the implementation of these amendments or adopt a simplified approach that is unlikely to disrupt the market. If ARB staff continues on the current path, multiple workshops should be held focused solely on this issue to give stakeholders the opportunity to fully discuss the issue, potential resolutions, and their ramifications.

B. ARB's authority to regulate "secondary" or "backfill" emissions

In the October 21, 2016 workshop, ARB described the problem that it is attempting to solve as associated with a potential for "secondary emissions" or "backfill effect" which is when higher-emitting resources are dispatched to serve EIM load when the EIM market optimization attributes lower-emitting resources to serve California load. The legal basis for ARB's potential regulation of this perceived phenomenon, which by definition involves emissions that occur outside of California that are not imported into California but are used to serve load outside of California, is questionable. ARB's directive under Assembly Bill ("AB") 32 is to account for greenhouse gas emissions from all electricity consumed in the state from electricity generated within the state or imported from outside the state. By their definition, "secondary emissions" and "backfill emissions" are not associated with energy consumed in California—there may be an indirect causal connection between energy consumed in California and these emissions, but fundamentally the "secondary" or "backfill effect" transaction is occurring wholly outside of California.

ARB has also stated that the problem associated with way the current EIM optimization model deems resources as imported to California is that it results in emissions leakage. Under AB 32, ARB has broad direction to "minimize leakage" in designing greenhouse gas limits. Leakage is defined in AB 32 as a reduction in emissions of greenhouse gases within the state that is offset by an increase in emissions of greenhouse gases outside the state. AB 32's extraterritorial reach to minimize leakage under AB 32 is unlikely to extend to the regulation of transactions occurring wholly outside of California, simply because these transactions may now be identifiable via the EIM. The legislative language is clear—the definition of emissions leakage only applies to emissions reductions "in California". The "secondary" or "backfill effect" emissions do not occur in California and thus, there are no emissions reductions in California that are offset.

There are also potential constitutional infirmities if ARB expands its regulation of transactions wholly outside the state of California. Even if there is an indirect causal connection between energy consumed in California and "secondary" or "backfill effect" emissions, ARB must have a methodology to accurately distinguish between those emissions with a causal connection to California load and those emissions associated with load service outside of California. As discussed below, none of the options presented thus far by ARB or the CAISO are likely to accomplish this.

ARB has also not sufficiently addressed how "backfill effect" emissions are addressed in the bilateral market. In the existing bilateral energy market, the same "backfill effect" emissions identified by ARB may be associated with specified sales to California. If energy from a hydroelectric resource is sold to California on a wholesale basis, there may be emissions associated with any "backfill" energy that is incremented to serve load that would not have occurred but for that sale to California. In fact, this scenario, likely based on the economics of resource dispatch options, could have occurred in the absence of the Cap-and-Trade Program and the market signals it engenders. ARB does not currently require a counterfactual analysis to identify "secondary" or "backfill effect" emissions associated with specified sales. These emissions are not captured by applying the default emissions rate to unspecified sales any more

than they would be in the EIM. It is not appropriate to regulate “backfill effect” emissions in the EIM but not in the bilateral market. The reality is that to the extent there is a “backfill effect” it would exist in the bilateral market in precisely the same way it would exist in the EIM—the EIM, operated as single integrated footprint, simply makes it easier to see and potentially identify.

Given the potentially significant financial and market consequences associated with the proposed options for resolving this issue, which will be more fully described below, PacifiCorp requests that ARB staff clearly examine and articulate the legal and constitutional authority to adopt the currently proposed regulatory amendments with respect to EIM reporting.

C. The magnitude of any “backfill effect” emissions does not warrant the complex and challenging options proposed as solutions

ARB staff has yet to provide any indication or assessment of the potential magnitude of any perceived “backfill effect” or “secondary emissions” that may be occurring in EIM. Only a small fraction of the overall energy market is settled through the EIM. Any “backfill effect” emissions that may have an indirect causal link to California load are likely to be relatively small as compared to the total quantity of emissions associated with energy consumed in California. The counterfactual analysis prepared by the CAISO seems to bear this out: the largest monthly increase in emissions outside of California was approximately 12 thousand metric tons.¹ As compared to the overall California greenhouse gas emissions cap, which exceeds 400 million metric tons, this number is very small. Regardless, it is critically important to understand ARB’s assessment of the magnitude of the issue because this should be consistent with the magnitude of the response.

The current options presented at the October 21, 2016 workshop are highly complex and potentially disruptive to the market. It is likely to take significant effort on the part of the CAISO, stakeholders, and FERC staff to evaluate the technical and legal merits of these proposals. It is highly unlikely that the incremental emissions that are to be captured through these options warrant the complexity and potential market disruption that may lead to decreasing the financial and environmental benefits currently being realized in the EIM. PacifiCorp strongly recommends that if ARB will not delay or abandon regulatory amendments associated with EIM reporting, that ARB and the CAISO seek simpler approaches that can be adopted (and modified) easily without requiring FERC approval or changes to the existing EIM optimization.

As extensively described PacifiCorp’s comments submitted on September 21, 2016 in this proceeding, the EIM is providing environmental benefits through the greater integration of renewable energy and reduced curtailment of California over-generation. If ARB does not take a more measured and thoughtful approach to this issue, the “solution” to this inarticulate and

¹ https://www.caiso.com/Documents/EIMGreenhouseGasCounter-FactualComparison-PreliminaryResults_Jan-Jun_2016_.pdf

unsupported problem could pose an existential threat to the EIM and the associated financial and environmental benefits being realized across the West.

D. Discussion of options presented by ARB and the CAISO

PacifiCorp has concerns with ARB’s authority to regulate “backfill effect” emissions. Nonetheless, PacifiCorp provides the following comments on the options for modifying how EIM imports are reported to illustrate the challenges associated with this issue. At the October 21, 2016 workshop, ARB presented potential options for modifying the way it requires reporting of emissions associated with energy imported into California via the EIM. It refers to these options as: 1) incremental above-economic base deeming (CAISO Option 2); and 2) modified optimization with a dynamic hurdle rate and renewable contracts for external resources (modified CAISO Option 3). Though not mentioned by ARB in the October 21st workshop, the CAISO also presented another option—Option 1—which is to calculate the overall greenhouse gas impact based on a comparison to a counterfactual dispatch outside of the market optimization.

As discussed more extensively in its September 21, 2016 comments, PacifiCorp disagrees with ARB’s position that it cannot account for emissions associated with exported energy. Nonetheless, PacifiCorp understands that ARB staff interprets the language of AB 32 as prohibiting ARB from netting emissions over time and that Option 1, as proposed by the CAISO, may be politically unpopular for a number of reasons. However, assuming that the objective is to identify emissions associated with the existence of EIM transfer capability between California and external EIM entity BAAs, Option 1 has the potential to at least reach a reasonable approximation of those emissions. Option 1 also would avoid the extreme difficulty associated with incorporating accurate and fair greenhouse gas price signals to the entire multi-state EIM footprint when only California regulates imported power. In light of the complexity of these issues and potential vulnerabilities associated with Options 2 and 3 (described below), the least disruptive solution to the leakage concern identified by ARB is Option 1. Given the timing constraints imposed by ARB for adopting regulatory amendments, if Option 1 is not acceptable on a long-term basis, it also could be implemented on a temporary basis while more complex options are finalized. Even if ARB staff rejects Option 1, PacifiCorp urges ARB staff to consider alternatives that are simpler and that estimate emissions outside of the market optimization.

Under Option 2, referred to by ARB as incremental above-economic base deeming, the ISO would perform a two-step process to identify incremental emissions associated with California load. The first step would be to perform the optimization without transfers between CAISO and EIM entity BAAs and the second step would perform optimization with transfers between the CAISO and EIM entity BAAs. The second step would be compared with the first to identify the incremental emissions associated with California load. The CAISO has indicated that this may be the preferred long-term solution but that it does not expect to have the computational power to implement this option by January 2018. While the appeal of this option is presumably that it would correctly identify the emitting resources that have been incrementally dispatched as a result of transfer capability between the CAISO BAA and EIM entity BAAs, it is problematic as a long-term solution as the use of a counterfactual optimization will inherently incorporate assumptions and lack precision. This issue may be exacerbated over time as the EIM footprint

expands. For instance, the treatment of energy that is wheeled through California—wheels through California would not occur but for transfer capability between California and EIM entity BAAs—but energy wheeled through California does not serve California load. This is just one concern that may arise from the use of a counterfactual analysis.

With respect to Option 3, which ARB refers to as a modified optimization with a dynamic hurdle rate, PacifiCorp believes that this option may increase prices outside of California as well as disadvantage resources outside of California as compared to identical resources inside California. For example, it would appear that the hurdle rate would apply to a zero-emitting resource (making it less likely to be dispatched) outside of California while the hurdle rate would not apply to zero-emitting resources inside California. As a result, pursuing this option may increase the vulnerability of the California Cap-and-Trade Program to challenges under the dormant commerce clause as well as increase the risk that FERC will not approve this option. This may also decrease interest from entities outside of California from participation in the EIM and reduce the benefits of current EIM participants. It also could lead to responsive measures by California's neighbors to protect their customers that would result in effects that are the opposite of what ARB says it is seeking to achieve. In certain instances, it also appears that Option 3 could result in overall increased emissions as compared to the current resource specific attribution methodology. This could occur if an emitting resource inside California is dispatched before a zero-emitting resource outside of California because of the additional hurdle rate applied to the zero-emitting resource. Since the CAISO has not yet released its straw proposal, it is not yet known how the application of a residual hurdle rate would impact EIM dispatch and prices. PacifiCorp will continue to engage with the CAISO to further understand the potential impacts of this option.

The discussion of the options above highlights the complexity and potential for unintended consequences of attempting to dispatch a single EIM footprint while only applying greenhouse gas costs to resources that are imported into California. It is unlikely that a perfect solution or perfect methodology will be achieved. The CAISO's existing EIM optimization solves the market on a least-cost basis and is responsive to California's policy preference for zero-emitting generation. If any modified EIM optimization reduces or eliminates the economic and environmental benefits currently realized by PacifiCorp's customers through participation in the EIM, PacifiCorp may be forced to limit or entirely discontinue its participation in the EIM. PacifiCorp is strongly opposed to this outcome given the substantial financial and environmental benefits that are being realized by all EIM participants. The loss of these benefits is not warranted by the issue ARB has raised regarding "backfill effect" emissions. ARB therefore should not modify the existing EIM reporting requirements. If ARB does modify its EIM reporting requirements it should seek to do so in a way that does not prevent continued participation and interest in the EIM.



Comments of PacifiCorp on the Regional Integration California Greenhouse Gas Compliance 10/13 Technical Meeting

Submitted by	Company	Date Submitted
Mary Wiencke mary.wiencke@pacificorp.com 503-813-5058	PacifiCorp	October 27, 2016

Introduction

PacifiCorp hereby submits the following comments to the California Independent System Operator Corporation (ISO) on its Regional Integration Greenhouse Gas Compliance Technical Meeting held October 13, 2016. PacifiCorp's principal interest in these comments is in preserving the value and integrity of the energy imbalance market (EIM) including the associated customer cost savings and renewable integration benefits. Ensuring the success of the EIM, and the treatment of greenhouse gas accounting therein, is also of central importance to the ultimate success of a Regional Independent System Operator (RISO). If California adopts policies that unduly burden entities outside of California, it jeopardizes continued interest and participation in EIM as well as continued interest in the development of an RISO. PacifiCorp is strongly opposed to such an outcome and therefore provides comments urging a different approach by both the ISO and the California Air Resources Board (ARB) than is currently in process.

Procedural Comments

PacifiCorp has significant concerns with respect to the manner in which this policy initiative is proceeding. This stakeholder process has been presented by the ISO as based in a need to modify how the market will identify resources serving load in various states in the context of an RISO. As noted in prior comments, PacifiCorp agrees that a different approach for tracking and reporting greenhouse gas emissions will be needed in the context of an RISO, when e-Tags will no longer be utilized for supporting energy schedules into California. However, what is evident from the October 13, 2016 technical meeting is that the purpose of this stakeholder process is ultimately to address concerns raised by ARB staff regarding emissions leakage that it believes is occurring in the EIM. The question of addressing ARB's concerns with respect to leakage is a much narrower topic, currently on a much different timeline and trajectory, than the development of the RISO. PacifiCorp is concerned that individual stakeholders who may be interested in the EIM topic are not participating in this stakeholder process because they are not aware of the substantial impact the ISO's proposals could have on EIM. While clearly any modifications to



greenhouse gas accounting in EIM will have implications for the RSO, these issues should be separate—not the least because the ISO’s proposals have significant potential consequences for EIM in the near-term. The ISO should not undertake or make changes such as those proposed without more clearly articulating its specific objectives and purposes. PacifiCorp recommends that the ISO separate the EIM process from the RSO process.

At the technical meeting, the ISO indicated that it is working with ARB through its stakeholder process to address greenhouse gas accounting concerns in the current EIM design. PacifiCorp has some concerns that the ARB and ISO stakeholder processes are not aligned. PacifiCorp understands that the ISO is planning on making any necessary changes to the EIM optimization and market rules by January 1, 2018, which is when ARB also plans to implement proposed changes to greenhouse gas reporting for EIM imports. However, ARB’s current schedule includes a final board hearing in Spring 2017 for changes that will take effect beginning in 2018. This may not be enough time for the ISO to implement market changes including obtaining any necessary approvals from the Federal Energy Regulatory Commission (FERC). As will be discussed in detail below, PacifiCorp is concerned that the current options for market changes outlined during the technical meeting may raise Federal Power Act and competitive concerns that may not be approved by FERC. If FERC does not approve EIM market changes implemented to reflect regulatory amendments already adopted by ARB, EIM entities may be in the position of needing to comply with ARB reporting requirements that are inconsistent with the ISO optimization and FERC mandates. In the worst case, this uncertainty could lead to diminished interest in participating in EIM and negatively impact current participants. PacifiCorp strongly urges the ISO and ARB to conduct a joint stakeholder process so that the issues and timelines associated with these complex issues can be resolved in the most efficient and certain manner.

General Comments

PacifiCorp provides below comments on the specific ISO proposals presented at the technical meeting; however, PacifiCorp notes that ARB has yet to definitively identify its legal ability and technical justification for the proposed changes to its mandatory reporting and cap-and-trade programs. ARB staff has not identified the magnitude of the emissions leakage it believes is occurring in the EIM. Nor has ARB staff addressed significant potential legal concerns associated with effectively regulating emissions outside of California that by the very definition of emissions leakage are not imported into California. Under the existing bilateral energy market, the same “secondary dispatch” emissions identified by ARB may be associated with specified sales to California. If energy from a hydroelectric resource is sold to California on a wholesale basis, there may be emissions associated with any “backfill” energy that is incremented to serve load that would not have occurred but for that sale to California. ARB does not currently require a counterfactual analysis to identify “secondary dispatch” emissions associated with specified



sales. It is not clear on what basis it is appropriate to regulate emissions leakage in EIM but not in the bilateral market.

Due to these issues, it is unclear whether a complex solution such as those proposed by the ISO is actually needed or justified to address a problem that has not been carefully articulated or supported with technical analysis. PacifiCorp therefore in general continues to oppose changes to the existing greenhouse gas accounting methodology and the need for any changes to the ISO optimization which could ultimately pose an existential risk to the EIM. Therefore, PacifiCorp's specific comments provided below do not represent an agreement that emissions leakage is occurring in EIM, that ARB has specific authority to regulate emissions leakage in the manner proposed, or that changes to the market optimization are ultimately necessary.

Technical Comments on ISO Proposed Options

With respect to any changes proposed to EIM to address emissions leakage, PacifiCorp agrees with the principles articulated by the ISO at the technical meeting, but would modify the principles to more clearly articulate objectives. With respect to treatment of greenhouse gases in the EIM, under the current framework where only California regulates imported emissions, it is of critical importance that: 1) resources outside of California may continue to choose not to import energy to California to avoid regulation under California's cap-and-trade program; 2) greenhouse gas costs do not impact prices external to the ISO balancing authority area; and 3) resources internal to California are treated comparably with resources external to California. Though PacifiCorp agrees with these principles, it is not clear from the discussion at the technical meeting exactly whether and how the proposals set forth by the ISO ensure that these principles are maintained. PacifiCorp recommends that, in its straw proposal, the ISO specifically articulate how its proposal will preserve these principles.

In the technical meeting, the ISO presented three options for addressing potential emissions leakage in EIM: 1) calculate overall greenhouse gas impact based on a comparison to a counterfactual dispatch outside the market optimization (Option 1); 2) modify the ISO optimization but maintain a resource specific cost and attribution (Option 2); and 3) modify the ISO optimization to add a residual emission rate for EIM transfers into the ISO (Option 3). Conceptually, if a change becomes necessary, PacifiCorp would prefer Option 1 because it would involve the least disruption to EIM. It is the most straightforward and simple approach, likely would not require FERC approval, and could be implemented with minimal market changes or disruption. Though PacifiCorp has some concerns with the use of a counterfactual analysis to identify emissions leakage, as will be discussed below, an accounting outside of the market optimization is less problematic in that it could be periodically updated and improved without FERC approval and with less potential disruption to the market.



PacifiCorp understands that ARB staff interprets the language of Assembly Bill (AB) 32 as prohibiting ARB from netting emissions over time and that Option 1 may be politically unpopular for a number of reasons. However, the reality is that Option 1 has the potential to reasonably approximate the greenhouse gas emissions associated with the existence of EIM transfer capability between California and external EIM entity BAAs. Option 1 also would avoid the extreme difficulty associated with incorporating accurate and fair greenhouse gas price signals to the entire multi-state EIM footprint when only California regulates imported power. In light of the complexity of these issues and potential vulnerabilities associated with Options 2 and 3 (described below), the least disruptive solution to the leakage concern identified by ARB is Option 1. Given the timing constraints imposed by ARB for adopting regulatory amendments, if Option 1 is not acceptable on a long-term basis, it also could be implemented on a temporary basis while more complex options are finalized. PacifiCorp understands that the ISO cannot change ARB staff's interpretation of AB 32 and therefore needs to focus on what it might consider more viable alternatives. However, PacifiCorp urges the ISO to keep Option 1 on the table and part of the stakeholder discussion rather than dismissing it based on ARB staff's interpretation. In this way, stakeholders have the opportunity to continue to urge ARB to adopt this simpler approach.

Under Option 2, the ISO would perform a two-step process to identify incremental emissions associated with California load. The first step would be to perform the optimization without transfers between CAISO and EIM Entity BAAs and the second step would perform optimization with transfers between CAISO and EIM Entity BAAs. The second step would be compared with the first to identify the incremental emissions associated with California load. The ISO has indicated that this may be the preferred long-term solution but that it does not expect to have the computational power to implement this option by January 2018. PacifiCorp understands the appeal of this option because it would appear to correctly identify the emitting resources that have been incrementally dispatched as a result of California's participation in EIM. However, in terms of the development of a long-term solution, PacifiCorp has potential concerns with the use of a counterfactual optimization, which will inherently incorporate assumptions and lack precision. This issue may be exacerbated over time as the EIM footprint expands. For instance, it is unclear how the optimization will treat energy that is wheeled through California—wheels through California would not occur but for transfer capability between California and EIM entity BAAs but energy wheeled through California does not serve California load. It is unclear whether emissions associated with wheels through California should appropriately be considered emissions leakage under California's cap-and-trade program. This is just one concern that may arise from the use of a counterfactual analysis. The challenge will be in designing the counterfactual such that it correctly identifies emissions that are imported to California and therefore appropriately regulated under AB 32. PacifiCorp encourages the ISO to continue to explore this option but whether or not it is ultimately supportable will depend on the mechanics of the counterfactual analysis, when they are developed.



With respect to Option 3, PacifiCorp is concerned that it may violate the principles articulated above: it appears that this option may increase prices outside of California as well as disadvantage resources outside of California as compared to identical resources inside California. For example, it would appear that the hurdle rate would apply to a zero-emitting resource (making it less likely to be dispatched) outside of California while the hurdle rate would not apply to zero-emitting resources inside California. As a result, pursuing this option may increase the vulnerability of the California cap-and-trade program to challenges under the dormant commerce clause as well as increase the risk that FERC will not approve this option. This may also decrease interest from entities outside of California from participation in the EIM and reduce the benefits of current EIM participants. In certain instances, it also appears that Option 3 could result in overall increased emissions as compared to the current resource specific attribution methodology. Nonetheless, the technical meeting included a relatively small amount of information regarding how this option would function in practice. It is not yet clear how exactly the application of a residual hurdle rate would impact EIM dispatch and prices. PacifiCorp recommends that in the straw proposal the ISO specifically address competitive concerns and vulnerability to dormant commerce clause and Federal Power Act challenges.

Conclusion

PacifiCorp appreciates the opportunity to submit these comments and looks forward to continuing to work with the ISO on resolving this complex and challenging issue.

Comment Log Display

Below is the comment you selected to display.

Comment 33 for Cap-and-Trade Regulation Amendments Workshop (ct-amendments-ws) - 1st Workshop.

First Name: Timothy

Last Name: Brown

Email Address: tbrown@tradewater.us

Affiliation: Tradewater, LLC

Subject: Support of Carbon Offset Provisions of Cap-and-Trade Program

Comment:

Tradewater, LLC, strongly encourages the Air Resources Board to maintain the current 8% offset usage limit post-2020, and to continue to permit the reduction of greenhouse gasses through verifiable offset projects throughout the United States.

Tradewater is an offset project development firm based in Chicago. We have developed a program that collects and destroys chlorofluorocarbon refrigerants from California and across the United States. We have also just completed the first reporting period for a project that is preventing methane from being released into the atmosphere from an abandoned mine. Our staff have engaged in projects that have resulted in the destruction of approximately 1,000,000 tons of greenhouse gasses - all because of the California offset program.

The inclusion of offsets in the California program is essential to its success. California cannot avoid the devastating impacts of climate change if it acts alone. Carbon is a global pollutant and climate risk to California is not jurisdictionally constrained to reductions within the state. This means that California benefits even when offset projects lead to reductions in other parts of the United States. And it also means that California needs the rest of the country - and the world - to join its efforts in order to prevent the harms of global warming.

The offset provisions of the Cap-and-Trade program have stimulated innovation and investment that has removed over 24 million metric tons of CO₂e in the form of emissions reductions and sequestration in the form of compliance offset credits since 2013. This is an important accomplishment that will only grow as the California program continues. Curtailing the use of offsets will dampen the investment in projects that are essential to addressing climate change.

Attachment:

Original File Name:

Date and Time Comment Was Submitted: 2016-11-04 14:27:20

Comment Log Display

Below is the comment you selected to display.

Comment 36 for Cap-and-Trade Regulation Amendments Workshop (ct-amendments-ws) - 1st Workshop.

First Name: Nicholas

Last Name: Balistreri

Email Address: nick.balistreri@ucop.edu

Affiliation: University of California, Office of the

Subject: Support of UPSE Continued Transition Assistance

Comment:

Dear Board Members:

The University of California (UC) supports the California Air Resources Board's (CARB) staff proposal to continue to provide transition assistance through the annual allocation of allowances to universities and public sector entities. Under the proposal, universities would continue to receive an allocation based on an established baseline multiplied by the annual cap adjustment factor. This provision is an equitable solution, balancing monetary incentives to reduce emissions, while allowing for funds to be redirected toward greenhouse gas reduction efforts. In 2016 this provision saved UC almost \$9 million, which will allow it to spend the funds on projects that reduce greenhouse gas emissions on its campuses.

Sincerely,

Nicholas Balistreri

Attachment:

Original File Name:

Date and Time Comment Was Submitted: 2016-11-04 15:19:41



[Return to Table of Contents](#)
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RIVERSIDE • VERNON • IMPERIAL IRRIGATION DISTRICT

November 4, 2016 | Submitted Electronically

Ms. Rajinder Sahota
California Air Resources Board
1001 I Street
Sacramento, CA 95814

Re: SCPPA Comments on October 21 Mandatory Reporting and Cap-and-Trade Program Workshop

Thank you for the opportunity to provide comments on the October 21 Staff workshop regarding Mandatory Greenhouse Gas (GHG) Reporting and Cap-and-Trade Program amendments.

The Southern California Public Power Authority (SCPPA) is a joint powers agency whose members include the cities of Anaheim, Azusa, Banning, Burbank, Cerritos, Colton, Glendale, Los Angeles, Pasadena, Riverside, and Vernon, and the Imperial Irrigation District. Our Members collectively serve nearly five million people throughout Southern California. Each Member owns and operates a publicly-owned electric utility governed by a board of local officials who are directly accountable to their constituents.

Each SCPPA Member has a duty to provide reliable power to their customers, many of whom are located in disadvantaged communities, at affordable rates while also complying with all applicable local, regional, state, and federal environmental and energy regulations. Currently, SCPPA and our Members own, operate, or have binding long-term procurement arrangements with 37 generation and natural gas projects and three transmission projects, generating power in California or importing from Arizona, New Mexico, Utah, Oregon, Washington, Nevada, Texas, and Wyoming. This is in addition to individual, Member-owned or contracted and operated transmission, generation, and natural gas projects throughout the Western United States. All are funded through municipally-backed financing mechanisms. SCPPA, its Members, and their customers will be significantly affected by the proposed regulatory amendments in California and throughout the West given anticipated market impacts across balancing authority areas – some of which are controlled by SCPPA Members.

Support for Continuation of the Cap-and-Trade Program

Many of our comments provided herein and in previous letters address the policy design and implementation details of the Cap-and-Trade Program and Mandatory Reporting Regulations. In light of recent stakeholder comments at both the September Air Resources Board Meeting and the recent Staff workshop, we are compelled to take a step back and reaffirm our support for the continuation of the Cap-and-Trade Program as the most workable strategy to achieve the State's aggressive long-term GHG goals. We believe that this nationally and internally recognized market-based Program is the most cost-effective means of achieving GHG emissions reductions throughout the state. **The Program as currently constructed allows our Members to pass the value of allowance allocations directly to their customers. These benefits flow through to all of our Members' customers, including those in disadvantaged communities. A shift away from the Program would very likely result in increased costs for all and may have little impact in addressing concerns with localized air pollutants. This would not be in the interest of utility customers or the state as a whole.**

Moreover, the Cap-and-Trade Program and Mandatory Reporting Regulations (MRR) are the primary mechanisms identified to support California's compliance with the federal Clean Power Plan (CPP).¹ ARB Staff have shepherded the state's proposed CPP Compliance Plan through public processes and have identified a plethora of changes to help mold the Cap-and-Trade Program and MRR to meet the needs of the CPP. Eliminating or conducting a wholesale re-design of the Cap-and-Trade Program would necessitate a new stakeholder process to determine how any alternative proposals could better support our state's compliance with CPP. California has paved the way for other states in being the first to develop its plan. But, as the Cap-and-Trade Program is threatened, we must acknowledge that any change in our state's climate policies could disrupt our pathway to compliance and require more drastic overhaul than anticipated. This type of change often comes at a cost to ratepayers and may do little to advance environmental progress in reducing emissions.

The continuation of a well-designed Cap-and-Trade program is critical in supporting public utilities' ability to keep costs down and continue to serve Californians with affordable energy while still maintaining a path toward 2030 statewide GHG goals. SCPPA is concerned that the amount of effort required to protect the longevity of Cap-and-Trade program will diminish the efforts to ensure it is workable in the post-2020 timeframe. The best protection for the program is to have it work as well as possible.

Post-2020 EDU Allocations

In general, SCPPA has serious concerns with the proposed post-2020 Electrical Distribution Utilities (EDU) allocation. AB 32 set the 2020 target and more recently SB 32 calls for a 40% reduction in greenhouse gas emissions by 2030. These two targets meet in the 2020-2021 timeframe, and it is imperative that the transition between the two stages of the program is a smooth one. The concept of transition is one that has been inherent in California's environmental and energy policy discussions – and necessarily so, as all sectors work toward meeting very aggressive policy goals. However, the Staff proposal for post-2020 EDU allocations does not effectively capture this concept of gradual transition, and instead would implement drastic changes for EDUs shifting from the third compliance period to post-2020 implementation. In evaluating the proposal, **SCPPA is troubled by the very steep drop-off in allowances starting in 2021. This first-year “cliff” could have significant impacts on our Members' costs and, in some cases, even their ability to operate their power plants.**

RPS Adjustment. SCPPA appreciates Staff's reconsideration of its proposal to remove the RPS Adjustment. However, we continue to have concerns with the treatment of directly delivered resources in light of Staff's worry over potential double-counting issues related to the misreporting of “null” power. SCPPA believes that a workable solution exists and looks forward to continuing discussions on this issue with ARB Staff and other members of the Joint Utility Group.

Two Options for Load Methodology. ARB Staff presented two options for determining each EDU's load to determine post-2020 allowance allocations. The first option would recalculate an EDU's load over time using data from the Energy Commission's demand forecast or S-2 forms. Many SCPPA Members anticipate increased load growth over the coming years, particularly given increased pushes for transportation electrification in densely populated urban areas. **As such, SCPPA supports the ongoing adjustment of load estimates and corresponding shifts to allowance allocations.** We prefer this option over the alternative proposal to fix load estimates based on 2020 numbers from the Energy Commission Demand Forecast and S-2 Forms. Anticipated changes to load patterns will undoubtedly vary across regions. SCPPA and its Members strongly advise against the application of uniform assumptions across the board for this reason. We look forward to actively engaging in ARB and Energy Commission proceedings to ensure that the unique circumstances of our Members' communities are reflected in the underlying methodologies for estimating load.

¹ As outlined in *California's Proposed Compliance Plan for the Federal Clean Power Plan*, available at: <https://www.arb.ca.gov/cc/powerplants/meetings/09222016/proposedplan.pdf>.

Shift of Industrial Allocations. SCPPA continues to be concerned with Staff's proposal to shift EDU allocations to directly provide allowances to covered industrial entities' electrical loads. We believe that this proposal would result in disproportionate impacts between publicly-owned utility and investor-owned utility customers. As public entities, it would be especially burdensome or nearly impossible for POUs to comply with the requirements of Proposition 26 when faced with the requirements to raise rates on a limited customer class. In addition, as shared during the October workshop, rough calculations completed by some of our Members demonstrate *significant cost increases* to these covered industrial entities in their service areas as a result of this shift. **Because this change will result in increased costs for utility customers, and in fact could actually impact the covered industrial customers most severely, SCPPA continues to strongly oppose this concept and again recommends that ARB Staff not pursue this issue.**

Allocation Methodology for Additional Electrification. ARB Staff did not make a proposal for addressing any potential increases in emissions due to increased load corresponding with transportation electrification. We appreciate Staff's statement regarding collaboration with other agencies to establish a tracking methodology that could inform future solutions. To the extent that it is helpful in evaluating the practicality of any proposals or expediting the implementation timeframe, SCPPA can work with its Members to provide feedback on the types of data currently available to our POUs. We also recognize that the Energy Commission recently engaged stakeholders in public meetings regarding its proposed Title 20 Data Collection regulations – which include a number of data points related to electric vehicles. We will continue to monitor and participate in that proceeding, and look forward to working with ARB and Energy Commission staff on developing possible solutions. SCPPA encourages Staff to present a proposal in a timeframe that allows sufficient review and analysis by stakeholders.

Regional GHG Accounting Options

The issue of regional GHG compliance and accounting is an extremely complex one. At the October 21 workshop, ARB Staff presented two options stemming from the initial three options proposed in the California Independent System Operator (CAISO) staff's October 13 technical workshop.² We understand that there are differences between ARB's two recommendations and those put forth by CAISO; we continue to analyze those details. However, without further elaboration on the rationale for removing the first and second options set forth in CAISO's Technical Workshop, particularly as initial studies have indicated that the Energy Imbalance Market (EIM) dispatch overall may be resulting in significant GHG benefits, stakeholders cannot reasonably weigh possible solutions to address the concerns.³

In addition to the remarks offered in these comments, SCPPA supports the comments submitted by the California Municipal Utilities Association on this issue. The ARB and CAISO must adopt policies and market design that (1) incentivize behavior (rather than simply attributing costs); (2) limit vulnerabilities to significant cost exposure outside of entities' control; (3) avoid outcomes that would result in optimizations prioritizing higher-emitting resources.

It seems that ARB's current intent is to pursue CAISO's Option 3, which would involve developing and applying a uniform "hurdle" rate for energy transfers into California from external resources other than external resources contractually committed to California load serving entities (LSEs). We are concerned that this approach may not accurately reflect the costs for emissions in the prices for GHG-emitting resources, and may incentivize procurement and dispatch of higher emitting resources. The prices for low-emitting resources will be elevated as compared to resource-specific attribution of emissions costs, and the prices for high-emitting resources will be suppressed, leading to dispatch outcomes directly contrary to the objectives of California's GHG program. Of equal concern is that LSEs within California will have no foresight of additional charges that they may become subject to, and consequently will not be able to take proactive measures to

² Slides from the October 13 CAISO Technical Workshop on Regional GHG Compliance are available here:

<http://www.caiso.com/Documents/UpdatedAgenda-Presentation-RegionalIntegrationCaliforniaGreenhouseGasCompliance-TechnicalWorkshop.pdf>

³ CAISO's Energy Imbalance Market GHG Counter-Factual Comparison found that "secondary dispatch associated with EIM transfers into CAISO to serve load are offset by GHG emission reductions associated with EIM transfers out of the CAISO."

http://www.caiso.com/Documents/EIMGreenhouseGasCounter-FactualComparison-PreliminaryResults_Jan-Jun_2016_.pdf

mitigate incurring such costs. Further examination of ARB's variance on this proposal is needed to fully understand the potential implications.

Procedurally, the bifurcation of this issue across agencies, and in separate discussions at separate times, creates an unfortunate disconnect between the practical implementation of the changes in the CAISO market and the compliance obligations in the Cap-and-Trade Program. We understand that ARB Staff intend to include a proposal on this issue in 15-day language, but we continue to strongly urge ARB and the CAISO to more thoroughly deliberate the issue and possible solutions in a public forum. This issue will, indeed, have a significant impact on discussions regarding the regionalization of our electric grid. It is appropriate to solicit feedback from the affected regional stakeholders in public forums and with open dialogue including California stakeholders. Rushing through the regional GHG compliance issue limits the amount of meaningful public discussion that can occur and could have long-term negative impacts in the electricity markets. Taking the time to coordinate GHG accounting and compliance in a new electricity market, or in the existing EIM market, is imperative for a successful program. As the electricity sector continues to become cleaner, many new challenges are being overcome at the same time. The primary goal should be achievement of overall GHG emissions reductions, not just accounting for GHG emissions in California for purposes of retiring allowances. Careful consideration of potential effects on the CAISO electricity market is warranted, and addressing this issue outside of the market should be considered. A change in existing GHG regulation may be the better alternative if it would support greater GHG reductions throughout the regional electric grid that supports California.

AB 197 and Post-2020 Cap-and-Trade Program Design Changes

Several proposed changes to address the implementation of AB 197 were presented during the October 21 Workshop. While we appreciate Staff's forthrightness in sharing these conceptual proposals early on, we are concerned with the direction of the amendments. As noted above, SCPPA supports the continuation of the Cap-and-Trade Program and believes that the changes proposed would generally take the program in the wrong direction. Of particular concern is the proposal to retire some or all of the unsold State-owned allowances with vintage year 2020 or earlier. Reducing the amount of available allowances would send the wrong signals to entities with compliance obligations that have taken early actions to "clean-up" their portfolios – particularly those who may be seeing increased load growth over time. We appreciate staff's clarification that any change done in response to this proposal would be subject to evaluation for cost-containment.

SCPPA firmly believes that ARB has already focused on direct reductions in the AB 32 program. There is a myriad of complementary programs that are aimed at reducing GHGs independent of the Cap-and-Trade Program existence. Some of these programs are very expensive, but from the beginning it was always the plan to have the market-based components of the larger effort work in conjunction with direct GHG reduction measures, such as the Renewables Portfolio Standard that applies to electric utilities and requires increasing investment in renewable generation to serve customers. The following was excerpted from the Original Scoping Plan (pg. 34)⁴:

ARB evaluated a comprehensive array of approaches and tools to achieve these emission reductions. Reducing greenhouse gas emissions from the wide variety of sources can best be accomplished through a cap-and-trade program along with a mix of complementary strategies that combine market-based regulatory approaches, other regulations, voluntary measures, fees, policies, and programs.

AB 32 and SB 32 are GHG programs that can have a significant localized environmental benefit, but they are not traditional air quality programs. California has a robust and successful history with reducing both criteria and toxic air pollutants. In fact, between 2000 and 2013, criteria pollutants regulated by various air districts throughout the state as well as the CARB have reduced. As noted in the Draft 2016 Environmental Performance Report of California's Electrical

⁴ https://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf

Generation System based on data from the CARB Almanac Emissions Projection Data, criteria pollutants from electricity production in the state have decreased. These two distinct program areas have been working in conjunction over the last decade, even though they have different statutory mandates, timelines, scopes of influence, and overall goals.

Market Data Transparency

Based on the Staff presentation, we understand that there are no recommendations to change data release requirements in this regulatory package, nor are there set timeframes for implementing any such changes. We encourage ARB Staff to consult stakeholders informally before proposing any future changes that would affect reporting requirements or alter the types of data (both content and format) that ARB would release. SCPPA Members are responsible for maintaining customer confidentiality and would strongly oppose any suggestions that could impair their ability to do so. However, SCPPA supports market transparency and is open to further discussions on the release of additional data points that could be made available without privacy concerns and significant administrative cost burdens on reporting entities.

Conclusion

Thank you for your time and consideration. SCPPA and our Members continue to seek forward progress on a variety of issues that have been raised over the past year. We remain ready to meet with ARB Staff and other agencies to work towards mutually agreeable solutions that best advance the State's climate change goals in an affordable manner for California ratepayers.

Respectfully submitted,



Tanya DeRivi
Director of Government Affairs



Sarah Taheri
Energy Analyst, Government Affairs



November 4, 2016

VIA ELECTRONIC SUBMISSION

Clerk of the Board, Air Resources Board
1001 I Street
Sacramento, CA 95814

RE: October 21, 2016 Workshop and the Informal Staff Proposal for the Industry Assistance Factor Calculation

The Wonderful Company LLC (“Wonderful”), on behalf of Wonderful Pistachios and Almonds LLC (“WPA”), appreciates the opportunity to provide feedback to the California Air Resources Board (“ARB”) regarding the October 21, 2016 workshop and the Informal Staff Proposal for the Industry Assistance Factor Calculation (“Staff Proposal”).

Fundamentally, Wonderful does not support the Staff Proposal to decrease assistance factors post 2020. We believe that ARB should, at a minimum, maintain the current assistance factors (those allocated in the 3rd compliance period) for 2021-2023, and review additional emissions leakage data from 2018 through 2020 before considering assistance factor refinement.

From the onset of the Cap-and-Trade (“C&T”) program, ARB provided for an allowance allocation methodology that designated food production sector facilities as “medium” leakage risk, whereby granting the food industry free allocation assistance factors of 75 percent through the 2018-2020 compliance period. In 2011, ARB directed staff to investigate and recommend potential improvements to the industrial allowance allocation to better meet the objectives of the establishing legislation (AB 32) by looking for ways to minimize leakage from domestic (California) industries to the extent feasible.

As part of this directive, ARB commissioned three independent studies that utilize different methodology to answer the larger question of the potential leakage risk associated with recalculating the assistance factors for the C&T program. Although specifically commissioned by ARB, staff is only proposing to use two of the three studies to develop assistance factor methodology post 2020. We find this approach to be problematic, as we do not believe the two relied upon studies accurately represent emission leakage risk, which is the intent of the ARB’s directive.

At their core, the two utilized studies, Gray et al. (domestic study)¹ and Fowlie et al. (international study)², fail to accurately assess genuine industry specific emissions, the principal

¹ Gray, W., Linn, J., and Morgenstern, R. (2016). *Employment and Output Leakage under California’s Cap-and-Trade Program*. Accessed 11/4/16: <http://www.arb.ca.gov/cc/capandtrade/meetings/20160518/rff-domestic-leakage.pdf>

² Fowlie, M., Reguant, M., and Ryan, S. (2016). *Measuring Leakage Risk*. Accessed 11/4/16 <http://www.arb.ca.gov/cc/cap-and-trade/meetings/20160518/ucb-intl-leakage.pdf>

reason for ARB commissioning these studies. We cannot support ARB moving forward with the Staff Proposal for assistance factors when the relied upon calculation methodology utilizes results from studies that are incompatible with industry specifics – especially the food industry – and that do not accurately measure emissions leakage for California entities. Some of the more pressing issues we have with the two utilized studies are highlighted below:

- There is no mention of a comparison between California emission control efficiencies versus international emission control efficiencies or other states' control efficiencies. Without comparing the emission controls between industries outside of California, ARB cannot possibly quantify emissions leakage.
- The authors of the two studies acknowledge that they based their conclusions on insufficient statistical data, whereby making it impossible to accurately predict direct leakage risk to California based entities. The authors in the domestic study (*Gray et al.*) acknowledge the study's limitations to predict long-term effects of a carbon price to any degree of certainty; and the international study (*Fowlie et al.*) recognizes that quantifying production leakage rate to international markets solely from California is difficult due to the limited data set available. This fact required the authors to simulate how such a transfer rate may appear, rather than making calculated projections.
- The studies do not adequately represent the leakage risk between California and neighboring US states. The study by Fowlie et al. only compares California to international markets, and the Gray et al. study is focused on how additional carbon prices (emission credits) will affect California industries.
- The food processing industry is a unique category of emitters and should be specifically studied to provide adequate projections as to the impacts of decreased assistance factors post 2020. ARB staff are not proposing to use the data from the third leakage study by *Hamilton et al.*³ which specifically looks at data from the agricultural sector, because staff believes that study was too conservative. We do not agree with ARB's assessment of this study and support ARB reevaluating the conclusions derived from the *Hamilton et al* research.

The aforementioned deficiencies in the two studies are outstanding. We believe it would be counterintuitive and inappropriate for ARB to develop long-term (post 2020) program elements based on studies wherein the authors acknowledge their own limitations to predict long-term effects to any degree of certainty. It would be fundamentally flawed for ARB to use any assumption in place of a fully vetted study for emission control comparison. The intent of AB 32 is to reduce California Greenhouse Gas ("GHG") emissions, and in turn, reduce global GHG emissions, since California as an individual state is a large contributor. However, there is no value in reducing California emissions if that would lead to an increase in GHG emissions elsewhere in the globe as GHG emissions reside in the atmosphere *globally*. In fact, without adequate quantification of industry specific emissions efficiencies between California and non-California facilities, there is no

³ Hamilton, S.F., Ligon, E., Shafran, A., Villas-Boas, S. (2016). Production and Emissions Leakage from California's Cap-and-Trade Program in Food Processing Industries: Case Study of Tomato, Sugar, Wet Corn and Cheese Markets. Orfalea College of Business, Ca Poly San Luis Obispo. Accessed 11/4/16: <http://www.arb.ca.gov/cc/capandtrade/meetings/20160518/calpoly-food-process-leakage.pdf>

guarantee that production leakage from California (no matter how small) will not generate an overall increase in global GHG emissions.

Furthermore, we believe it is incorrect to assume that there is a one-to-one market transfer rate when it comes to emissions leakage. For example, California currently has some of the most energy efficient, most emission efficient, and least GHG emitting facilities in the world. With the onset of AB 32, California emitters were required to produce lower emissions per metric ton than similarly producing facilities almost anywhere else in the world. As such, there is already a disparity in comparing California and non-California emitters. The third study ARB commissioned by *Hamilton et al.* (determined to be insufficient by ARB) elaborates further on this emission efficiency disparity:

For the case of California food processors, the typical plant operates on natural gas; however, global food processing plants including those in other U.S. states rely on other sources such as coal and fuel oil. In 2002, 52% of total energy supply utilized in the U.S. food manufacturing industry was natural gas, 21% net electricity, 17% coal, 3% fuel oil, and 8% other (e.g., waste materials). In aggregate, the market transfer of California production to producers in other U.S. locations in the U.S. therefore is likely to occur to plants relying on a mix of fuels that produce higher levels of emissions per MBtu. In the case of tomato processing, global market transfer that occurs to food processing facilities in China is likely to result in greater emissions per ton of processed tomatoes, as energy used to process tomatoes in China is generally derived from coal-fired plants.

In light of the challenges outlined with the studies above, we respectfully request that ARB reevaluate its assistance factor methodology prior to finalizing the Staff Proposal.

Thank you for your consideration of our comments on the October 21, 2016 workshop and the Informal Staff Proposal for the Industry Assistance Factor Calculation. We would be happy to discuss at your convenience.

Sincerely,



Melissa Poole
Senior Counsel/Director of Government Affairs

Comment Log Display

Below is the comment you selected to display.

Comment 36 for Cap-and-Trade Regulation Amendments Workshop (ct-amendments-ws) - 1st Workshop.

First Name: Nicholas

Last Name: Balistreri

Email Address: nick.balistreri@ucop.edu

Affiliation: University of California, Office of the

Subject: Support of UPSE Continued Transition Assistance

Comment:

Dear Board Members:

The University of California (UC) supports the California Air Resources Board's (CARB) staff proposal to continue to provide transition assistance through the annual allocation of allowances to universities and public sector entities. Under the proposal, universities would continue to receive an allocation based on an established baseline multiplied by the annual cap adjustment factor. This provision is an equitable solution, balancing monetary incentives to reduce emissions, while allowing for funds to be redirected toward greenhouse gas reduction efforts. In 2016 this provision saved UC almost \$9 million, which will allow it to spend the funds on projects that reduce greenhouse gas emissions on its campuses.

Sincerely,

Nicholas Balistreri

Attachment:

Original File Name:

Date and Time Comment Was Submitted: 2016-11-04 15:19:41



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456 Montgomery Street, Suite 1800
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Direct: (415) 262-4008
Fax: (415) 262-4040
nvanaelstyn@bdlaw.com

November 4, 2016

Via Electronic Submission

California Air Resources Board
1001 I Street
Sacramento, CA 95812

Re: Comments of Powerex Corp. on ARB's October 21 Stakeholder Workshop on Proposed Amendments to the Cap-and-Trade Regulation

Dear Air Resources Board Staff,

On behalf of Powerex Corp., I submit the attached comments on the California Air Resources Board's October 21, 2016 Stakeholder Workshop, specifically with respect to greenhouse gas emissions accounting in the Energy Imbalance Market. Powerex appreciates the continued dialogue that ARB staff has provided and looks forward to continued progress in resolving the current issues with the EIM.

Sincerely,

A handwritten signature in black ink that reads "Nicholas W. van Aelstyn".

Nicholas W. van Aelstyn

Attachment

**Comments of Powerex Corp. on October 21, 2016 Workshop Respecting
Accounting for Greenhouse Gas (GHG) Emissions
in the Energy Imbalance Market (EIM)**

I. About Powerex

Powerex is a corporation organized under the *Business Corporations Act* of British Columbia, with its principal place of business in Vancouver, British Columbia, Canada. Powerex is the wholly-owned energy marketing subsidiary of the British Columbia Hydro and Power Authority (“BC Hydro”), a provincial Crown Corporation owned by the Government of British Columbia. Powerex sells wholesale power in the United States pursuant to market-based rate authority granted by the Federal Energy Regulatory Commission (“FERC”) in September 1997, renewed most recently on August 29, 2014.

Powerex sells power from a portfolio of resources in the United States and Canada, including Canadian Entitlement resources made available under the Columbia River Treaty, BC Hydro system capability, and various other power resources acquired from other sellers within the United States and Canada. Powerex has been delivering power to California since shortly after receiving its market-based rate authorization and is currently registered with CARB as an Asset Controlling Supplier (“ACS”).

II. Introduction

Powerex Corp. (“Powerex”) submits the following comments on the California Air Resources Board’s (“CARB’s”) October 21, 2016 Workshop Respecting Mandatory Greenhouse Gas (“GHG”) Reporting and the Cap-and-Trade Program.¹ Powerex appreciates the significant time and effort that CARB staff is devoting to exploring solutions to address the existing disconnect between EIM GHG reporting and actual EIM dispatch of out-of-state resources to serve California load. Powerex believes that addressing the serious concerns raised by CARB staff regarding EIM GHG emissions is of significant importance to California’s short-term and long-term GHG objectives.

When designing and implementing the EIM, CAISO modified its dispatch algorithm to provide a resource-specific assignment of responsibility for out-of-state generation (and associated GHG emissions) serving California load. Now, after two years of experience with the EIM, it has become clear that the existing approach is having serious unintended consequences and does not provide an accurate accounting of external GHG emissions associated with serving California load in the EIM. A review of the actual performance of the EIM demonstrates that the external resources “deemed delivered” to California through the EIM bear little relationship to the external resources actually dispatched to serve load within California.²

Powerex’s comments address the three following positions:

1. There are alternative conceptual approaches—including the “incremental deeming option” discussed at the October 21 workshop—that appear to accurately identify the specific out-of-state resources that serve California load in the EIM. Powerex strongly supports CAISO, CARB and

¹ CARB presentation, *Mandatory GHG Reporting and Cap-and-Trade Program Workshop: Energy Imbalance Market (EIM)* (Oct. 21, 2016) (“CARB October 21 Presentation”).

² For a full discussion of the existing disconnect between the resources “deemed delivered” to California and those actually serving load in California, see Comments of Powerex Corp. on the Proposed Amendments to Cap-and-Trade Regulations at 6-9 (Sept. 9, 2016) (“Powerex September 9 Comments”).

stakeholders continuing to work to develop such an approach, as it appropriately incorporates the cost of GHG emissions in the dispatch of out-of-state resources when those resources are used to serve California load. Powerex also believes that such an approach, once developed and implemented, would satisfy the requirements for specified source reporting.

2. While the “incremental deeming approach” appears to fully achieve both CAISO’s efficient economic dispatch objectives as well as CARB’s GHG policy objectives, it is unclear whether such an approach is technically feasible at this time due to the increased computing time that would be required. Therefore, as an interim measure, Powerex supports the use of a hurdle rate applied to all EIM imports serving load in California. The hurdle rate would reflect an aggregate emission rate of external resources, and would also be the basis for reporting and for funding the compliance obligations associated with those imports. Several variations on the use of a hurdle rate are possible, including the “dynamic hurdle rate” introduced at the October 21 workshop.
3. It has become abundantly clear that the existing EIM algorithm is not a valid basis for supporting specified source reporting of EIM imports serving California load. If CARB, CAISO, and stakeholders cannot agree on coordinated modifications to both the EIM algorithm and the associated CARB reporting and compliance rules, it would be appropriate for CARB to independently adopt rules requiring that all EIM imports serving California load be reported as unspecified source energy.

Each of these comments is addressed more fully below.

III. Powerex Strongly Supports “Incremental Deeming” as an Appropriate Methodology for Identifying the Out-of-State Resources Serving Load in California through the EIM

The inability of the existing EIM algorithm to accurately consider GHG emissions associated with serving California load in the EIM can lead to several unintended adverse consequences. Potential alternative approaches should be evaluated based on how effectively they address these unintended consequences, which generally fall into three broad categories:

1. The GHG emissions assigned by the EIM algorithm understate the actual GHG emissions associated with additional out-of-state dispatch to serve California load in the EIM. As a result, **too few GHG emissions allowances are retired** under California’s cap-and-trade program.
2. When the EIM algorithm does not include the GHG costs of out-of-state resources that are dispatched to meet California load, it makes out-of-state resources appear more economic than in-state resources, whose GHG costs are always included. **This can result in “leakage”** because it may shift GHG emissions from in-state resources to out-of-state resources, even when the out-of-state resources are not lower cost (when GHG costs are included).
3. When the EIM algorithm does not accurately include the GHG costs of out-of-state resources that are dispatched to meet California load, it cannot accurately consider GHG emissions in the selection of *which* out-of-state resource to dispatch. In these cases, **the EIM cannot appropriately dispatch low- or zero-emitting out-of-state resources** over higher-emitting out-of-state resources, since GHG costs are not accurately considered.

In Powerex’s view, the “incremental deeming approach” discussed at the October 21 Workshop is the only alternative that has been identified to date that addresses all three of these unintended consequences. The “incremental deeming approach” appears to offer a robust and comprehensive framework for distinguishing between out-of-state resources that would be economic to serve load outside of California and the additional out-of-state dispatch (and GHG emissions) that occurs in order to

serve load inside of California. Powerex believes this is an appropriate conceptual framework for accurately identifying the out-of-state GHG emissions associated with imports serving load in California. The “incremental deeming approach” would therefore be an appropriate basis for reporting such imports as specified source energy, using the GHG emission rate of the specific resource identified by the new EIM algorithm.

CAISO staff have expressed concern regarding the technical complexity of implementing the “incremental deeming approach,” since it requires adding an additional optimization run to the market software in order to identify the economic dispatch to serve load outside of California. This new optimization run would need to be solved prior to each market run, which occur as frequently as every five minutes in the EIM. It is currently unknown how much additional time would be required for this process, and whether it could be completed within the existing market lead times.

Powerex respects CAISO staff’s assessment that it may not be feasible to implement the “incremental deeming approach” in the EIM in the near term. Nevertheless, Powerex believes that work should continue toward developing this type of comprehensive and robust specified source framework. This additional work could include stress testing of how the optimization is formulated to ensure this approach consistently leads to the correct outcomes. Developing estimates of computing time necessary to perform the additional optimization would also be helpful. If the “incremental deeming approach” would require more computing time than is available under current market timelines, additional work could evaluate how much accuracy would be reduced by initializing the pre-market optimization run farther in advance of the market run, or with less than full temporal granularity (e.g., performing the pre-market optimization once every 15 minutes rather than every 5 minutes). An exploration of the tradeoffs between potential simplifications and reductions to efficiency will allow CARB, CAISO and stakeholders to make more fully informed decisions regarding whether the “incremental deeming approach” is workable, both in the EIM as well as in a future regional organized market.

IV. Powerex Supports Applying a Hurdle Rate to all EIM Imports Serving Load in California Until An Acceptable Resource-Specific Solution is Developed and Implemented

CARB staff also presented a “dynamic hurdle rate approach” at the October 21 Workshop. Under the “dynamic hurdle rate approach” the EIM would not attempt to identify the specific out-of-state resources whose output is delivered to California loads. Instead, all EIM imports serving California load would be deemed to have a GHG emission rate equal to the “5-minute average emission rate of the external grid.”³

The introduction of a hurdle rate, such as proposed by CARB, can correct for the *systematic* understatement of GHG emissions associated with out-of-state resources that serve load in California. This approach has the potential to address two of the three types of adverse outcomes currently occurring in the EIM:

1. Applying a hurdle rate can ensure that the total quantity of GHG emissions assigned in the EIM more closely matches the additional GHG emissions from out-of-state resources dispatched to serve California load.
2. Applying a hurdle rate can reduce GHG “leakage” by modifying the EIM algorithm to recognize the average actual GHG emission rate across all out-of-state participating resources that increase their production in the EIM, and thus reduce the tendency to understate external GHG costs when

³ CARB October 21 Workshop Presentation, at 8.

the algorithm determines whether to meet California load from out-of-state resources as opposed to in-state resources.

A hurdle rate approach, however, does not address the third adverse outcome discussed previously, related to how the EIM algorithm selects between multiple out-of-state resources with different GHG costs. Under the “dynamic hurdle rate approach,” the EIM will ignore differences in GHG emission rates between out-of-state resources when determining which resource to dispatch to serve load in California. As a result, zero- or low-emitting resources will not be appropriately dispatched over higher-emitting resources. While this is an important shortcoming of the “dynamic hurdle rate approach,” the only solution identified so far that addresses this issue—the “incremental deeming approach”—requires changes to the optimization that CAISO staff believe may not be computationally feasible at this time.

An important feature of the “dynamic hurdle rate approach” is that it does not need to allocate CARB reporting and compliance obligations to specific out-of-state resources. Importantly, this eliminates the need to provide an “opt out” mechanism for participants that are not willing to accept that obligation, as required by FERC. As currently implemented, the “opt out” mechanism can reduce the quantity of out-of-state resources that can be dispatched in the EIM, potentially resulting in lower-priced resources not being dispatched, even though they are available. In other words, efficient dispatch may currently be sacrificed in order to avoid imposing a California state reporting obligation to out-of-state entities unwilling to accept it. This efficiency loss can be avoided under a hurdle rate approach, since the CARB reporting obligation would not be assigned to any out-of-state resources in the first place.

The following subsections respond to CARB’s request for stakeholder input on specific aspects of the “dynamic hurdle rate approach.”

Calculation of Dynamic Hurdle Rate

As presented, the “dynamic hurdle rate approach” would apply a hurdle rate to all EIM imports serving load in California based on the “5-minute average emissions rate of the external grid.” Powerex notes that there is a potential circularity in this approach. Namely, the hurdle rate appears to depend on knowing the output (and GHG emissions) from out-of-state resources in each upcoming 5-minute interval. However, the output of out-of-state resources itself depends on the quantity of EIM imports dispatched by the EIM optimization, which will depend in part on the hurdle rate that is applied to those imports. This circularity can be removed by calculating the hurdle rate based on the average emissions rate of out-of-state resources in the most recent 5-minute dispatch solution. In other words, dispatch during the current 5-minute interval will use a hurdle rate derived from the dispatch in the prior 5-minute interval.

Powerex also strongly recommends that the dynamic hurdle rate be based on the average emissions rates associated with dispatched increases in output of out-of-state resources above their EIM base schedule levels. This is consistent with the goal of the dynamic hurdle rate option, which is to represent the *additional out-of-state GHG emissions* associated with dispatch in the EIM. Powerex believes it would be inappropriate to base the hurdle rate on GHG emissions associated with the output of out-of-state resources that are entirely unchanged by the EIM.

GHG Compliance Obligation

Under the “dynamic hurdle rate approach,” there will be no need for individual out-of-state resources to be “deemed delivered” to California, and hence the responsibility for CARB reporting and compliance will no longer need to be assigned directly to out-of-state resources. This raises the question of what entity *will* assume the CARB reporting and compliance obligations.

Numerous possibilities exist, though the reporting and compliance mechanics will be the same regardless of what entity performs them. Namely, the application of a hurdle rate will result in CAISO collecting more revenue from California loads (which pay an LMP for the imports that includes the hurdle rate) than it will pay to out-of-state generators (which are paid an LMP that excludes the hurdle rate). The “hurdle rate revenue” in each interval will be equal to the product of the hurdle rate and the quantity of EIM imports serving California load. This hurdle rate revenue will also be equal to the cost of purchasing the GHG emissions allowances associated with the EIM imports serving California load at the applicable emissions rate for that interval. The GHG allowances that need to be procured and retired to comply with CARB’s GHG regulations, in other words, should be fully self-funding through the hurdle rate revenues collected by CAISO. The entity (or entities) that is assigned the GHG compliance obligation for EIM imports serving California load will therefore receive the hurdle rate revenues collected by CAISO.

Powerex believes that the most workable alternative may be to create a new entity for the specific purpose of undertaking the CARB reporting and compliance requirements associated with EIM imports serving load in California. CAISO could conceivably fulfill this role directly, but it has expressed its opposition to becoming a regulated reporting entity. It is also unclear how this relationship would be affected by CAISO’s evolving role as a regional market operator. And while CARB has previously contemplated assigning this obligation to “EIM purchasers,” this approach would require allocating the obligation among multiple entities, adding unnecessary complexity. Powerex thus recommends that CARB consider establishing a new entity that undertakes the responsibility for reporting and compliance requirements associated with EIM imports serving load in California.

Zero Compliance Obligation for Renewable Contracts with California LSEs

Powerex generally supports policies that create financial incentives for out-of-state renewable resources to contract with California load-serving entities (“LSEs”) and help achieve the state’s renewable energy goals. It is unclear how CARB’s proposal to not impose a GHG compliance obligation to renewable resources under contract with California LSEs could work in the context of the “dynamic hurdle rate approach,” since that approach would not assign GHG compliance obligations to any resources at all.

If, alternatively, CARB is proposing that renewable resources under contract with a California LSE be exempt from application of the hurdle rate, this poses some significant challenges. For instance, it seems problematic for the EIM to waive applying the hurdle rate to the dispatch of one out-of-state renewable resource, but to enforce the hurdle rate when dispatching an identical renewable resource that happens to not be under a renewable contract to a California LSE. And, as a technical matter, it is unclear exactly how the CAISO would selectively apply a hurdle rate to some out-of-state resources but not others, without once again leading back to the challenge of determining which out-of-state resources serve load in California and which ones do not.

Finally, while Powerex supports the general goal of recognizing the carbon intensity of out-of-state resources in the EIM optimization, Powerex also believes it is important to recognize that the EIM is only one of several opportunities for out-of-state renewable resources to sell their output to California. More specifically, the EIM is designed to be a residual, intra-hour imbalance market, and not the primary market for the portion of output that can be forecasted in advance. Thus, the forecasted output of all resources—including renewable resources under contract with a California LSE—is generally expected to be scheduled ahead of the EIM, under arrangements that support specified source treatment. Accordingly, Powerex believes the application of a hurdle rate to all EIM imports serving load in California—with no exemptions—will affect only the *residual* intra-hour imbalance output of renewable resources under contract with a California LSE. The limited nature of this impact will need to be weighed against the

potential complexity of attempting to create exemptions from the hurdle rate for certain classes of out-of-state resources.

V. If There is No Agreement on Changes to the EIM Algorithm, CARB Should Consider Requiring All EIM Imports Serving California Load to be Reported as Unspecified Source Energy

The potential approaches presented by CARB and discussed above involve changes to both CARB's regulations and to CAISO's EIM optimization software. These approaches therefore require CARB and CAISO to identify mutually satisfactory enhancements, and to coordinate development and implementation of the respective modifications. While Powerex is optimistic that CARB, CAISO and stakeholders can agree on a path forward, it is conceivable that this will not occur, or that reaching agreement will take an extended period of time. CARB may therefore need to articulate what it will do in the absence of timely agreement on coordinated modifications for the EIM.

Some stakeholders have taken the position that the *status quo* is an acceptable interim solution. Powerex strongly disagrees. The *status quo* does not meet the requirement to "ensure accurate accounting of full GHG burden on the atmosphere as a consequence of electricity generated and consumed in California."⁴ As discussed more fully in Powerex's prior comments to CARB, the *status quo* undermines not only the state's environmental policy objectives, but also distorts wholesale electricity market outcomes.⁵

Not only is the *status quo* an unacceptable solution, there is also a better alternative that CARB can implement quickly and with limited complexity. Namely, CARB can decline to allow EIM "deemed deliveries" to California to be reported as specified source energy. This change would be fully consistent with CARB's explanation at the October 21 Workshop that unspecified imports include "power that does not meet specified source requirements."⁶ The requirements for specified source reporting, in turn, include demonstrating that power was "directly delivered to California from the source."⁷ But as has already been broadly recognized, the current EIM algorithm does not accurately identify which out-of-state resources were used to deliver energy to California.

Some stakeholders have claimed it would be inappropriate to deny resources an opportunity to make specified source sales in the EIM. In Powerex's view, this argument is without merit. If it is desirable for deliveries in the EIM to be treated by CARB as specified source imports, then it is the responsibility of CAISO and its stakeholders—and not of CARB—to develop an EIM design that is consistent with CARB's requirements for specified source deliveries. CARB is not under any obligation to permit specified source treatment of transactions through each and every type of market platform. Indeed, CARB has expressly denied specified source reporting for energy transacted on exchanges, such as ICE, even if delivery is ultimately scheduled from a low- or zero-GHG resource.⁸

⁴ CARB October 21 Presentation, at 4.

⁵ Powerex September 9 Comments, at 12-16.

⁶ CARB October 21 Workshop Presentation, at 3.

⁷ *Id.*

⁸ Transactions on ICE for physical power at an out of state market hub are often scheduled into California. The e-Tag "source" identifies the physical source of the energy being delivered. CARB has already identified that the e-Tag "source" is not, by itself, sufficient to report the import as specified source energy. It is only if that e-Tag "source" was identified in a written power contract (or delivered by a Generating Providing Entity) that specified source reporting is permitted. Transactions on exchanges such as ICE do not satisfy the requirement for identifying a specific resource at the time of contracting.

It has also been suggested that out-of-state resources, especially low- or zero-emitting resources, would be “harmed” by the elimination of specified source reporting for EIM sales. Powerex disagrees. Out-of-state resources will continue to have every opportunity to make specified source energy sales outside of the EIM, including in the forward, day-ahead, and real-time bilateral markets. The EIM does not replace or preclude any of those other alternatives, where specified source transactions can and do occur. The EIM is an *additional* opportunity to make sales within the operating hour based on the residual capability of participating resources. It is unclear how this additional opportunity becomes “harmful” if it is limited to sales for unspecified source energy for an interim period.

CARB should also be skeptical of claims that eliminating specified source reporting for EIM “deemed deliveries” will undermine participation in the EIM (and would, by extension, reduce the environmental benefits associated with exports of California generation). It seems improbable that a participating resource would elect to not sell their residual output at all unless it could be sold as specified source energy. Moreover, there is nothing about requiring unspecified source reporting that increases the financial risk to low-GHG resources of participating in the EIM; all participating resources in the EIM will continue to be dispatched to sell energy only if they will be paid at least as much as their offer price.

The only reduction in EIM participation that Powerex anticipates would be from higher-emitting resources that are currently able to sell their output in the EIM for import into California, while avoiding the full and proper application of California’s GHG regulations. But ensuring that the EIM applies CARB’s GHG regulations and policies is precisely the point of CARB’s proposed revisions, and in no way represents a legitimate argument against those changes.

Powerex emphasizes that it fully supports permitting specified source reporting of EIM deliveries *if and when* the EIM design is modified to accurately identify the out-of-state resource output that is delivered to California loads. Powerex looks forward to continuing to work with CARB, CAISO and other stakeholders to develop a workable design that meets this objective.



To: Mary Nichols, Chair
California Air Resources Board

Fr: California League of Food Processors

Date: November 4, 2016

Re: California Air Resources Board's Consideration of the Proposed Amendments to the Cap-and-Trade Regulation

The California League of Food Processors (CLFP) appreciates the opportunity to provide comments on items discussed during the October 21, 2016 workshop on AB 197 & Post-2020 Cap-and-Trade Program Design and the proposed Post-2020 Allowance Allocation.

CLFP hopes these comments will aid the CARB Board and staff in forming fair, policy-oriented, and data-supported regulations regarding future GHG allowance allocations, recognizing that avoiding the potential harm to the California economy beginning in 2021 will require straight-forward analysis and a thorough vetting of studies sans political expectations. Consequently, the decisions that CARB makes regarding post-2020 implementation of the state's goals embodied in Senate Bill 32 (Pavley), requiring CARB to ensure that the statewide GHG emissions are reduced to at least 40 percent below 1990 levels by 2030, are guaranteed to have a significant impact on the ability of firms in this state to remain competitive in the future.

It is important to note, that while the California Legislature has chosen to pursue this questionable increase in the state's goal regarding the reduction of GHG emissions, having proceeded without the benefit of investigation or study as to the impacts on the state's economy, facilities and companies subject to the Cap-and-Trade must hope that CARB staff are up to the task of defending the program against non-scientific, politically-expedient claims and "findings."

With that, CLFP submits the following comments:

AB 197 and Post-2020 Cap-and-Trade Design

In general, CLFP supports the current program and methodology for allocating allowances to the industrial sectors.

Over the past two compliance periods food processors, as well as other industrials, have gained a measure of confidence in the operations of the cap-and-trade market in its current form. However, in attempting to meet the dictates of AB 197, CARB staff's initial recommendations as to potential design changes have reintroduced the uncertainty that has plagued business and industry since the beginning of this program.

Offset Credits

CLFP vigorously opposes the reduction of offset credit percentage post-2020. In fact, CLFP supports raising the percentage thereby providing obligated facilities with more choices on how best to meet the significant compliance cost increases should the current recommendations be adopted.

In its October 21st presentation, staff mentions that any changes in offset usage limits would be subject to a cost-containment/economic analysis. Yet staff's initial proposal is to further reduce offset usage post-2020, presumably as a first response to the requirements of AB 197, prior to any analysis.

What then is the purpose of such speculative recommendations? Especially recommendations that are unsupported by any prior analysis? If it is unknown what the economic impacts of reducing or eliminating offsets will be, why even make the statement?

CLFP urges staff to be more circumspect before advancing recommendations unsupported by data or rigorous analysis. Such actions by staff undermines the confidence of obligated entities in the entire process.

Industrial Allowance Allocation

Current allowance allocation and transition assistance to covered entities subject to the cap-and-trade is aimed at leakage prevention.

Now CARB staff proposes shifting to a cost-burden approach. Per staff, this would allow for the reduction of allowances that, in theory, would reflect a reduced compliance obligation owing to expected onsite emissions reductions. Staff justifies the proposed allocation reductions based on the 2009 recommendation of the Economic and Allocation Advisory Committee (EAAC).

Staff makes no comment on the nature of the "expected onsite emissions reductions" that will result in the allocation reductions. For the industrial sector, the most likely source of

reductions will be either through production curtailments or trade exposure due to increased costs of compliance. And such reductions will be accompanied by job and market losses.

The most *unlikely* scenario is emissions reductions resulting from new technology as the the Governor and the Legislature continue to divert auction funds, without objection from CARB, instead of directing funds back to the obligated entities for investment in and installation of new technologies that would provide direct emissions reductions from the source and aid facilities in meeting their ever-increasing compliance obligations. In other words, actually fulfilling the purpose of the state's cap-and-trade.

CARB staff's reliance on the 2009 EAAC report is questionable at best. That report is nearly eight years old. It was drafted during a severe recession and based on data and market assumptions that no longer have any real, identifiable, relevance to California's present economy, much less post-2020.

Treatment of Unsold Allowances

CARB staff is proposing to retire some or all the unsold State-owned allowances with vintage year 2020 or earlier. The proposal is based in part on such an adjustment being in recognition that current emissions are declining faster than anticipated.

Addressing the two components of staff's recommendations: first, CARB staff is proposing to revise the auction rules to effectively remove allowances from the market if they remain unsold at auction after two years. The proposed changes come on the heels of the massively undersubscribed May 2016 allowance auction in which market participants only purchased about 11% of current vintage allowances offered for sale. The current rule allows unsold allowances to be reintroduced to the market at auction in limited quantities after two consecutive auctions clear above the Auction Reserve Price.

While CARB's proposed rules would keep this structure in place, it would move allowances remaining unsold into the Allowance Price Containment Reserve (the APCR) after two years. APCR allowances are available for purchase at auction at fixed prices as a cost containment measure but those numbers are likely to go up under the proposed rule; CARB is proposing to consolidate the APCR into a single price tier of \$60 plus the Auction Reserve Price. (taken from Lathrop and Watkins comments)

As for Post 2020 Treatment of compliance instruments, retiring the unsold allowances on top to the earlier proposal may significantly affect cost. Combine that with fewer overall

free allocations and retiring unsold allowances suggests there may be an increased potential for a price spike.

CARB staff should bear in mind that this cap-and-trade market is still quite young, just short of two compliance periods (four years). While some tweaking of the program is to be expected, the magnitude of change represented by these recommendations has only increased anxiety and reintroduced uncertainty into a fairly smooth-functioning market. That the Legislature is dismayed at the dwindling auction fund amounts is understandable. What is not, are CARB's recommendations that seemingly are more in line with meeting the Legislature budget expectations than in strengthening this vital cost containment tool.

Cost-Containment Evaluation

CLFP notes that staff has indicated that this proposed change, and others, would be subject to a cost-containment evaluation. What does staff mean by a cost-containment evaluation? What is the nature of this evaluation? Will it be a study by an acceptable independent source or will it be similar to the staff evaluation of the Fowle/international and RFF/domestic leakage studies that resulted in the current post-2020 AF recommendations?

Elimination of Transition Assistance

Staff recommends the elimination of transition assistance, offering no other justification for this change than they always intended to eliminate it. Staff then determines that three compliance periods are sufficient for obligated facilities to have adjusted to their compliance obligations and transition assistance can be ended.

If cap-and-trade were to remain unchanged going into 2021 and beyond, that argument might have been sufficient. But the changes proposed by staff for the fourth compliance period, if adopted, will drastically alter several aspects of the current cap-and-trade which will increase the burden imposed upon industrial facilities.

Relying on an intention devised at the start of this program, especially in light of SB 32 and AB 197, would be unconscionable. Transition assistance, like every other aspect of the cap-and-trade in the development of new regulations, should be examined and given due consideration as to its role in contributing to the success of this program.

CLFP believes that Transition Assistance will continue to play an important role in maximizing emissions reductions under the cap-and-trade regulation in the fourth compliance period.

CLFP recommends tying Transition Assistance reductions to verifiable new technology development on a sector by sector basis. It is without question that new emissions reductions technology is necessary to ensure California will be able to meet this new 2030 goal. The alternative is production reductions or industrial flight (leakage) resulting in previously mentioned job losses.

Given that the Legislature has not seen fit to return any auction funds to the obligated entities nor to authorize investment in R&D to develop the needed technologies, it is left to CARB to find ways to support the development of new technology. Tying Transition Assistance to new technology development is one suggestion.

Post-2020 Allowance Allocation

In the workshop, staff proposed to utilize the recently released leakage studies (domestic and international) to calculate assistance factors (AF) for the post-2020 period. Despite three CARB-funded studies having been released, only two, the Berkeley study (Fowlie/international) and the Resources for the Future (RFF/domestic) are being used in determining the new assistance factors. The Food Processing Industry study (Hamilton et.al.) is not being used in determining the new post-2020 AFs.

It has been CLFP's position from the date of release of both the RFF/domestic and Fowlie/international studies in May 2016 that CARB should vet these studies thoroughly and provide opportunity for actual peer review before relying on the studies in the development of a new AF methodology. CARB staff is relying on study results using confidential data from the U.S. Census Bureau – data that cannot be accessed, inspected, or verified by anyone other than the authors.

Additionally, the authors of the Fowlie/international study make overt mention of the limitations of the findings:

The natural next step, from the perspective of a policy maker looking to assess leakage risk and target leakage mitigation measures, is to translate these responsiveness measures to corresponding measures of market transfer and associated emissions leakage. However, pushing on to this next step amounts to pushing up against the limits of available data. One complication is that calibrating the measures of leakage risk implied by

the theory requires dividing one noisy estimate by another. Other caveats include the fact that we cannot directly observe foreign production and instead employ an imperfect proxy. In what follows, we describe a conceptually consistent, albeit noisy and caveated, derivation of leakage risk measures. (Measuring Leakage Risk, Fowlie et. al. May 2016, page 38)

Given the noisiness of these estimates, we cannot estimate the transfer rate for any given industry with any degree of confidence. (Ibid, page 39)

This calls into question the robustness of the studies for the purpose of developing a new Allocation methodology post-2020.

Measure Twice, Cut Once

Perhaps CARB staff can benefit from an axiom employed by construction trades worldwide:

Measure twice, cut once. Make a wrong cut and the piece is unusable thereby ruining valuable and costly material. Carpenters and builders have learned to avoid making this mistake the hard way. This saying is a constant reminder that one has one shot at getting it right, or it will cost time, money, and even reputation.

To CLFP's knowledge, every single company with facilities subject to the cap-and-trade regulation has made a request to CARB to peer review these studies, to take a second measurement, in other words. In this spirit, it is hard to understand how CARB staff can suggest a 77% reduction in overall food processor AF post-2020 without additional economic analysis. This proposal comes despite the Hamilton et. al. study's conclusion that food processing warrants a high leakage risk.

For in-state cheese processors, the proposed AFs are even grimmer. Staff proposes to reduce dairy/cheese industry AFs by 81% to 95% beginning 2021. And this despite the Hamilton et.al. study estimated market transfer effects (i.e., the share of the decrease in in-state production transferred to out-of-state producers) for processed cheese manufacturing could be as high as 57 percent.

The current leakage studies are only the first measurement. Another is clearly needed. Yet, CARB simply ignores industry stakeholder requests for peer review of the Fowlie/international and RFF/domestic leakage studies before proceeding to develop and release recommendations for post-2020 assistance factors. Such drastic and questionable

reductions *demand* a thorough peer review of the underlying studies, possibly additional studies as well.

Short of this, it is questionable whether CARB is holding to the actual requirements under AB 32 in considering the cost-effectiveness of the regulations.

As a reminder, AB 32 states:

The regulations adopted by the state board pursuant to this section shall achieve the maximum technologically feasible and cost-effective reductions in greenhouse gas emissions from those sources....
(Assembly Bill 32, Chapter 488, Statutes of 2006) *emphasis added*.

The operative words are “shall achieve.”

One of the most disturbing aspects of the proposed AFs is that they imply that GHG intensity of imported products are on par with California products. This is not the case with food production internationally. While some European processors may employ newer technologies, other regions are far less advanced. For example, in tomato processing, given China’s overwhelming use of coal in heat and power generation, CLFP believes it can safely be assumed that GHG intensities, if compared, are not equal on a product-to-product basis and could range anywhere from 2:1 or greater.

Furthermore, the current staff recommendation calling for a 77% reduction in industry assistance will continue to burden an industry already struggling to maintain market competitiveness against international state-supported production. If it is CARB’s intention to shift market power to more GHG intensive market participants, approval of these AFs will meet that goal.

The emissions of the food processing industry represent only -0.4 percent of the total emissions in California. California’s food processors operate in the most economically challenged areas in this state. Many facilities represent the largest, and sometimes, the sole major employer in the area. Yet, based upon a single study, CARB can recommend additional economic burdens and confidently expect no impacts on jobs, local economies, or market competitiveness for the affected industry.

Food Processor Leakage Study (Hamilton et.al.)

The question remains on how CARB intends to use the agency-funded Cal Poly study (Hamilton et.al.) for determining allowance allocations to the food processing industry. During the workshop, CLFP asked why the Hamilton et.al. study was not used, nor mentioned, in staff's development of the proposed post-2020 AF, and CLFP was told the study was "too conservative." CLFP asked for clarification and staff did agree to provide such.

However, CLFP believes CARB would be prudent to use the findings in the Hamilton et.al. study in the development of the AFs for the food processing industry. The study uses detailed facility-level cost and sales data and met its stated goal of measuring production leakage in four of the largest food processing industries in California.

For the food processing industry, the Hamilton study provides clear direction for CARB. Given the uniqueness of the industry, special emphasis must be employed to account for the variables in our markets that exist in no other industries, as well as the potential major impacts on disadvantaged communities should food processing jobs disappear. The Hamilton et. al. study makes a strong and unrefuted argument for continuing 100% transition assistance for food processors beginning 2018. As for post-2020 metrics, both the Fowlie Study and the RFF Study need to be augmented to accurately reflect the market demands present in the food processing industry.

CARB must take seriously industry's request for a review and possibly an additional study to augment the Fowlie/international and RFF/domestic leakage studies. Further AF development will require accurate and recent market data specific to industrial markets in general, and the food processing industry in particular, for use in establishing the new metrics for determining AFs in the 4th compliance period.

CLFP looks forward to continued engagement on these vital topics.

cc: California Air Resources Board Members
Dr. Steve Cliff, Senior Advisor to the Chair
Richard Corey, Executive Officer
Edie Chang, Deputy Executive Officer

Air Products and Chemicals, Inc.
7201 Hamilton Boulevard
Allentown, PA 18195-1501
Telephone (610) 481-4911

November 4, 2016

Clerk of the Board
California Air Resources Board
1001 I Street
Sacramento, CA 95814

RE: Comments Regarding the October 21, 2016 Cap and Trade Regulation Amendments Workshop
Submitted electronically via:

[https://www.arb.ca.gov/lispub/comm2/bcsubform.php?listname=ct-amendments-
ws&comm_period=1](https://www.arb.ca.gov/lispub/comm2/bcsubform.php?listname=ct-amendments-
ws&comm_period=1)

Air Resources Board:

Air Products is a global, Fortune 250 company that supplies atmospheric, process, medical and specialty gases, specialty chemicals and process equipment serving a diverse range of industries, including primary metals, refining, electronics, food and glass sectors, as well as healthcare and many other general manufacturing industries. Air Products has over 400 employees and 30 locations in California, including numerous atmospheric gases (oxygen/nitrogen/argon) and hydrogen production facilities, electronic specialty gases and materials production and electricity generating facilities. In addition, Air Products has designed, installed, and supplies a fleet of hydrogen fueling stations across California, facilitating the transition to carbon-free transportation.

Air Products welcomes the opportunity to submit comments regarding the proposed amendments to the cap and trade regulations. Over the course of the last several years, Air Products has worked very constructively with ARB staff and are pleased with the consideration given our concerns and recommendations. We look forward to a continued working partnership with ARB staff to ensure the effective development of future program changes.

DISCUSSION of COMMENTS:

1. Considering a reduction in the offset usage limit of 8%

- *Air Products does not support a reduction in the offset usage limit. Already, the 8% limit constrains an important mechanism to reduce the cost of compliance, in line with a market based cap and trade system. California has the most rigorous process for vetting offset protocol and offset credits, once issued. These offsets provide a critical opportunity to obtain genuine emissions reduction at the lowest cost to the economy. No further reduction in the 8% usage limit should be made.*

2. Considering a change in the basis for industrial allowance allocations

- *Air Products does not support a change to an industrial allowance allocation process which is based upon “cost burden” approach. Admittedly, at this stage, there is insufficient information to know understand what ARB is specifically considering, but the general concept that there could be differential cost burdens based on a facility’s (or sector’s) ability to make actual year-on-year emission reductions. Any such approach would need to recognize the limitations imposed by production processes with a) significant process emissions which are essentially irreducible and, b) a very high energy intensity which has resulted in a long and deep effort to make all feasible efficiency improvements. Air Products recommends ARB not make any changes without a more comprehensive engagement with the regulated community where the underlying*

3. Disclosure of entity/facility-level compliance instrument use.

- *Air Products is concerned that the proposals to expand the disclosure of entity- or facility-specific compliance satisfaction methods provides an insight into our compliance instrument procurement strategy that is currently restricted to prevent market manipulation risks. Air Products does not support disclosure at either the entity or facility level, and even has reservations about disclosures at the product or sector-level.*

4. Assistance Factor Certainty

- *ARB presentation of these amendments appeared to have the intent of applying across the entirety of the 2012 to 2030 period... but that was not explicitly stated as it related to the revised Assistance Factors for Industrial Allowance Allocations. In order to provide the certainty that industry needs to effectively manage commercial and investment decisions, ARB should clearly articulate that the proposed factors will apply for the entire 2021 through 2030 period.*

Air Products appreciates the diligent efforts by ARB staff and we stand ready to provide further information to support board’s refinement of the cap and trade program. Please feel free to contact me by phone (610-909-7313) or email adamskb@airproducts.com.

Respectfully,



Keith Adams, P.E.
Environmental Manager – Climate Change Programs

c: Eric Guter, Peter Snyder, Raymond Bailey – Air Products



November 4, 2016

COMMENTS ON CALIFORNIA AIR RESOURCES BOARD'S CAP-AND-TRADE REGULATION AMENDMENTS WORKSHOP

Thank you for the opportunity to comment on the California Air Resources Board's (ARB) Cap and Trade Regulation Amendments Workshop held on October 21, 2016.

The Climate Trust's comments focus on ARB's proposal to consider lowering the offset usage limit after 2020. The Climate Trust commends ARB for conducting a model exercise to determine the impacts of changing the offset usage limit on the cap and trade program. However, we urge ARB to also consider modelling scenarios with a higher offset usage limit, as raising this ceiling could have beneficial impacts for the program. Greenhouse gas emissions have a uniform affect across the globe. Therefore, encouraging the use of offsets will have the benefit of mitigating the risks California faces from climate change.

The Climate Trust is opposed to reducing this limit for the following two reasons.

1. Cost Increases

The principal reason we advise against lowering the offset ceiling is that it will unnecessarily increase the cost of compliance, which in turn will increase energy costs. Such costs will be disproportionately borne by low-income communities in California. Maintaining the current offset limit or increasing it will enhance the moderating effect offsets have on market prices.

2. Expanding the adoption of policies to fight climate change

While California has taken a leadership position in implementing a comprehensive cap and trade program, it cannot solve climate change on its own. It can be a challenge for other jurisdictions to adopt such programs, but one way in which jurisdictions outside of California without carbon pricing mechanisms can gain exposure to them is through participation in the offset market. To this end, maintaining the 8% limit and enabling robust participation throughout the country offers an entry point for jurisdictions to consider cap and trade programs. This, in turn, can promote market linkages and aid in expanding cap and trade programs beyond California, which will aid it in its effort to reduce greenhouse gas emissions.

Invest with purpose.



The Climate Trust appreciates the opportunity to provide ARB feedback on the proposed amendments and the future of its cap and trade program. If you have questions or require more information, please contact Sheldon Zakreski, Director of Carbon Compliance at szakreski@climatetrust.org.

Invest with purpose.

November 4, 2016

**The Independent Energy Producers Association's
Comments on CARB's Cap-and-Trade Workshop
Convened October 21, 2016**

The Independent Energy Producers Association (IEP) submits these comments on the CARB's cap-and-trade program workshop, convened October 21, 2016. In these comments IEP recommends that CARB conclude that the current rules and regulations affecting electric sector emissions are sufficient to satisfy the requirements of Health and Safety Code Section 38562.5(a) as prescribed by AB 197 (Garcia, Chapter 250, statutes of 2016). In addition, IEP recommends that the electric sector be permanently disaggregated from other "energy" related sectors when accounting for GHG emission reductions and contributions. Specifically, CARB should continue to separate out the electricity sector from the industrial (i.e. refineries) and the transportation sectors now and in the future.

AB 197 Does Not Replace the Cap-and-Trade Program. The Environmental Justice Advisory Committee (EJAC) seeks "prescriptive regulations in lieu of post-2020 cap-and-trade program".¹ Meanwhile, CARB staff acknowledges that the intent of AB 197 is not to prohibit a cap-and-trade program.² IEP supports CARB's recognition that AB 197 does not prohibit a cap-and-trade

¹ CARB Mandatory GHG Reporting and Cap-and-Trade Program Workshop Presentation, October 21, 2016, slide 13.

² CARB Mandatory GHG Reporting and Cap-and-Trade Program Workshop Presentation, October 21, 2016, slide 13.

program as AB 197 is silent on this matter. Moreover, the legislation enabling CARB to create a market-based program to achieve GHG emission reductions remains in statute.

Existing Electric Sector Regulations Satisfy the Requirements of AB 197. Under AB 197, new Health and Safety Code Section 38562.5(a) directs CARB to prioritize, “Emission reduction rules and regulations that result in direct emission reductions at large stationary sources of greenhouse gas emissions sources and direct emission reductions from mobile sources.”³ With regards to this provision and in the context of greenhouse gas emissions from electric generators, IEP recommends that CARB take note of the myriad of regulations already imposed on electric generation sources (both within the context of the Health and Safety Code section 38562 and outside that code as addressed more fully below). Moreover, we urge the CARB to conclude that additional direct emission reduction rules and regulations that potentially could be imposed on electric generators would result in de minimus emission reductions and, thus, are unwarranted. Furthermore, the imposition of such measures would impose an unnecessary and unreasonable burden on electric generators already operating consistent with federal, state, and local air quality requirements.

The electric sector is already subject to a significant regulatory regime for greenhouse gas emissions and criteria air pollutants. For example, California’s Emission Performance Standard (EPS) restricts long-term investments in baseload resources that emit more than 1,100 pounds of CO₂ per megawatt-hour.⁴ In addition, electric generators are regulated by local air quality laws and are currently subject to Best Available Control Technologies (BACT) to limit criteria air pollutants.

³ AB 197 (Garcia, Chapter 250, Statutes of 2016)

⁴Regulations Establishing and Implementing a Greenhouse Gases Emission Performance Standard for Local Publicly Owned Electric Utilities - Chapter 11. Greenhouse Gases Emission Performance Standard, Article 1, Section 2900 et. seq; Senate Bill 1368 (Perata, Chapter 598, Statutes of 2006).

Importantly, the existing regulatory regime is producing significant results with regards to reducing greenhouse gas emissions and criteria air pollutants. For example, electricity production by natural gas is projected in 2020 to represent approximately one percent of the entire California inventory for criteria air pollutants of concern, primarily NO_x, SO_x, and PM 2.5.⁵ Meanwhile, nearly 60% of in-state electricity generation comes from natural gas-fired resources (2015).⁶

Moreover, as demonstrated by a recent CEC report on the *Thermal Efficiency of Gas-Fired Generation in California: 2015 Update*, there has been a significant improvement in the efficiency of the gas-fired generation fleet in California. Over the 2001-2014 timeframe (if cogeneration is removed from the mix) the thermal efficiency of California's gas-fired generation fleet improved by 23 percent.⁷ "The significant improvement in the thermal efficiency of California's gas-fired generation is due to an increase in generation from combined-cycle (CC) power plants built since 2000 and reduced dependency on generation from aging power plants."⁸ These figures are indicative of the fact that California's electric generation fleet is relatively clean and measures are already in place to limit emissions in this sector. Furthermore, the cap-and-trade program, which is based on emissions reported directly out of the stack, creates an incentive for generators to be cleaner and more efficient in order to lower the costs associated with operation and move higher up in the dispatch order.

Most of the in-state power plants that are in operation today are relatively new, clean and efficient. Additional direct measures will result in a de minimus net emission reduction benefit, yet may well impose significant new costs. It is not clear that CARB would be able to

⁵ *SB 350 Environmental Study Preliminary Study Results* (May 24, 2016), Aspen Environmental Group, slide 118.

⁶ 2015 Total System Power In Gigawatt Hours Chart, California Energy Commission Website November 2, 2016: http://www.energy.ca.gov/almanac/electricity_data/total_system_power.html

⁷ *Thermal Efficiency of Gas-Fired Generation in California: 2015 Update*, Michael Nyberg, California Energy Commission, page 1; CEC-200-2016-002.

⁸ *Thermal Efficiency of Gas-Fired Generation in California: 2015 Update*, Michael Nyberg, California Energy Commission, page 2; CEC-200-2016-002.

rationalize expensive retrofits with little net benefit, while also considering cost-effectiveness as required by Health and Safety Code Section 38562. On the other hand, because of the tremendous progress experienced in the electric sector with regards to reducing greenhouse gas emissions and criteria air pollutants, IEP believes there is ample record for CARB to conclude that the prioritization prescribed by AB 197 [i.e. Health and Safety Code Section 38562.5(a)] has been satisfied.

The CARB Should Continue to Distinguish the Electric Sector from Other Sectors of the Economy. Health and Safety Code Section 38562(b)(9) states the Board is to “consider the significance of the contribution of each source or category of sources to statewide emissions of greenhouse gases”. AB 197 also references these requirements.

In some forums, the electric sector has been lumped together with the industrial sector in terms of emissions contributions associated with “energy”. Nevertheless, the industrial sector and the electricity sector are quite distinct. “California’s electricity sector has made great strides to advance the state’s GHG reduction goals, with emissions in 2014 about 26% below 1990 levels.”⁹ Hence, the electric sector has already met and exceeded the 2020 greenhouse gas reduction goals years early. Furthermore, near half of the state’s electricity emissions are from out of state power that is consumed in California, while out of state power represents only around a third of California’s resource mix.¹⁰ These numbers validate the point that the electric sector has already done its part to prioritize emission reductions as required by AB 197. However, these achievements may not be recognizable if the electric sector is lumped together with differently situated sectors including refineries and/or the transportation sectors. It is

⁹ *Draft 2016 Integrated Energy Policy Report Update*, California Energy Commission, page 15; CEC-100-2016-003-CMD.

¹⁰ *Draft 2016 Integrated Energy Policy Report Update*, California Energy Commission, page 15; CEC-100-2016-003-CMD.

important to note that the trends indicate that “GHG emissions from the electricity sector are declining relative to the emissions performance of other sectors.”¹¹ Consequently, combining these other sectors under an “energy” label for purposes of categorizing sources of GHG emissions for the state may be misleading.

Going forward, IEP recommends that the CARB continue to disaggregate the electric sector from other sectors of the economy in order to show the GHG contributions and reductions that are specifically made in the electricity sector. Combining these categories of “energy” to present data may not accurately display each specific sector’s contributions/reductions of greenhouse gases as called for by Health and Safety Code Section 38562(b)(9). It is important to understand each specific sector’s contribution toward overall emissions in order to understand where emission reductions are also occurring. This will become increasingly important as the program continues.

In Conclusion. The electric sector is subject to a myriad of existing regulations, including the emissions performance standard and local air quality laws. These existing regulations are designed to reduce emissions from carbon and other criteria air pollutants. As a result, in an effort to prioritize direct emission reductions per AB 197, the CARB should conclude that direct emission reductions have already been prioritized in the electric sector and additional prioritization is not necessary. Given that the gas fleet is relatively new, clean, and efficient, any further measures will likely not meet the cost-effectiveness test and will likely result in de minimus benefits.

Furthermore, it is important that the GHG emissions and reductions associated with the electricity sector are accounted for separately from other sectors of the economy in order to

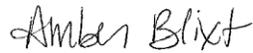
¹¹ *Draft 2016 Integrated Energy Policy Report Update*, California Energy Commission, page 16; CEC-100-2016-003-CMD.

demonstrate that the electric sector has done its part with respect to emission reductions; and, to ensure that electricity sector data is not clouded by other sector's emissions contributions and/or reductions.

Respectfully Submitted,



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November 4, 2016

California Air Resources Board
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RE: Comments of Community Choice Aggregators Regarding the Proposal to Continue the RPS Adjustment after 2020

Dear California Air Resources Board Staff:

On October 21, 2016, the California Air Resources Board (ARB) staff held the Mandatory Greenhouse Gas (GHG) Reporting and Cap-and-Trade Program Workshop. During this workshop, the ARB staff indicated that the RPS Adjustment will continue with the existing reporting and verification requirements after 2020.¹

The Community Choice Aggregators (CCAs) appreciate the ARB staff's willingness to adjust the original proposal in response to stakeholder comments. The CCAs encourage the ARB staff to maintain this proposal and submit it for the ARB board approval in 2017. As expressed in the comments of CCAs on the proposed Cap-and-Trade regulations,² the RPS Adjustment has been an important tool to support CCA procurement of cost-effective renewable energy products within California and throughout the Western United States. The growth of California CCAs with a renewable energy focus is possible because existing regulations provide CCAs with the flexibility to choose from different types of renewable products, each of which has different cost structures and economic development benefits.

By maintaining the RPS Adjustment, CCAs can continue to invest in supply portfolios that exceed the existing RPS procurement mandates. The RPS Adjustment will also allow more communities to consider and form CCAs, with the objective to provide more competitive clean energy options to consumers.

Conclusion

The CCAs thank the ARB staff for taking the time to review these comments. Should questions arise, please feel free to contact C.C. Song, Regulatory Analyst of MCE at csong@mcecleanenergy.org. The CCAs look forward to continue open dialogues with the ARB staff to create regulations that optimize the environmental and energy goals of California.

Sincerely,

Barbara Hale
President
CleanPowerSF
bhale@sflower.org

¹ Mandatory GHG Reporting and Cap-and-Trade Program Workshop, slide 42.

² Comments of CCAs at pages 2 and 4, submitted on September 19, 2016.

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November 4, 2016

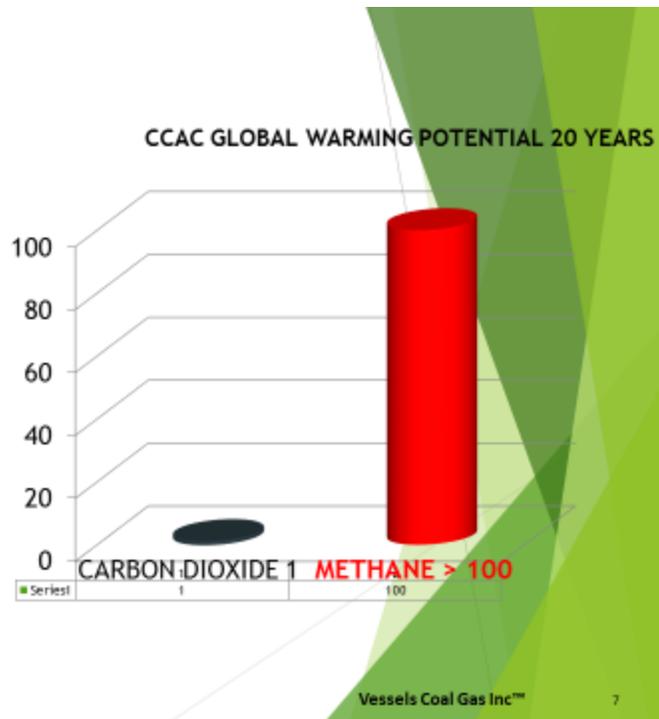
Comments on: Cap and Trade Regulations Amendment Workshop.

Greetings ARB Board and Staff,

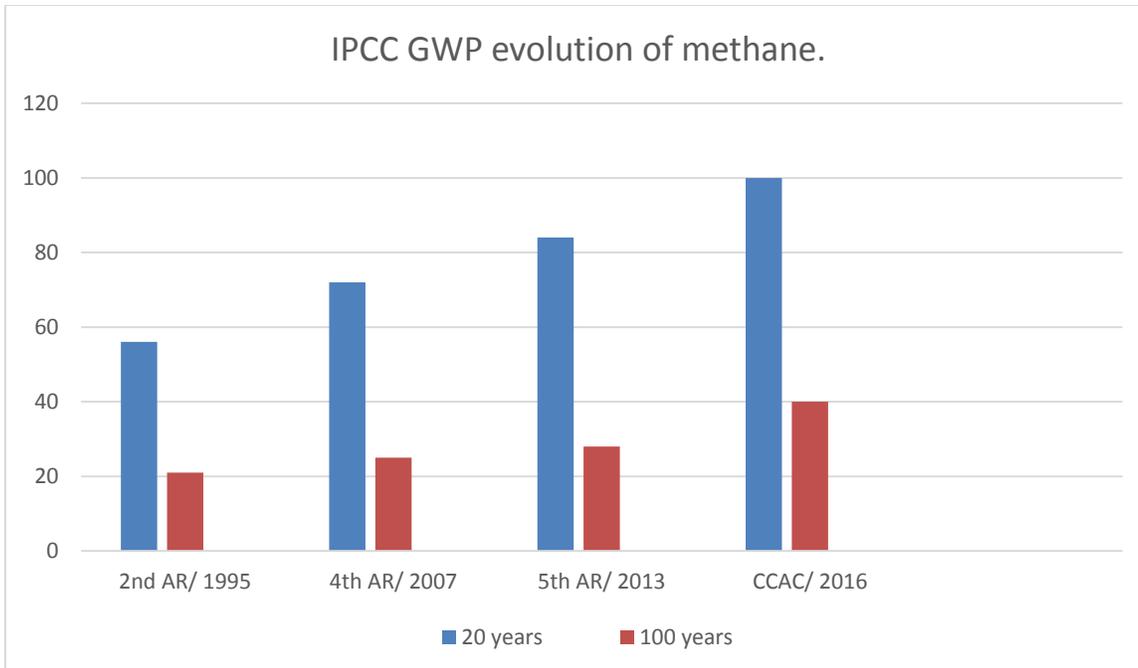
If the only goal of the California Cap and Trade system was to slow climate change so humanity had more time to adapt then it would be reasonable to take the following steps:

- Join or become affiliated with the Climate and Clean Air Coalition.
- Adopt methane emission reductions as the primary strategy to slow climate change.
- Disregard the distinction of anthropogenic or fossil sourced methane in favor of reducing any methane emission regardless of its source.
- Adopt the IPCC 2013 5th Assessment Report's 20 year Global Warming Potential value for Methane.
- Increase the % of Offsets that can be utilized in lieu of Allowances.
- Eliminate invalidation risk from any factors outside of the GHG reduction projects.
- Persuade California and Western Climate Initiative Utility Commissions to accept electricity generated from projects that are deemed eligible for ARB Cap and Trade as renewable energy (this would encourage electricity generation rather than flaring of waste methane).

- *Climate and Clean Air Coalition* (www.ccacoalition.org) findings show that *methane* and *soot* reduction has the most significant, immediate, and cost effective impact slowing on global warming.
- Methane global warming potential is calculated by Climate and Clean Air Coalition to near 100. Intergovernmental Panel on Climate Change assigned a 20 year GWP of 84 to Methane.



Scientific findings are ahead of policy and economic activity. The EPA and state of California still use the conventional time period of a hundred years for comparing the Global Warming Potential of greenhouse gases. That convention was adopted around 1990 when scientists believed it would be a hundred years before serious climate change would occur. Climate research discovered the atmosphere was warming faster than the early climate models had predicted. In 2012 a scientific finding was published in the magazine Science stating that methane and black carbon were the two most important emissions to reduce to slow climate change or global warming. Methane and black carbon, Short Lived Climate Pollutants (SLCPS), were found to have a much more powerful near term impact on global warming than the longer term impact of CO₂. Attention is now focused on a 20 year time period as the critical time frame in which to take action. In 2014 a number of countries, scientists, and the United Nations Environment Program formed the Climate and Clean Air Coalition (CCAC) to concentrate on research and programs to reduce SLCPS. In March of this year the Global Methane Forum, jointly conducted by the Global Methane Initiative (GMI) and the CCAC at Georgetown University methane was announced as the number one greenhouse gas to control. The presentation was made by Johan Kuylenstierna, Deputy Director, Stockholm Environment Institute, University of York, CCAC Science Advisory Panel (UK) and Drew Shindell, Duke University, CCAC Science Advisory Panel (USA). The title of their presentation was, “What Science Tells us: why methane is important.” The scientists have calculated that the more accurate Global Warming Potential Factors for methane are 100 for a twenty year time period and 40 for a hundred year time period. The following chart illustrates the differences between the current GWP calculated by scientists and the earlier GWPS still used by government agencies.



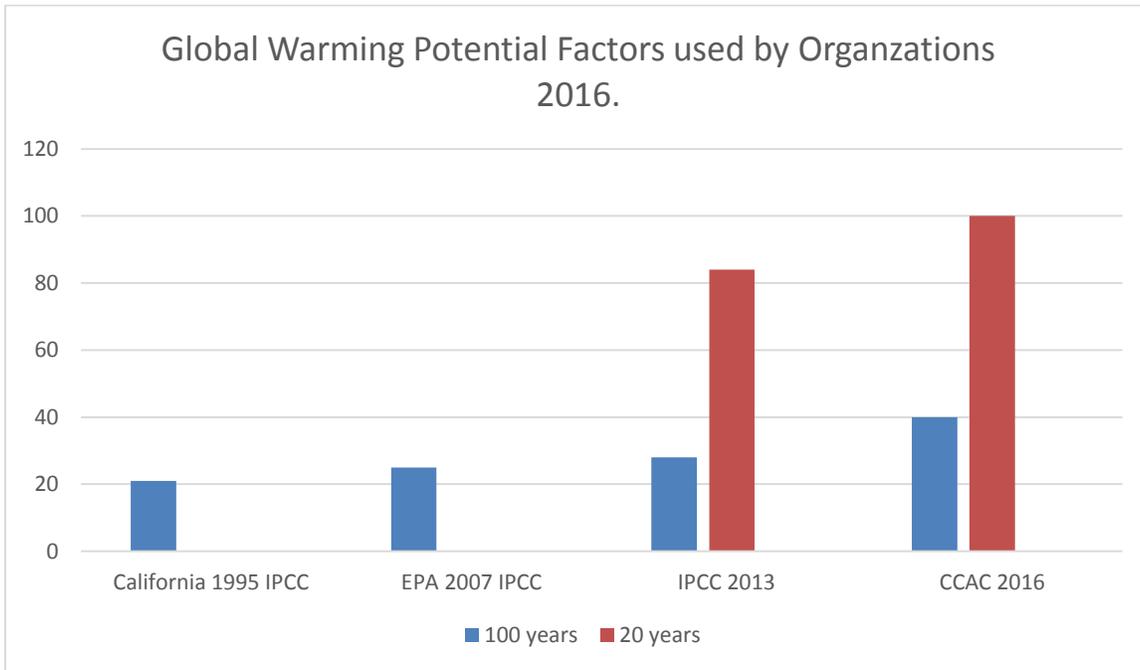
This year the CCAC reported their GWP of 100 for a 20 year time period and a GWP of 40 for a 100 year time period. The most recent Assessment Report (AR) by the International Panel on Climate Change was in 2013. The EPA on their web site refer to the IPCC factors in the 5th AR. However the EPA’s convention used for domestic greenhouse gas reporting still follows an earlier 2007 IPCC Assessment Report and still follows the 100 year time span with a GWP of methane at 25. For the Cap and Trade System in California CARB uses the even earlier 1995 Assessment Report from the EPA that referred to the IPCC AR of 1995 and uses a GWP for methane of 21 which was based on a 100 year time frame. The most current CCAC 20 year time GWP is 5 times that used by the state of California.

The United States EPA prepares the USA inventory of greenhouse gas and submits this data to the United Nations Framework Convention on Climate Change (UNFCCC). The regulatory agencies are using outdated GWPs and the accounting protocols are not being updated to reflect the latest science (which would require the use of the GWPs found in the 5th AR).

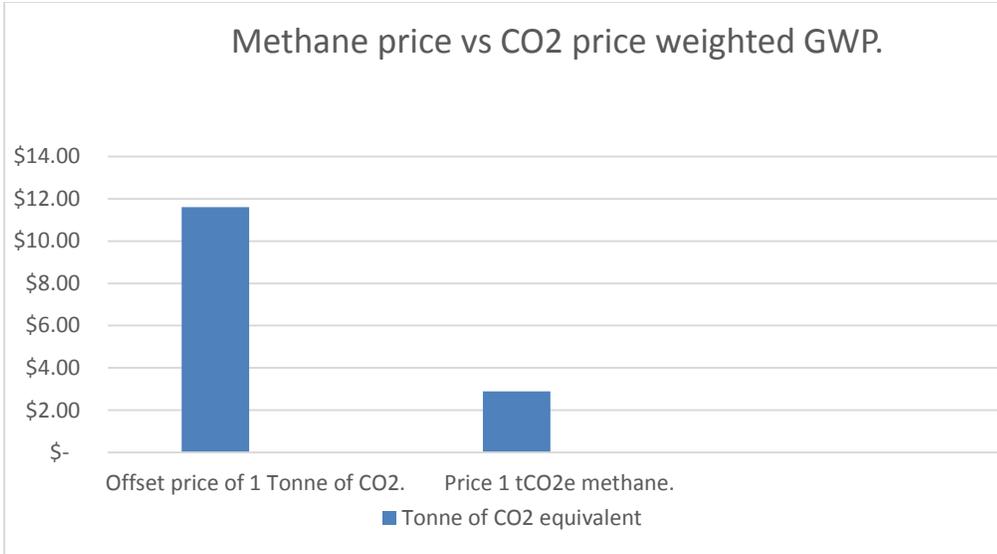
The choice of the timeframe is an accounting function. If the goal is to align the urgency of climate change mitigation and reality of SLCPS, the agencies should be using a 20 year GWP for methane based on the 5th AR while we await the eventual 6th AR. The EPA and ARB do not set these GWP values. The IPCC sets the values and the agencies cite various versions of the IPCC assessments.

VCG has adopted the CCAC 20 year GWP of 100 as it is the most current factor from the world’s foremost scientific community on atmospheric science. VCG uses the GWP of 100 to emphasize the significance of reducing methane emissions. Being current on the science can allow us to anticipate imminent policy and economic trends that will provide opportunities. The following chart shows the evolution of the awareness of the SLCP methane and how far behind are the GWP factors used by the EPA and CARB.

VCG believes policy makers and regulators will eventually take actions based on a 20 year time frame by concentrating on reducing methane emissions. The EPA on its web site discusses the 2013 IPCC AR. ARB uses the 20 year GWP of 84 for methane in its enforcement actions of methane emissions outside the Cap and Trade System.



Currently in the California Cap and Trade system greenhouse gas reductions are priced at around \$11.60 to \$13.00 a metric ton (Tonne) of CO₂ (tCO₂e). An allowance to emit 1 tCO₂e is about \$12.90. An offset to 1 tCO₂e emission is about \$11.60. ARB assigns a GWP to methane based on the 1995 100 year time frame. The most recent scientific research recommends greenhouse gases be assessed their global warming potentials over 20 year time periods. The following chart compares the current value of tCO₂e of methane under the ARB Cap and Trade system vs what the value would be if the global warming factors of the Climate and Clean Air Coalition were used. If methane were more accurately valued more resources would be directed at capturing and destroying methane.



This chart shows what the price of methane would be per offset given the same volume of methane but on a 20 year time scale if its current price was related to its GWP.

This value is derived from the IPCC AR5 from 2013.

Vessels Coal Gas, Inc. mine methane emissions captured as of January 30, 2016 solely due to California Cap and Trade.

Methane (CH₄) emissions destroyed- 1.556 billion cubic feet (BCF)

Carbon Dioxide metric tons equivalent emission reduction- 2.578 million tCO₂e¹

Destruction of 1.556 BCF of methane emissions has the effect of reducing greenhouse gas emissions by...

Taking more than 500,000 passenger vehicles off the road for one year. (average passenger emits 4.7 tCO₂e per year “EPA”.)



¹ Uses current Climate and Clean Air Coalition findings for 20 year Global Warming Potential (GWP) of 100 for methane.

Cutting back 2,500,000 Mega Watts of electricity generation from coal powered electricity generation. (1 Mega Watt of electricity generation from coal emits about 1 tCO₂e “Energy Information Agency”).



<http://www.ccacoalition.org/en/content/about-us><http://www.unep.org/climatechange/>

Thomas J. Vessels, President of Vessels Coal Gas, Inc.

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Comments of USS-POSCO Industries
Cap-and-Trade Regulation Amendments Workshop
November 4, 2016

USS-POSCO Industries (UPI) appreciates that ARB staff is attempting to foster objective, data-based mechanisms to address “leakage” concerns related to California’s Cap-and-Trade program. Although the domestic and international leakage studies referenced by ARB produce numerical results that staff used to revise Industry Assistance Factors (AF) post-2020, UPI believes that the studies do not provide adequate justification for significantly reducing AF levels, and that such reductions could instead cause increases in worldwide GHG emissions as production from California operations moves to locations that have higher carbon-intensive resources.

ARB’s updated Informal Staff Proposal¹ references two leakage studies² as the basis for its proposed changes to AF. While the studies attempt to provide some analytical rigor to the development of AF levels, they also acknowledge their own limitations. The international leakage study states:³

The natural next step, from the perspective of a policy maker looking to assess leakage risk and target leakage mitigation measures, is to translate these responsiveness measures to corresponding measures of market transfer and associated emissions leakage. However, pushing on to this next step amounts to pushing up against the limits of available data. One complication is that calibrating the measures of leakage risk implied by the theory requires dividing one noisy estimate by another. Other caveats include the fact that we cannot directly observe foreign production and instead employ an imperfect proxy. In what follows, we describe a conceptually consistent, albeit noisy and caveated, derivation of leakage risk measures.

The domestic leakage study states:⁴

First, the lack of statistical significance for many of the long-run estimates suggests that there may not be sufficient historical energy price variation to estimate the effects. Second, the long-run responses are inherently more complicated to model than the short-run responses, because the long run includes dynamic decisions about investment and plant closure. While a benefit of our approach is its relative simplicity and transparency in modeling the

¹ <https://www.arb.ca.gov/cc/capandtrade/meetings/20161021/ct-af-proposal-102116.pdf>, October 21, 2016

² Measuring Leakage Risk, Fowle, et al, May 2016.

<https://www.arb.ca.gov/cc/capandtrade/meetings/20160518/ucb-intl-leakage.pdf> and Employment and Output Leakage under California’s Cap-and-Trade Program, Gray et al, May 2016. <https://www.arb.ca.gov/cc/capandtrade/meetings/20160518/rff-domestic-leakage.pdf>

³ Fowle et al, Page 38

⁴ Gray et al, Page 21

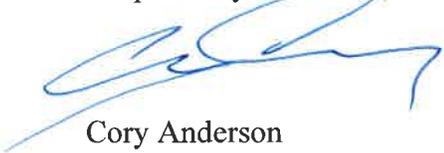
of our approach is its relative simplicity and transparency in modeling the effects of energy prices on economic activity, we may not suitably capture some of the nuances for certain industries, particularly in the long run.

Neither of these apparent caveats appears to encourage strict adherence to the numerical results of the studies in determining future AF levels. Further, reliance on such results could undermine California's industrial competitiveness. The solution is clearly a national or international carbon pricing or related GHG reduction strategy that would render the entire leakage issue moot. Unfortunately, and despite its best intentions, California cannot unilaterally implement such a solution. It is important, however, that California not turn its Cap-and-Trade program into a cautionary tale.

UPI recommends that long-term reduction in the AF values be implemented on a more gradual basis than proposed. In addition to a lack of confidence in the predictive value of the numerical results of the studies, UPI is concerned about the overall negative implications of under-estimating potential leakage. First, the studies base leakage on energy prices in California versus elsewhere. They do not appear to account for the difference in current carbon intensity in California versus elsewhere. In other words, thanks to an existing fairly low carbon-intensity energy supply, and anticipated ongoing reduction in carbon-intensity, California industries are likely to be responsible for less GHG emissions for a given level of production. Thus, leakage not only impacts employment and economic activity within California, it results in greater overall GHG emissions than if the production remained here. Second, carbon allowance prices are expected to increase as the cap level drops. Combining this with a dramatic reduction in assistance factors would have an even more dramatic impact on the competitiveness of California manufacturing, expanding the amount of leakage.

As a result, rather than instantaneously dropping assistance factors from 75% to 15% (in the case of UPI's sectors), a more gradual reduction would be better for industry in California, result in overall lower levels of GHG emissions (versus shifting production elsewhere), and protect against overconfidence in analytical results that, while well intended, may not accurately reflect reality. If ARB determines that the potential for reducing AF values to encourage California industry to reduce carbon emissions is significantly greater than the impacts of the expected increase on allowance costs over time, it should implement the reduction more slowly, perhaps ramping down over a ten-year period (from 2020 to 2030) rather than immediately.

Respectfully submitted,



Cory Anderson
Secretary and General Counsel
USS-POSCO Industries

**Comments of the Western Power Trading Forum
to the California Air Resources Board
on Cap and Trade Regulation Amendments
November 4, 2016**

Clare Breidenich
WPTF GHG Committee Director
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The Western Power Trading Forum¹ (WPTF) welcomes the opportunity to provide input to the California Air Resources Board (CARB) on issues raised at the October 21st workshop on Cap and Trade Regulation Amendments. WPTF's comments below address CARB's consideration of options for greenhouse gas emission (GHG) accounting in the Energy Imbalance Market (EIM) and retention of the Renewable Portfolio Standard (RPS) Adjustment.

GHG Accounting in the EIM

In our September 19th comments, WPTF agreed with the staff concern that the way the EIM is currently dispatching and assigning generation to California Independent System Operator (CAISO) load is distorting dispatch and, in some cases, could result in increased emissions in the combined CAISO/EIM footprint. WPTF recommended that CARB work with the CAISO to explore options for modifying the way that the EIM algorithm treats carbon costs in the dispatch and allocation of generation to serve CAISO load. However, we cautioned that changes in the algorithm could result in "GHG accounting that is more in line with the AB32 goals, but may have other consequences that make the solution impractical or politically unacceptable."

To date, CAISO staff have identified three potential approaches to addressing GHG accounting concerns: Intertemporal netting of GHG impacts (option one), incremental above-economic-base deeming" (option two) and a GHG hurdle rate (option three). CARB staff added a fourth option, the "dynamic hurdle rate" at the October 21st workshop. As WPTF follows these discussions, we are becoming increasingly concerned that the negative consequences of proposed options on market efficiency outweigh the potential emission reduction benefits. In particular, WPTF strongly opposes both the CAISO's common GHG hurdle rate approach and CARB's dynamic hurdle rate.

Under the CAISO's variant, a common GHG hurdle rate, determined based on some calculation of residual GHG emissions, would be added to the energy bid of all non-California EIM resources in considering whether to deem such dispatch as delivered to California. This hurdle would be imposed in addition to each resource's specific GHG bid adder, but would be exempted for resources that are contracted to California load-serving entities. Imposition of the hurdle would result in higher costs and increased revenues collected from California load, which would be used by the CAISO to purchase and retire allowances under the cap and trade program.

This proposal would make California resources more economically competitive relative to non-California resources by increasing the costs of non-California resources for supplying California load. This would be distortionary and could be unfair to external resources. Further, it is not clear that level of the GHG hurdle would actually change the dispatch of generation in the EIM, nor assignment of generation to California load. For the hurdle rate to impact the displacement of California gas generation, it would need to be higher than the bid difference between non-California zero-emissions resources and that of California thermal generation, which includes carbon costs. More likely, the benefit of this approach would be achieved through retirement of allowances within the cap and trade system – not from any change of emissions within the EIM footprint.

¹ WPTF is a diverse organization comprising power marketers, generators, investment banks, public utilities and energy service providers, whose common interest is the development of competitive electricity markets in the West. WPTF has over 80 members participating in power markets within California and elsewhere across the United States.

CARB's dynamic hurdle rate is equally problematic. This option would also impose a GHG hurdle on all non-California resources based on a 5-minute calculation of system average emission rate for dispatched non-California resources, but would not maintain a distinction between the actual emission rate of individual resources. Rather, the hurdle would effectively assign the same emission rate to all resources, except for RPS-contracted resources. Like the CAISO's option, this hurdle would not result in a compliance obligation for individual resources; costs or compliance obligations would instead presumably be passed through to California load. Staff indicated that this approach could also be applied in a regional power market.

Unlike the CAISO's hurdle approach, CARB's proposal would eliminate incentives and opportunities for emissions leakage/resource shuffling within the EIM. However, it would do so by eliminating the carbon price signal for external resources, except for those contracted under the RPS. CARB and stakeholders have worked for the past several years to promote accuracy in the attribution of emissions to imported power, while providing important incentives for low and zero emission electricity. The program rules for specification of imported electricity reflect this balance. CARB's proposed approach would throw out these rules, and instead effectively treat all EIM generation as unspecified, except that the default emission rate would be calculated in 5 minute increments.

Of the options currently under consideration, the only one that merits further consideration is the 'incremental above-economic-base deeming'. This approach would restrict the eligibility of a resource's output to be deemed delivered to California to incremental generation above a counterfactual economic dispatch optimized for the EIM footprint without transfer to California. To the extent that low-cost, zero-emissions resources are dispatched in the first economic-base run, output of these resources would be attributed to non-California load and thus not available to displace California generation. This would result in gas generation (both California and external) being considered more often for attribution to California, compared to the current EIM algorithm.

On its face, the incremental deeming approach appears to be less distortionary than imposition of a GHG price hurdle, but it would add significant complexity to market operation, as the CAISO has noted. CAISO and CARB would also need to assess whether the approach could accommodate evolving carbon and clean energy regulations in other states and how it could be applied consistently across all the energy markets. WPTF support continued exploration of Option 2.

If it is not possible to implement a solution that works across all electricity markets without undermining the carbon price signal or the efficiency of those markets, then CARB should instead accept that it is not possible to eliminate emissions leakage in the absence of regional carbon policies. Instead, CARB should make a transparent decision to focus on post-2020 solutions, taking into account the strong incentive created by the cap and trade program for import of low and zero emission power across all electricity markets. At the same time, CARB should work to encourage the development and linkage of carbon pricing programs throughout the west to reduce leakage.

RPS Adjustment

WPTF appreciates staff's retention of the RPS Adjustment after 2020 in response to stakeholder comments. However, we are concerned that continued reliance on existing reporting and verification requirements related to the RPS adjustment will perpetuate the difficulties encountered by electric power entities in claiming the RPS adjustment.

To address these problems, WPTF recommends that CARB explicitly acknowledge the relationship between the RPS adjustment and Portfolio Content Category 2 (“PCC2”) under RPS program rules. Acknowledgement of this direct relationship would enable CARB to rely upon the RPS program requirements to improve verification. Specifically, we recommend that CARB modify the reporting regulation to accept documentation that e-tags for the import of firming and shaping power have been matched to Renewable Energy Credits (RECs) as part of a PCCC2 transaction for purposes of verifying RPS adjustment claims. Such documentation should be acceptable in lieu of evidence that the RPS power was not directly delivered to California.

Comment Log Display

Below is the comment you selected to display.

Comment 46 for Cap-and-Trade Regulation Amendments Workshop (ct-amendments-ws) - 1st Workshop.

First Name: Evan

Last Name: Vessels

Email Address: evan.vessels@gmail.com

Affiliation: Vessels Coal Gas Inc.

Subject: Cap-and-Trade Regulation Amendments Workshop

Comment:

Greetings ARB Board and staff

The California cap and trade system is the best sector-wide cap and trade program in the world and it must succeed. I have always been concerned for the future of the ARB cap and trade system as well as some of its more critical components like the offset program, but this last webcast makes me afraid that it is more at risk than ever. This is unfortunate timing since although cap and trade is sited by many experts as the best way to fight climate change, it is still being threatened as a concept. It has been tried as a way to fight GHG emissions a number of times around the world with little success. The European cap and trade system, for example, was initially successful at limiting GHG emissions, but without a shrinking cap, the system has failed to reduce GHG emissions further. The Regional Greenhouse Gas Initiative (RGGI) has also been successful, but the program is specific to power plant emissions only. There are many voluntary carbon markets across numerous countries, but they have achieved very little. By contrast California Cap and Trade is an aggressive program that does not stagnate with its own successes. It provides incentives to capture and destroy fugitive emissions outside the direct purview of cap and trade. As old goals are achieved new goals are set by the falling cap. The incremental process, and highly scrutinized market mechanisms, gives industry the time and incentives to innovate and adjust without giving time to become complacent. California Cap and trade must survive not just for itself but for the world.

The world still regards cap and trade as an experiment. If California cancels its cap and trade program, cap and trade will be dismissed by critics as a valiant, but failed, effort. And it will set an international precedence that cap and trade does not work as a sector wide solution to climate change. Whether or not California feels responsible for setting an example to the world, the world is watching. And like it or not, California's decision on this matter will have global consequences. The consequences will naturally affect Americans eventually. Even if cap and trade isn't absolutely perfect it is effective and implementable.

Developing a new program would take years, and then several more years working out the kinks. Cap and trade has been in place for over 4 years and that time has been used to identify weaknesses, and implement improvements. It is therefore my strong feeling that cap and trade be upheld, not curtailed or reduced.

In both the latest cap and trade workshop, and the cap and trade environmental impact assessment report, there was startlingly little discussion about climate change. The main topic of the impact assessment was co-benefits of cap and trade, or more specifically the prevalence of toxic air pollutants and particulate matter (criteria air pollutants) in disadvantaged communities. The only significance of climate change in the impact assessment, was in comparing the relationship GHGs have with criteria pollutants. At no point during the impact assessment did the authors mention what the impact of climate change would be on disadvantaged communities. Climate change seems to be a low priority to the composers of this assessment. In fact the words "climate change" are only used 3 times in the impact assessment none of which were in the body of the report. Since AB 32 or The Global Warming Solutions Act was passed with the specific purpose of slowing global warming to a natural pattern; It would seem the assessment writers are either not fully aware of the specific intention of AB 32 or they are recommending changing the purpose of AB 32 to focus primarily on criteria pollutants.

Experience in renewable energy legislation has demonstrated that the more agendas a law or regulation attempted to fulfill, the less effective it is at fulfilling any of them. For cap and trade to work best it must have a single, clear and concise purpose. While opportunities for co-benefits should not be ignored they must never supplant the main purpose of cap and trade. Currently that purpose is fighting "Global Warming", increasingly referred to as "Climate Change". Detracting from that purpose to serve some other agenda, would be to betray the spirit of AB 32 as well as the people who fought to get it passed.

It is disturbing but not shocking to hear that there is a disproportionate volume of disadvantaged communities living near facilities that emit high volumes of criteria pollutants. Since these pollutants are highly controlled I believe there are better ways to track their volumes than to track GHG emissions and assume the criteria pollutants follow along. In fact on page 13 of the assessment the authors state that they obtained the criteria pollutant data from the monitoring and tracking mechanisms already in place to control criteria pollutants. This tracking system is known as CEIDARS. CEIDARS exists because of an EPA mandate to reduce criteria pollutants under the Clean Air Act, however if further reductions in criteria pollutants are necessary then aggressive action should be taken. A cap and trade program specifically designed for GHG's is an inappropriate mechanism for this. Criteria pollutants must be controlled and eliminated by their own program, unencumbered by tertiary concerns. Such programs already exist, and it is in these programs that the best tools to further eliminate criteria pollutants can be found.

Offsets are constantly blamed for creating more emissions, or allowing emissions that otherwise would not have occurred. The creation of an offset requires immense amounts of data monitoring and redundant third party scrutiny which is itself scrutinized. This means that multiple third parties and then CARB itself has proven that all offsets are real and additional. So why then are offsets accused of doing the exact opposite?

The environmental assessment report advocates reducing or preferably eliminating offsets, and while having read the report several times it is still unsure for what reason. The 2 research findings presented are that most offsets are purchased by the highest emitters, and that the total tCO₂e of GHG reductions achieved by offsets alone were 4 times greater than the target reductions for 2013. To the first point, it should come as no surprise that those with the highest emissions would be the most interested in buying offsets. Since allowances could have been purchased in place of these offsets, it is unclear how this fact correlates to increased emissions. The exact argument is never made in the assessment. The second damning fact is even more puzzling since it seems to suggest that offsets are, at least in this early stage of the program, achieving more emission reductions than the falling cap (12 million tCO₂e of reductions from offsets in 2013). Why would someone concerned with climate change advocate eliminating 4/5th of the GHG reductions currently being achieved? If the concern is other than GHG reductions and climate change, then those concerns should be considered under the appropriate regulatory framework(not AB 32).

The truth about offsets is that every offset purchased is 1tCO₂e of GHG's removed from the atmosphere that would not have been removed if an allowance was purchased instead. The truth is offsets are the most powerful tool cap and trade has for fighting short lived climate pollutants. If anything offsets should be increased.

Climate change is an urgent and global problem that will likely effect underprivileged communities disproportionately. California being a coastal state is at an even greater risk than most to the adverse consequences of climate change. If there are problems with cap and trade or any of its components they should be improved, not eliminated or curtailed. It is paramount that the world see cap and trade succeed, a success that offsets are an integral part of. To succeed cap and trade must not only survive, but thrive. And to do so it must remain focused on GHG reductions and retain a strong offset program.

Evan Vessels
Vessels Coal Gas Inc.

Attachment:

Original File Name:

Date and Time Comment Was Submitted: 2016-11-04 16:08:33

November 4, 2016

Rajinder Sahota
California Air Resources Board
1001 “I” Street
Sacramento, CA 95814

RE: Turlock Irrigation District Comments on the October 21, 2016 Cap-and-Trade Workshop

Dear Ms. Sahota,

Turlock Irrigation District (“TID”) respectfully submits the following comments to the California Air Resources Board (“ARB”) on the October 21, 2016 Workshop on the Cap-and-Trade Regulation. As discussed below, TID believes that the extension of a prudently designed Cap-and-Trade Regulation after 2020 is the most efficient and cost effective means of achieving the deep emissions reductions contemplated in SB 32. We also believe the Cap-and-Trade will minimize costs of compliance compared to other carbon reduction measures (e.g., direct regulation or a carbon tax). TID is especially concerned that a fundamental shift in policy would impact its ratepayers, the majority of whom are located in disadvantaged communities. Ratepayers in disadvantaged communities tend to pay relatively more for electricity compared to higher income areas because electricity bills are a higher percentage of their total income. A change in policy such as a tax or direct regulation would disproportionately affect ratepayers in disadvantaged communities. TID strongly supports the extension of the Cap-and-Trade program post 2020, enjoining the ARB to ensure the post 2020 Cap-and-Trade program strikes an appropriate balance between the state’s environmental goals and the utilities’ responsibility to provide reliable power in a cost-effective manner to its’ ratepayers. To balance these objectives, the ARB should retain the current offset provisions, retain the RPS adjustment, and refine the utility sector allowance allocation proposal to provide additional transitional assistance in meeting the State’s ambitious 2030 goal. TID appreciates the continued opportunity to work with the ARB staff on improving the Cap-and-Trade regulation and extending the program beyond 2020.

DISCUSSION

I. The ARB Should Retain The Cap-and-Trade Program Post-2020.

The Cap-and-Trade program is an efficient and cost-effective means of achieving greenhouse gas emissions reductions and should be extended post-2020. A wholesale shift to another system, such as a carbon tax or direct regulation of in-state GHG emissions sources, would be extremely disruptive at a time when regulated entities and other market participants need greater certainty for the future of the Cap-and-Trade program. Meeting the State’s aggressive 2030 target, will require California to provide certainty and consistency in its climate change programs as this encourages the near-term emissions cuts and investments needed to set the state on a trajectory towards meeting the 2030 targets. On the other hand, a shift to a completely different regulatory scheme would derail covered entities’ longer term GHG reduction strategies, investments and compliance plans that were developed in reliance on a long term Cap-and-Trade program. Moreover, a shift to a different type of regulatory system would detrimentally impact California’s most disadvantaged communities. For companies like TID whose ratepayer owners are mostly in disadvantaged communities, a wholesale change in policy will increase costs for these customers. For these reasons, the ARB should send a clear signal to all regulated entities and market participants that the State will extend the Cap-and-Trade program post-2020.

II. The ARB Should Refine The Allowance Allocations To Provide A Smoother Transition To The 2030 Target.

The October 14, 2016 Staff Allocation Proposal would create an allocation “cliff” between 2020 and 2021. This drop off in allocations to EDUs is primarily attributable to the “bottom-up” allocation methodology, an aggressive cap-adjustment factor, and changes in allocation policies (e.g., no longer recognizing early action and reallocating allowances to industrial entities). The transition should be smoothed in order to avoid allowance price shocks and to better enable the energy sector to help the rest of the economy transition to the aggressive 2030 emissions goals. The ARB should continue to recognize early action because utilities are continuing to incur the costs of these early actions. The ARB should not reallocate allowances to industrial customers because the resulting reduction is a cost that will be borne by all customers (i.e., most EITE customers do not have special Emission Intensive Trade Exposed (“EITE”) rates). At the same time, EITE customers will continue to benefit from the use of revenue generated from consigned allowances as many utilities invest allowance revenue in programs that benefit all customers. The ARB should also change the cap-adjustment factor to provide a smaller decline in the first half of the 2020-2030 program and a steeper decline in the later years. This change will better enable the electricity sector to assist with the transition to a low carbon economy (e.g., vehicle electrification and electrification of certain natural gas uses). A more favorable cap adjustment factor will also avoid sudden electricity rate increases that would slow the transition to lower carbon-content fuels. Finally, as with the current iteration of the Cap-and-Trade, providing “transitional assistance” is an important policy objective because the 2030 GHG target is aggressive.

III. The ARB Should Not Permanently Retire Unsold Allowances.

At the October 21, 2016 Workshop, the ARB staff discussed the possibility of permanently retiring all or a portion of unsold allowances from the recent auctions. This proposal would significantly tighten the supply of allowances in a post 2020 Cap-and-Trade market. At the same time, the ARB has also proposed to drastically reduce free allocations to electric and industrial entities. We are concerned that the combined effect of these policy decisions could lead to allowance price shocks sometime before 2020. Increased GHG prices will not necessarily achieve the policy goals the environmental justice community is advocating. Many of the in-state GHG sources are critical infrastructure that is needed to maintain electric reliability. Their permits to operate issued pursuant to the clean air act govern the amount of criteria pollutants they emit, not the Cap-and-Trade. Changes in Cap-and-Trade allowance prices will increase the costs of operating these facilities, but will not cause them to be shut down. Increased allowance prices will simply lead to higher costs being passed onto ratepayers. We are concerned that these policy proposals would have the counterproductive effect of increasing rates paid by our ratepayer owners, many of whom live in disadvantaged communities.

IV. The ARB Should Not Reallocate Cap-and-Trade Allowances From POU Electric Distribution Utilities to Emissions Intensive Trade Exposed Industries.

The October 14, 2016 Staff Allocation Proposal would reallocate a certain amount of allowances from EDUs to EITE industries. As we explained in our comments on the 45-day language, TID does not support the reallocation proposal. Notwithstanding our concerns with this proposal, we believe that if the proposal moves forward, it should be implemented in an equitable way. The October 14, 2016 Staff Allocation Proposal would not reallocate allowances on a 1:1 basis. Instead, any allowances allocated to industrial entities would be subject to the significant reduction in industrial assistance factors that apply to EITE industries. The EITE free assistance factors decline at a faster rate than the Electric Distribution Utility (“EDU”) allocations, and as a result, the reallocation would not be on a 1:1 basis. If the ARB decides to move forward with the reallocation, the reallocation should be more equitable and the utility’s allocations should only decline in the amount that will actually be redistributed to EITE entities. The reallocation should not be based on historic load data of the EITE entities. Instead, the ARB should calculate the anticipated production for individual EITE customers based on historic production and multiply their anticipated production by the 2021 – 2030 assistance factors for the applicable NAICS code. The anticipated allocation should then form the basis for reallocating Cap-and-Trade allowances to the industrial sector.

V. TID Supports The Retention Of The RPS Adjustment And Encourages The ARB To Continue To Evaluate The Reporting Requirements For Direct Deliveries.

The RPS Adjustment ensures that utilities, like TID, that made early, voluntary investments in out-of-state renewables are able to utilize zero emissions resources without paying a carbon price. The RPS Adjustment is a critical component of the Cap-and-Trade Regulation, and TID supports the ARB’s proposal to retain the RPS adjustment in the October 14, 2016 Staff Allocation Proposal. TID is committed to continuing to work with the ARB staff to revise the MRR guidance language to ensure that the existing regulatory requirements that prohibit an RPS adjustment claim when there is direct delivery of “null power” (i.e., energy without the RECs) can be reasonably satisfied by reporting entities. The simplest way to satisfy the direct delivery requirement would be to revisit the ARB staff’s proposed policy decisions in the MRR rulemaking that would allow an entity to claim a specified source emissions factor from an eligible renewable resource even though the importing entity did not procure the “green attributes.” The ARB’s proposed removal of the REC serial number reporting requirement will exacerbate the direct delivery issue because there will be a financial incentive to import null power and take advantage of green attributes the importing entity did not pay for. This change in the MRR will effectively send a market signal that California encourages the direct delivery of null power and use of green attributes irrespective of whether an importing entity actually acquired those attributes. As we noted in our comments on the MRR, the ARB should minimize direct delivery concerns through the enforcement of the REC serial number reporting requirement for specified imports. If the ARB moves forward with its proposed changes to the MRR and removes the REC serial number reporting requirement, it should work with entities that claim the RPS adjustment to refine the MRR guidance language to include voluntary steps electric power entities may take to limit direct delivery of null power. For example, the ARB could recognize contractual provisions limiting direct delivery into California. In addition, the seller warranty requirement could also be used to address the direct delivery issue. To claim an import as specified, the seller must provide the electric power entity with a seller warranty. If the seller of null power clearly states that the power is being transacted on an unspecified basis, the null power could not be claimed as a specified import and there should not be a direct delivery concern. TID looks forward to discussing these and other options for resolving the RPS adjustment issues with the ARB.

VI. The ARB Should Encourage A Robust Offset Market.

The 8% offset usage limit is an important aspect of the Cap-and-Trade program. Offsets allow for investments in cost-effective emissions reduction and create a needed price signal for new innovative GHG emissions reduction technologies. The usage of offsets also serves as an important cost containment measure in the event that an additional supply of compliance instruments is needed by obligated entities. We are also concerned that the removal of offsets from the program would be counterproductive to the broader policy goals of AB 197. The proposal to remove offsets from the program would also remove an important funding mechanism for GHG reduction projects (e.g., livestock and urban forestry projects) in California’s disadvantaged communities. The ARB should retain the 8% offset usage limit and continue to evaluate new opportunities for offset protocols, such as the REDD offset program.

VII. In Calculating Allowance Allocations to EDUs, The ARB Should Account for the Individual Utility Load Growth Assumptions.

Allowance allocation is perhaps the most important issue in the development of a post 2020 Cap-and-Trade program. The current methodology addresses the diversity in California’s electricity sector. Since utilities are complex and affected differently by Cap-and-Trade, it is important to recognize that diversity in the allocation methodologies. The use of the S-2 forms takes an important step in fulfilling this objective. However, an assumption of flat load growth across the entire electricity sector does not address the variability among utilities. Utilities like TID that have territories with more affordable costs of living can reasonably expect to see load growth. Furthermore, by virtue of a POU’s smaller size, even a single new large customer can swing load growth by more than 1%. The ARB should recognize some load growth variation in their allocation methodology.

CONCLUSION

TID is pleased to provide comments on the October 21st workshop. TID supports the extension of the Cap-and-Trade and believes that it has effectively driven and will continue to achieve meaningful reductions in GHG emissions. To date, the Cap-and-Trade has proven to minimize the cost burden felt by TID’s ratepayer owners, particularly those in disadvantaged communities. We applaud the ARB for the steps it has taken to recognize that in addition to furthering the State’s important GHG objectives, utilities must also ensure that electricity is affordable and reliable for all of California’s citizens. As the ARB refines the Proposed Amendments in 15-day language, the ARB should also continue to acknowledge the disproportionate burden borne by the energy sector as it leads the way to a cleaner, more renewable future. TID looks forward to helping the state achieve our ambitious GHG targets and looks forward to actively participating in the ongoing discussions on these important objectives.

Respectfully Submitted,

Ken R. Nold
Turlock Irrigation District



P.O. Box 4060 • Modesto, California 95352 • (209) 526-7373

November 4, 2016

Submitted electronically

Rajinder Sahota
Branch Chief, Cap-and-Trade Program
California Air Resources Board
1001 I Street
Sacramento, CA 95812

Re: **Comments on October 21 Workshop**

Dear Ms. Sahota:

The M-S-R Public Power Agency (M-S-R)¹ offers these comments to California Air Resources Board (CARB) staff in response to discussions during the October 21 Workshop regarding proposed amendments to the Cap-and-Trade Program, and Staff's initial proposal for post-2020 allowance allocation to electrical distribution utilities (EDUs). M-S-R strongly supports continuation of the cap-and-trade program and appreciates staff's engagement of stakeholders on proposed amendments to the program. However, as more fully set forth herein, staff's proposal for allocation of allowances to the EDUs for 2021-2030 leaves M-S-R member utilities significantly short of the number of allowances necessary to mitigate their costs to comply with mandates required to meet the state's clean-energy goals. The combination of the drastic reduction in the number of allowances allocated beginning in 2021, the steep decline in allocations in the following years, and a tightening emission reduction cap leaves the EDUs without enough allowances to meet their cost burden. M-S-R appreciates the opportunity to provide this feedback to staff on the issues addressed during the October 21 workshop.

Post-2020 Electrical Distribution Utility Allowance Allocation

In these comments, M-S-R notes overarching concerns with the current allocation proposal. However, M-S-R continues to work with the other utilities and staff to assess the data used and appropriate application of the relevant data, and looks forward to working with staff on resolution of these and other determinative issues as the 15-day language is developed.

- *Ensuring Data Accuracy*: Since the release of the initial proposal, several inconsistencies and questions have been identified regarding the underlying data and applicable

¹ Created in 1980, the M-S-R Public Power Agency is a public agency formed by the Modesto Irrigation District, the City of Santa Clara, and the City of Redding.

calculations used to compute the allocation proposal. As these issues are addressed and the methodology further refined, more questions may arise; it is important that these issues be fully resolved prior to finalizing any allocation proposal for inclusion in 15-day changes.

- *2021 Starting Point:* As proposed, there will be an abrupt decline in the number of allowances EDUs receive in 2021. The severe impact of this difference is exacerbated by the aggressive cap decline factor that is applied to the annual allocations. Further compounding the impacts is application of the 50% RPS applied to load based on forecast data from the relevant S-2 filings. The allocation proposal ultimately proffered in 15-day changes should reflect a “flatter” reduction trajectory to ensure that EDUs are not faced with allowances shortages in the program’s later years.
- *Calculating Cost Burden:* Allocation of allowances to EDUs is the most effective way to alleviate the impacts of ever-increasing clean-energy program costs on electricity customers. The basic tenant of this mitigation is based on providing EDUs with allowances to cover their cost burden. Defining that cost burden is a critical element of the ultimate allocation methodology. The initial proposal applies a definition of cost burden that leaves EDUs significantly short of the number of allowances needed to offset their cost burden. The basis for determining the EDUs’ cost burden must recognize the inter-related nature of various emissions reduction measures and programs identified in the Scoping Plan to which the EDUs are subject. M-S-R strongly encourages staff to continue to work with stakeholders on seeking a resolution to this important issue that ensures the ability of EDUs to affect the greatest emission reductions in the most cost-effective manner, while providing much needed mitigation to alleviate the impacts of these aggressive carbon reduction measures on California’s residential, commercial, and industrial electricity customers.
- *Allocation methodology should account for load growth:* Staff has proposed two different options for dealing with an EDU’s load when calculating allowance allocation. M-S-R believes that the calculation should be based on changes in the EDU’s load over time, and not be fixed. Beyond the impacts on utilities from transportation, many utilities expect to see significant load growth in the next decade. This results not just from expanding economies, but from the extent to which other sectors of the economy increasingly turn to electrification. Allocation based on a 2020 fixed load estimate would severely cut the mitigation available to utilities to meet their compliance burden in the face of increasing load.
- *Calculation of RPS should be applied to retail sales, not load:* The state’s renewable portfolio standard (RPS) program mandates minimum procurement of energy from eligible renewable resources based on a load serving entity’s retail sales. (Public Utilities Code section 399.13 and 399.30) The current proposal erroneously applies the RPS mandate to the EDU’s load, rather than retail sales. Under any allocation methodology in which the EDU’s RPS mandate is incorporated, the applicable metric must be consistent with state law. To do otherwise overstates the amount of carbon-free resources and cost burden in the utility’s portfolio.
- *Industrial Customer Purchased Electricity:* Staff’s initial proposal continues to include a reduction in the EDU allowance allocation for industrial covered entities’ purchased

electricity. Reducing allowances for one class of electricity customers could result in diminishing the benefits of the allowance proceeds to remaining customers. To the extent that the POU's allowance value is used for programs and measures that benefit an entire customer class, those benefits would inure to covered entities for which the POU received no allowances. Furthermore, despite differing designs for distributing allowance value to customers between POU's and IOU's, there is no evidence to support a claim that the POU customers are disadvantaged or under-compensated. Indeed, such differences are an element of the different governing structures under which the various utilities operate, and are further reflected in the varied rates and services offered within any given service territory. Finally, given the different metric used to determine the number of allowances that industrial customers will receive to account for their electricity purchases and the reduction in EDU allowances for that purchased electricity, it is likely that the industrial customers will see an overall reduction in mitigation. M-S-R strongly encourages staff to revise their recommendations for industrial and EDU allocations to remove this proposal.

- *Retaining the RPS Adjustment:* M-S-R fully supports and appreciates staff's current recommendation to retain the RPS adjustment in the post-2020 program. The alternate proposal to remove this important program element and replace it with a scheme that allocated allowances under a metric that failed to account for the actual RPS-eligible deliveries that a EDU has invested in would have cost M-S-R's member agencies millions of dollars in additional compliance costs each year and depreciated the value of the RPS-eligible resources for which their ratepayers paid a premium. Retaining the RPS adjustment is far superior to such an outcome. However, work is still needed to ensure that the RPS adjustment is properly claimed, and that the entity who paid the premium for the renewable energy credit (REC) that triggers the adjustment can realize the benefit of this claim. Part of that process will involve ongoing discussions with reporters and staff. Resolution of this issue must also be addressed through further proposed changes to the Cap-and-Trade Program regulation and the Mandatory Reporting Regulation that retains REC-reporting and verification requirements. This is necessary because without alignment with the state's RPS program, the value of the RPS adjustment would be marginalized or even exploited by entities with no rights to the REC; it is the REC that creates the GHG-free nature of the electricity import. M-S-R looks forward to working with staff on further refinements to address this issue in 15-day language.
- *Transportation Electrification:* Staff has indicated its intent to continue to coordinate with stakeholders and the state's energy agencies on the potential for allocation of allowances to address the increased use of electricity in the transportation sector, but does not include any such allocation in the current proposal. It is important that this issue be discussed in a coordinated manner amongst the energy agencies and that it be addressed as part of this rulemaking, and not deferred. Transportation electrification will impact the entire electricity sector, but some EDUs' forecasts show significant changes in the near-term because of TE. Resolution of this issue should not be put off.

Accounting for Emissions in the CAISO Energy Imbalance Market

The impacts of cap-and-trade program revisions to address staff's concern that GHG emissions from the EIM are not properly captured will not be limited solely to Program participants. Whether intended or not, any such changes will alter the overall efficacy of the EIM and influence discussions on the regional ISO. There are concurrent CARB and CAISO

proceedings addressing this issue, and while staff from both entities are working together, the proposals being concerned are not identical. Not only does this duplicative process put pressure on limited resources for those following this issue, but there is no way for stakeholders to provide meaningful feedback or adequately address all aspects of this issue when the discussions are taking place in multiple forums. M-S-R urges CARB and the ISO to coordinate discussions on this issue so that a workable solution can be developed with appropriate stakeholder participation. At a minimum, CARB and ISO should be assessing the same options or what may be deemed workable by one entity could be totally infeasible for another. These coordinated discussions must also ensure that the cost of carbon is incorporated into the dispatch and not merely “allocated” to California compliance entities. Application of a “hurdle rate” is not appropriate because it is not market-based and could result in disparate treatment between in-state and out-of-state resources. To the extent that staff has determined that a proposal on this issue must be part of the current rulemaking, it is incumbent upon the agency to ensure that the proposal is workable as part of the cap-and-trade program *and* EIM, that it is developed with meaningful input from stakeholders, and that it does not undermine the price optimization that is the basis for the EIM.

AB 197 & Post-2020 Cap-and-Trade Program Design

Assembly Bill (AB) 197 requires CARB to do many things, but it does not mandate any changes to the cap-and-trade program. While CARB continues to review and assess various options for meeting the state’s emission reduction objectives, it will do so in the context of the direction provided in AB 197 and further developed through the Scoping Plan Update. However, that separate assessment should not be pre-supposed or used as the basis for cap-and-trade program design changes. During the October 21 workshop, staff set forth several program design changes being considered in response to AB 197 expectations and influenced by feedback to the September 14 Preliminary Assessment of the Cap-and-Trade program. The result of these changes would be to increase cap-and-trade program compliance costs. The most notably of these being the proposal to retire all state-owned allowances not sold in the auction by the end of 2020. Stakeholders raised a number of concerns with a previous proposal to take these allowances out of the market and move them into the allowance price containment reserve; those same issues are implicated here, only adverse impacts are compounded by the fact that this proposal would remove the allowances entirely from the market, eliminating even the option of going to the APCR for them in a constrained market. The post-2020 program implements a more aggressive emissions target that will see a significant increase in the pace at which compliance entities will need to reduce emissions; this comes at the same time that EDUs will be called upon to increase renewable energy procurement and accelerate savings from energy efficiency programs, all of which will come at a cost to electricity customers. In light of all these converging factors, and in the absence of a mandate in AB 197 to alter the design of the cap-and-trade program, staff should avoid making any changes to the post-2020 cap-and-trade program that would limit the availability of compliance instruments or increase compliance costs.

Market Data Transparency

Although not previously addressed in the context of this rulemaking, during the October 21 workshop, staff introduced additional data regarding the cap-and-trade program being considered for publication. As the basis for this discussion, staff referenced the 2014 report by the Emissions Market Advisor Committee recommendation on the release of additional data specific to entity-level holdings. M-S-R strongly cautions against the release of any additional entity-level information without a full assessment of the potential implications for compliance entities and the markets, and in the absence of a finding that the publication of such information directly benefits CARB's oversight of the market or the efficient operation of the market. Releasing any further entity-specific data compromises compliance entities' positions in the market. Even in a form that masks identities, when this information is released, there is a risk that the data can be used to make assumptions about an entities' need for additional compliance instruments at any given time which could adversely impact the ability to obtain those compliance instruments. Providing data on "entity-level holdings vs. obligations" is not germane to market monitoring or ensuring market efficiencies. Rather, it appears the value of such information would come from insights into compliance strategies. However, the release of entity specific information for purposes of assessing the merits of an entity's emissions reduction strategy is not relevant to ensuring a properly functioning market, nor is it properly deemed "market data." Program compliance is separately measures and enforced. Staff's presentation included a list of the many different data sets made publicly available, including information on entity-level compliance and annual emissions reports upon which the compliance obligation is based. This distinction should be fully recognized in the context of reviewing the efficacy of any new publication or disclosures.

The cap-and-trade program is an essential tool in California's arsenal for affecting real emission reductions and helping the state achieve its aggressive climate goals. It has proven effective in reducing overall statewide emissions and has provided valuable funds to further emissions reduction efforts across the state. However, to ensure the continued success of the program, amendments to the regulation must ensure that compliance entities' ability to comply are not hampered by unnecessary programmatic restrictions and under-recognized cost burdens. As M-S-R previously noted, the proposed amendments should allow for the continued successful administration of the cap-and-trade program, and "enhance, rather than inhibit, the ability of compliance entities such as M-R-S to reduce their GHG emissions in the most cost-effective and technologically feasible manner possible." M-S-R appreciates the opportunity to continue to engage with CARB staff on developing amendments that will do so.

Respectfully submitted,



Martin R. Hopper
General Manager
M-S-R Public Power Agency



November 4, 2016

Ms. Rajinder Sahota
Climate Change Program Planning and Management Branch
California Air Resources Board
1001 I Street
Sacramento, California 95812

Re: Gas Utility Group (GUG) Comments on the California's Air Resources Board's (ARB) Cap-and-Trade Regulation Amendments Workshop on October 21, 2016

Dear Ms. Sahota:

These comments are respectfully submitted jointly on behalf of investor owned, natural-gas distribution utilities (IOUs): Pacific Gas and Electric Company (PG&E), Southern California Gas Company (SoCalGas), San Diego Gas & Electric (SDG&E), Southwest Gas Corporation (Southwest Gas), and publicly-owned natural gas distribution utilities (POUs): serving the Cities of Long Beach and Vernon. All of the above utilities are referred to collectively as the "GUG" or "Utilities". The Utilities appreciate this opportunity to comment on the Air Resources Board's (ARB's) Cap-and-Trade Regulation Amendments Workshop (Workshop) that was held on October 21, 2016.

The GUG wants to differentiate natural gas from electricity and make the case for the separate treatment of natural gas in ARB's Cap-and-Trade Regulation Amendments. Natural gas is a primary fuel, whereas electricity is a versatile, high quality power source. Natural gas is directly delivered to customers and used predominantly to combust and produce heat. Electricity is used for a variety of purposes: lighting, electronics, controls, process equipment, refrigeration, heating and air conditioning, etc. There are numerous opportunities for decarbonizing the electricity that powers these multiple end uses, while natural gas decarbonization opportunities are quite limited at this time.

Separate treatment of natural gas in ARB's Cap-and-Trade Regulation Amendments would help bring consistency to the regulatory treatment of natural gas customers in California. While Staff's presentation at the Workshop proposed sending strong price signals to customers by raising the cost of natural gas for use in clean burning heating devices, the ARB is also working with local and regional air districts to provide monetary incentives to replace wood-burning heating devices with natural gas models. For example, the San Joaquin Valley Air Pollution Control District's 'Burn Cleaner' program has spent millions of dollars in the last decade to replace wood-burning devices due to their large contribution to fine particulate pollution. We believe it is counter-productive to the goals of reducing pollution emissions and improving air quality if customers shift to heating models that will be more expensive to operate due to natural gas price increases, especially if natural gas prices reach a level of unaffordability that prompts residents to revert to wood burning.

The natural gas sector needs more time for the development of renewable and more efficient alternatives. Therefore, the GUG makes the following recommendations to continue a gradual phase-in of compliance costs for natural gas customers.

The GUG Opposes an Accelerated Allowance Consignment Schedule

The existing Cap-and-Trade Regulation sets forth a minimum consignment of natural gas suppliers' allocation of allowances that began at 25% in 2015 and increases by 5% per year, so that full consignment will be achieved by 2030.

At the Workshop, Staff proposed the much more aggressive schedule of 100% consignment beginning in 2021. Currently, allowances that are not consigned to auction may be retired to meet a natural gas supplier's compliance obligation, which minimizes the impact of Cap-and-Trade costs on customer rates. This approach helps transition the cost of greenhouse gas reduction into natural gas rates to avoid rate shock. Moving to full consignment so precipitously would represent a dramatic departure from current regulations and would create significant cost impacts to natural gas customers.

The GUG worked closely with ARB in 2013 and 2014 to develop the current consignment percentages. ARB's proposal to accelerate the rate of consignment overlooks the documented reasoning for a more gradual transition to a full price signal and in the absence of any new information, does not justify a shift away from the gradual transition that was agreed to by the stakeholders when natural gas was originally came under the cap-and-trade program.

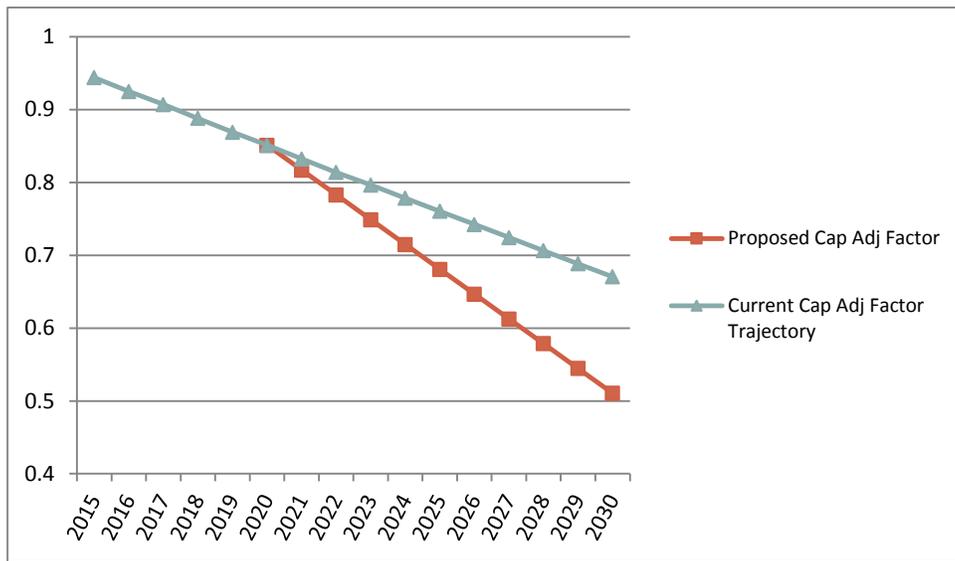
The GUG urges ARB to continue with the consignment rate that was previously agreed upon as the most effective way to continue to reduce greenhouse gas emissions while steadily increasing costs for California businesses and customers.

The GUG Supports Maintaining the Current Cap Adjustment Factor (CAF) for 2021-2030

The GUG believes that it is appropriate for ARB to apply the same cap adjustment factor for 2021-2030 that has been applied for 2015-2020. This lower CAF for natural gas customers is appropriate to maintain because they do not have the same broad suite of efficiency options as

electric customers have. Opportunities to reduce natural gas usage are considerably fewer and unlike the electric sector where there is a range of zero-greenhouse gas sources available for electric distribution utilities, natural gas suppliers currently have scant opportunity to procure renewable natural gas (RNG).

The proposed CAFs, as presented on slide 47 of the Staff presentation at the Workshop, would nearly double the annual rate of decline from current CAFs for “Standard” sectors (1.86% to 3.4%). As illustrated in the figure below, the direct allocation allowance gap widens with each year. By 2030, Standard sectors would receive only 50% under the proposed changes compared to 67% of direct allocation allowances that would occur under existing regulations.



Reductions in directly allocated allowances will increase the cost pass-through to customers while simultaneously decreasing the amount of allowances available for consignment, which are used to mitigate costs for impacted customers through the issuance of climate credits. The proposed CAFs are also estimated to generate lower climate credit value right when compliance costs are at their highest, which would only serve to undermine public support for the program.

Maintaining the current regulation avoids this mismatch in credits and costs that will result in rate impacts to utility customers. The GUG urges ARB to maintain a gradual step-down in emission caps coupled with the gradual increase (five percent per year) in consignment requirements to produce a more prudent approach to carefully introduce a price signal while ensuring consignment revenue for distribution of Climate Credits to natural gas utility ratepayers.

The GUG Opposes Changes to the Allowance Price Containment Reserve (APCR)

Staff’s proposal to move allowances that remain unsold for 24 months into the APCR is premature. There are many factors, including secondary market surplus and recently undersubscribed auctions, that could cause the temporarily soft markets, but that does not justify

a deliberate shifting of allowances into the APCR to create an artificial scarcity which will increase prices.

This condition would be exacerbated by the proposal to collapse the three reserve-price tiers into one. The remaining one tier will increase the chances of extreme price spikes and price volatility in the linked California and Quebec Cap-and-Trade carbon market.

The GUG urges ARB not to adopt the plan to move allowances that are unsold for 24 months to the APCR or the proposal to consolidate the three reserve-price tiers into one. These two changes together would be very costly for compliance entities and damaging to utility customers. Indeed, the only beneficiary of such interferences in the marketplace is the state of California which will be getting more for the allowances it sells, at the expense of California residents and businesses who will have to pay more for their natural gas and electricity needs.

The GUG Opposes Lowering the Offset Usage Limit Post-2020

ARB's proposal to lower the offset credit usage limit reduces an important cost-containment mechanism that protects California's customers and businesses, and supports AB 32 objective's to cost-effectively reduce greenhouse gases.

The GUG not only opposes lowering the offset credit usage limit but believes that ARB should strengthen the current, early-stage offset market by expanding the role of offsets in California's Cap-and-Trade Program. ARB should pursue all actions that contribute to a robust offset market, including increasing usage limits, improving and expanding offset protocols, and other actions that instill confidence in the offset market in which California participates.

The GUG members looks forward to continued dialogue with ARB as the amendment process moves forward. Thank you again for the opportunity to comment on the amendments to the Cap-and-Trade Regulations presented at ARB's Workshop.

Sincerely,

Mark Krausse

Mark Krausse
Senior Director
Pacific Gas and Electric

Tim Carmichael

Tim Carmichael
Manager, State Agency Relations
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Vernon Gas & Electric



November 4, 2016
LEG 2016-0899

Ms. Rajinder Sahota
California Air Resources Board
1001 I Street
Sacramento, CA 95814

SMUD Comments on Proposed 2016 Cap-and-Trade Amendments

Thank you for the opportunity to submit comments concerning amending the Cap and Trade regulations, in response to the October 21st workshop. SMUD supports continuing California's leadership on climate issues by continuing reductions of GHG emissions beyond the 1990 level California is poised to achieve in 2020.

A. Energy Imbalance Market Proposal

SMUD supports the comments of the California Municipal Utilities Association regarding any changes in the Cap and Trade regulations to account for GHG emissions in the Energy Imbalance Market (EIM). This is a complex issue that would benefit from more time and thought prior to inclusion in the Cap and Trade regulation. Of the current options under consideration, SMUD believes that the proposed "Incremental Deeming" option is best (Option 2 at the California Independent System Operator technical forum). The California Independent System Operator (CAISO) has indicated that this option requires computational updates that will take some time to develop, and would not be ready for 2018 when the Cap and Trade modifications being considered are scheduled to go into effect. ARB and CAISO should focus attention on the development of this option, and consideration of whether any kind of action is necessary prior to the option being implemented. SMUD believes that no "bridging" action is really necessary for the one or two years prior to implementation (e.g. 2018 and 2019). Reducing GHG emissions is a long-term goal – any potential emission impacts from EIM operation for a couple of additional years will not measurably affect this goal. If ARB requires some accounting of this problem starting in 2018, SMUD suggests that Option 1 at the CAISO technical forum could serve as the basis for a bridging strategy.

B. Implementation of Assembly Bill 197

At the October 21st workshop, ARB staff discussed potential 15-day language regarding implementation of AB 197, which required some prioritization of "direct emission reductions" at covered sources as well as transportation sources. SMUD agrees that AB 197 does not preclude a Cap and Trade program, and believes that an extended Cap and Trade program will continue to lead to direct reductions at covered sources.

In particular, in the electric sector, complementary measures already in progress, such as increased attention to energy efficiency and the 50% Renewable Portfolio Standard, will clearly result in significant reductions in emissions from in-state electric power plants. The physics of the grid make it impossible to continue generation at present levels from fossil sources while pushing more renewable electrons at diminished electricity demand.

Offset Considerations: One suggestion discussed at the October 21st workshop was to reduce the offset limit. SMUD is opposed to such reduction. SMUD believes that the ability to use up to 8% offsets of compliance obligation will be an increasingly important cost-containment measure in the post-2020 period, when the sharply declining cap forces significant emission reductions at covered sources.

Rather than reducing the offset limit, SMUD suggests that ARB prioritize identifying and supporting offset projects that have significant environmental benefits, particularly where those benefits accrue to disadvantaged communities.

Treatment of Unsold Allowances: Another suggestion at the October 21st workshop was to consider retirement of “some or all” of the currently unsold State-owned allowances. Once again, SMUD is concerned that removing this commodity from the market could result in significant cost increases in the post-2020 period that will impact Californians and place AB 32-related costs into uncharted and politically unpopular territory.

At the very least, unsold allowances that remain off-market for some time should be placed in the APCR or allocated to the Voluntary Renewable Energy program post-2020, allowing continued market options to access those allowances. SMUD prefers that these unsold allowances should eventually be made available to the market at lower than APCR prices, when demand begins to challenge the supply of compliance instruments. SMUD suggests that the ARB simply change the vintages of allowances that remain unsold for a sufficient period of time, spreading them out over the later post-2020 years to hedge against the threat of high market prices. Cumulatively, the cap is still preserved and the total amount of GHG emissions to the atmosphere over time remains unchanged, as the problem with greenhouse gases is a cumulative, not an annual problem. This would simply be another modulating structure in the Cap and Trade program to reflect the “lumpiness” of emission reductions, which often depend on significant capital investments.

C. Allowance Allocation to Electric Distribution Utilities

SMUD appreciates the continued administrative allocation of allowances to electric distribution utilities (EDUs) on behalf of their ratepayers, as described in the October 21st workshop. SMUD generally supports the basic allocation structure included in

Option 1 and Option 2, with some exceptions. Of the two, SMUD believes that Option 1, with recognition of projected load changes over time, is most consistent with the underlying principle of allocating allowances based on “cost-burden”. As explained below, SMUD believes that the ARB should go further to align with this principle, by updating allocations on an annual basis for load changes. This change would automatically include the shift of emissions caused by transportation and other electrification load growth as required by SB 350, while removing the necessity of developing a specific additional methodology to cover electrification. In addition, SMUD contends that:

- the basic EDU allocation starting point in 2021 should not be such an abrupt transition from 2020. One way to reduce this transition “cliff” would be to include some recognition of the investments made by EDUs and their customers in energy efficiency and distributed generation resources.
- the declining cap factor in the basic allocation methodology post-2020 is understandable, but including both the cap factor *and* moving to a 50% RPS in determining allocations for the electric sector results in a dramatic drop of allowances over time that is not consistent with cost-burden.
- removing allowances from the basic EDU allocation to reflect the carbon costs embedded in electricity used by covered industrial entities is unnecessary, problematic for POU's, and likely harmful to the industrial customers that are affected by the ARB proposal.

Extension of Option 1 “Cost Burden” Principle to Include Electrification Load

Growth: SMUD appreciates the ARB staff continued consideration of adding allowances to EDU allocations to cover additional load and emissions from electrification. Broad substitution of electricity for combustion of fossil fuels is an essential measure for achievement of Governor Brown’s goal of a 50% reduction in petroleum use in vehicles by 2030. It is well established that electrification will reduce GHG emissions because it would result in a greater decrease in emissions from the sectors or end-uses being electrified than the increase in emission from additional electrical load. Nevertheless, utilities might hesitate to spend heavily on electrification if their increase in emissions is not covered by allowances in the Cap-and-Trade program.

However, a proposal that requires metering of the additional load from electrification of transportation, or some equivalent demonstration of this load, is a barrier to rapid uptake of this technology. Most electric vehicles are currently charged at home, using a dedicated circuit or a simple normal outlet, neither of which is typically metered separately from the house as a whole. Requiring a separate meter for demonstration of the additional load would be an unnecessary expense. Electrification of other end-uses, such as water heating, space heating, etc. is considered necessary by many academic studies to achieve the State’s long-term GHG goals. Once again, while likely less significant in magnitude than transportation electrification, it is not cost-effective to separately meter this load increase for purposes of demonstration of the load to receive allowances.

In both cases, for transportation and for other end-use electrification, SMUD suggests that the ARB move beyond the newly proposed Option 1 to include annual updating of sales within the “cost-burden” approach. SMUD’s proposed allocation structure calculates the “cost-burden” as in the current structure and ARB staff’s proposed structure for post-2020, by determining the proportion of sales for each EDU that is served by emitting resources (e.g. – generic natural gas), and providing allowances to cover that burden, ***while annually reflecting the changes in cost-burden that come from changes in EDU sales.***

SMUD’s proposal has many advantages over the current concepts:

- It automatically reflects the cost-burden of increased electrification – in transportation as well as other sectors;
- It continues to properly account for the effect of legacy hydro or nuclear resources, as in the current cost-burden structures;
- It is consistent with, even based-on, ARB staff’s proposal, but better reflects cost-burden;
- It continues to incentivize emission reductions because allocation is ***not*** based on actual emissions;
- It provides a relatively certain allocation of allowances for EDUs, as variations in annual sales from year to year are predictable and usually not dramatic;
- It reflects other sales-related changes in cost-burden, such as for EDUs that see differential sales growth.

In step form, SMUD’s proposed allocation structure is as follows:

- **Step 1:** ARB Establishes a 2021 EDU allocation as follows:
 - Use each EDUs average hydro generation and projection of zero-emitting nuclear generation in 2020 (**same as ARB staff Options 1 and 2**)
 - Identify remaining sales supported by emitting resources, and the carbon “cost-burden” of that generation, using 2020 sales projections for each EDU and accounting for both natural gas and coal resources (**same as ARB staff Options 1 and 2**).
 - Provide initial allocation based on identified “cost-burden” (**same as ARB staff proposal**).
 - Adjust 2021 allocations upward to reflect the amount of projected energy efficiency and distributed generation contributing to reduced 2020 sales projections (**removing a implicit penalty and disincentive to continue to invest in EE or DG**).
 - No revision in allocations for covered industrial entities (**Differs from ARB staff Options 1 and 2**).

- **Step 2:** Establish 2022 and beyond allocations as follows:
 - Continue to use average hydro, nuclear generation, and 33% renewables beyond 2021 (**change from ARB staff Options that include increase to 50% RPS**);
 - Starting in 2022, identify remaining sales supported by emitting resources, and the carbon “cost-burden” of that generation, using the latest year of historic sales available for each EDU, and accounting for both natural gas and coal resources (**keeps closer to “cost-burden” than the ARB staff proposed method over time; automatically reflects changes to coal contracts**);
 - Adjust allocations upward to reflect each EDUs adopted annual target for EE and last-year installation of DG resources, in order to continue incentives for procuring these resources.
 - No revision in allocations for covered industrial entities (JUG position).

SMUD recognizes that this concept needs further discussion, and might include variations in one way or another. For example, reflections of the actual length of coal contracts could be included, to avoid penalizing terminating these contracts early. And, recognition of voluntary replacement of zero-emission resources that are retired with other zero-emission resources could be recognized, to avoid disincentivizing these kinds of decisions. In the end, SMUD believes that the structure has promise for widespread acceptance and is a simple, feasible method to account for the increased EDU cost-burden from electrification.

Abrupt Transition from 2020 to Proposed 2021 Allocations: The proposed allocation to EDUs in 2021, in either Option 1 or 2, is approximately 70% below the utility sector allocation in 2020. Since both the 2020 and 2021 allocations were based on “cost-burden” generally, and ARB staff has suggested that the 2013-2020 methodology and the proposed post-2020 options are “similar”, it is difficult to understand why there is such a significant fall in allocations. This abrupt transition in 2021 is likely to cause some disruption in how EDUs participate in the Cap and Trade marketplace. The ARB should carefully examine the proposed post-2020 starting points and to understand exactly why they appear to lead to entirely different results in comparison to the last year of the previous period. The ARB should also consider a “phasing” of allocation in the initial post-2020 years in order smooth this abrupt transition.

One clear reason that 2021 allocations are significantly lower than in 2020 is that ARB is including a “true-up” of cost burden by starting with projections of that burden using the 2015 S2 forms, rather than the 2009 S2 forms that formed the basis for the 2013-2020 cost-burden allocation. It is true that statewide retail sales are now forecast in 2020 to be significantly less than the retail sales forecasts underlying the 2013-2020

allocations. Two of the main reasons for these lower forecasts are the significant investments in energy efficiency programs and distributed generation resources made by the EDUs and their customers. But cutting the allocation of 2021 allowances to reflect the reduced load that these investments caused is counterproductive. It represents an effective “penalty” for engaging in these state supported investments and a disincentive for continuing these investments. One of the reasons utilities invest in measures that will lower sales is to lower their carbon obligations, and cutting allowance allocations in response undermines this incentive. SMUD suggests that ARB include in the allocation methodology an added component that reflects investments in energy efficiency and distributed generation, to help preserve the incentive for investment in these technologies.

Note that this is different than the “early investment” structure that was included in the 2013-2020 allocation methodology. That component shifted allowances between utilities, based on differential investments in energy efficiency and renewables, but did not change the overall allocation for the electric sector. ARB’s current proposal penalizes the entire electric industry for making these investments in good faith.

Declining EDU Allocations By Both Cap Factor and 50% RPS: One change ARB staff made between the earlier proposed EDU allocation methodology and the current Option 1/Option 2 proposals is the inclusion of allowance allocation reductions over time for both the cap factor reductions *and* the RPS increase from 33% in 2020 to 50% in 2030. The previously proposed methodology only included the reductions due to the cap factor. SMUD contends that this double reduction proposal has two main defects. First, it again penalizes EDUs for making the required investments in renewables, by reducing allocated allowances *in addition to* the cap reductions. Second, the increase in RPS requirements is, as ARB has recognized, to some extent divorced from the concept of “cost burden”. The RPS allows up to 10% of the requirement in the post-2020 period to be met with unbundled RECs, which do not reduce an EDU’s cost-burden under Cap and Trade. Another 15% of the RPS obligation can be met with firmed and shaped Product Content Category 2 (PCC2) generation, which may or may not reduce an EDU’s cost-burden depending on the applicability of the RPS Adjustment. Finally, many EDU’s have “grandfathered” firmed and shaped contracts which will also not reduce their compliance obligation depending on the applicability of the RPS Adjustment.

Again, this is a difference from the 2013-2020 allocation for EDUs. While this methodology did include the increase from 20% to 33% RPS, that component was only used to adjust allowances among EDUs in the methodology, not to reduce allocation to the electric sector as a whole. The overall electric sector allocation was determined solely based on an initial starting point and a cap-factor decline, and this amount was then dispersed to EDUs based on differential renewable investments over time and other cost-burden factors.

Industrial Allowance Allocation Related to On-Site Electricity Use: SMUD continues to oppose the proposal to reduce EDU allocations in relation to the amount of

electricity supplied to industrial covered entities being served by each EDU. The intent of providing administrative allowances to EDUs was for ratepayer protection, to cover the obligations the EDUs pass on to their customers (in addition to the costs of complementary programs). EDU ratepayers include industrial covered entities, which deserve the same ratepayer protection as other customers. There is no reason to shift the allowances for this purpose from the EDUs to their industrial customers.

With regard to IOUs, the process at the CPUC for determining how to return allowance revenue to industrial customers has been complicated to develop. However, that work has now been completed and industrial covered entities will now receive bill credits or rebates from allowance sales, just like residential customers. Accordingly, there is no need to develop a new way to compensate these customers through a dramatic shift to an entirely new structure for treatment of EDU and industrial sector allocations. Such a change is not necessary or prudent. It could cause delays in getting compliance costs related to electricity prices returned to covered industrial entities, particularly for industrial covered entities in POU service areas.

POUs already return compliance costs to these industrial customers through lower electricity rates, and changing policy now would require POUs to change rates for industrial covered customers. Thus, implementing a new structure for POUs (and IOUs) as proposed will lead to new processes and could cause market uncertainty among industrial entities about how their costs may be “covered” or reflected going forward.

The staff proposal does not provide industrial customers with the same protection from Cap-and-Trade costs because a direct award of allowances won't necessarily cover all of their costs, due to differences in how ARB allocates allowances to industrial entities and EDUs. Thus, the goal of keeping these businesses in California may not be met by this regulatory change. Consequently, the current design should be maintained for the following reasons:

- Fairness and simplicity. All industrial customers have costs covered with the same structure, as opposed to one structure for covered entities and another for non-covered entities;
- The staff proposal would not cover actual carbon costs imbedded in electricity rates and returned to all customers (for POUs) as changes in the electricity mix change those costs over time.
- The current system reflects the cost differences between service areas in the state, the staff proposal does not – hence, the staff proposal may lead to unintended movement of industrial customers among utilities with no benefit to the atmosphere.
- Under the proposed rule, industrial customers have no obligation to use those surplus revenues for AB 32 purposes, thus depriving the State of an important source of funding for carbon reduction.

In summary, SMUD opposes removing allowances from the EDUs and providing a related amount of allowances to covered industrial entities. The proposal is complicated and unnecessary.

D. Continuing The RPS Adjustment

SMUD appreciates ARB staff indicating in the October 21st workshop that they intend to continue the RPS Adjustment post-2020. The RPS Adjustment allows the Cap-and-Trade structure to recognize the zero-emission nature of the renewable procurement when it occurs in an uncapped jurisdiction. SMUD looks forward to working with ARB staff to better understand and refine the operation of, verification of, and guidance about the RPS Adjustment on an ongoing basis.

/s/

WILLIAM W. WESTERFIELD, III
Senior Attorney
Sacramento Municipal Utility District
P.O. Box 15830, MS A311
Sacramento, CA 95852-0830

/s/

TIMOTHY TUTT
Government Affairs Representative
Sacramento Municipal Utility District
P.O. Box 15830, MS A313
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cc: Corporate Files



November 4, 2016

California Air Resources Board
1001 I Street
Sacramento, CA 95814
Via web submission

Re: The use of carbon offsets under Cap-and-Trade

Thank you for the opportunity to provide these comments regarding the October 21, 2016 workshop on the Cap-and-Trade Regulation Amendments.

Origin Climate is a California-based company whose mission is to combat climate change by bringing emission reduction projects to fruition. Over the past decade, we have worked with dozens of projects in sustainable agriculture to produce high-quality carbon offsets.

We believe that **ARB should not further restrict the use of offsets** under the Cap-and-Trade Program for the following reasons:

1. ***Offset projects result in compelling environmental benefits*** in rural and disadvantaged communities in California and across the United States. These benefits include GHG emission reductions but also impacts such as water conservation or improved water quality.
2. ***GHG emissions are different than other air pollutants*** and require separate regulatory tools for management. To the extent that local air pollutants continue to be problematic in certain areas, the appropriate response is to strengthen the programs that address those pollutants instead of driving up the cost of California's effort to reduce GHGs.
3. ***Economic justice will be diminished*** as the price of gasoline and electricity will rise further without the use of GHG cost control mechanisms like offsets. This would disproportionately impact lower-income households.
4. ***Other methods are available*** to prioritize direct emission reductions in the most disadvantaged communities.

Should ARB decide to place any additional restriction on the use of offsets by emitters in the most disadvantaged communities, we believe that this should be balanced by an increase in the allowable use of offsets by emitters in other areas to ensure that the benefits cited above are maintained.

Thank you again for your ongoing work on the critical issue of addressing climate change, and for the opportunity to comment here.

Sincerely,

A handwritten signature in black ink, appearing to read 'Nick Facciola'.

Nick Facciola, Director of Carbon Projects



CALPINE CORPORATION

Electronically filed at:

https://arb.ca.gov/lispub/comm2/bcsubform.php?listname=ct-amendments-ws&comm_period=1

November 4, 2016

Clerk of the Board
California Air Resources Board
1001 I Street
Sacramento, CA 94812

Subject: Comments on October 21, 2016 Cap-and-Trade Program
 Workshop

Dear Chair Nichols and Members of the Board:

Calpine Corporation (“Calpine”) is writing to provide comments following the Cap-and-Trade Program Workshop (the “Workshop”) held on October 21, 2016 by the California Air Resources Board (“ARB”). Calpine previously submitted comments on September 19, 2016 with regard to ARB’s proposal to modify the Cap-and-Trade Program, which Calpine incorporates here by reference.¹

I. INTRODUCTION

Founded in San Jose, California, Calpine Corporation is America’s largest generator of electricity from natural gas and geothermal resources. Our fleet of 84 power plants in operation or under construction represents more than 27,000 megawatts of generation capacity and has the lowest emission rates of both criteria pollutants and carbon dioxide among the fossil fleet of the 10 largest U.S. electricity generators.² Since our inception 32 years ago, Calpine has been committed to sustainability and has developed an extensive record of actively supporting state and federal initiatives to reduce air pollution and carbon emissions. This includes Calpine’s long-time support for the Cap-and-Trade Program as a means of achieving Assembly Bill (“AB”) 32’s greenhouse gas emissions reduction mandate.

In the comments below, Calpine reiterates its support for ARB’s proposed continuation of the Cap-and-Trade Program and offer our view as to why its extension is consistent with and responsive to California’s recent adoption of AB 197 and Senate Bill (“SB”) 32. Indeed, in step

¹ See Comments of Calpine Corporation on Proposed Amendments to Cap-and-Trade Regulation (Sept. 19, 2016), <https://www.arb.ca.gov/lists/com-attach/48-capandtrade16-UTJcOwBtU3ADbAhm.pdf>.

² M.J. Bradley & Associates, Benchmarking Air Emissions of the 100 Largest Electric Power Producers in the United States, at 26 (2016), <http://www.mjbradley.com/sites/default/files/Benchmarking-Air-Emissions-2016.pdf>.

with ARB's existing mandate as confirmed by these bills, extension of the Cap-and-Trade Program would satisfy statutory directives, while resulting in direct emission reductions from sources in its own right. Calpine also offers technical comments on issues discussed during the workshop.

II. CALPINE'S COMMENTS

A. AB 197 Does Not Stand as an Obstacle to ARB's Proposed Post-2020 Extension of the Cap-and-Trade Program

AB 197 provides that, when adopting rules and regulations to achieve emission reductions beyond the statewide greenhouse gas emissions limit, ARB must follow the requirements in Section 38562(b) of the Health and Safety Code, consider the social costs of the emissions of greenhouse gases, and prioritize emission reduction rules and regulations that result in direct emission reductions from sources. Section 38562(b) requires ARB to consider several factors in adopting regulations, including cost-effectiveness and a mandate to minimize leakage. By commanding ARB to follow the requirements of Section 38562(b), AB 197 explicitly reaffirms, rather than relegates, these other considerations to those added by AB 197.

As one of a comprehensive suite of measures designed to reduce emissions of greenhouse gases under AB 32, the Cap-and-Trade Program remains consistent with ARB's statutory directives as modified by AB 197. Working in tandem with complementary measures, the Cap-and-Trade Program provides certainty that emissions from sources will be reduced by the amounts needed to achieve the state's targets. In this manner, the collective suite of measures implemented under AB 32 already responds to AB 197's prioritization directive. Legislative analysis which accompanied AB 197 explained as much, noting that the bill "is essentially consistent with the current program and structure of AB 32", which in practice has already resulted in the prioritization of regulations resulting in direct emission reductions.³

While AB 32, as amended by SB 32 and AB 197, contains no mandate that every measure implemented to meet the state's goal must result in direct emission reductions, the Cap-and-Trade Program does, in fact, result in direct emission reductions from sources and will continue to do so in the future. As a declining cap system, under which the vast majority of each covered entity's compliance obligation must be met with allowances and only a small percentage of such obligations may be met with offset credits, the Cap-and-Trade Program will necessarily reduce emissions from the categories of sources identified by AB 197, which include large stationary sources, mobile sources and other sources. As the cap continues to decline and, provided the quantitative usage limit remains fixed, direct emission reductions from such sources are mathematically certain to occur. So, even if AB 197 mandated that ARB only adopt regulations that result in direct emission reductions from sources (which the bill does not), the Cap-and-Trade Program, both as it is currently designed and as proposed for extension beyond 2020, would satisfy that criterion.

Aside from the directives added by AB 197, the Cap-and-Trade Program is acutely responsive to other important statutory directives. As the lowest-cost and most flexible approach to reducing

³ Assem. Com. on Natural Resources, Rep. on Assem. Bill 197 (2015-2016 Reg. Sess.), at 5 (Aug. 23, 2016).

emissions, the Cap-and-Trade Program harnesses market forces to identify the most cost-effective reductions and drives those reductions with efficiencies that a direct control regime could not achieve. Through the allocation of allowances to energy intensive/trade exposed industries and application of the compliance obligation to imported electricity, the Cap-and-Trade Program is uniquely equipped to minimize emissions leakage and reduce costs to consumers in ways that direct controls imposed on individual sources cannot. Additionally, by putting an express price on carbon emissions, the Cap-and-Trade Program causes emitters to account for and internalize the costs their emissions have on the environment and thereby fulfills AB 197's directive that ARB consider the social costs of emissions. In all these respects, the Cap-and-Trade Program is wholly consonant with the statutory directives enumerated by Section 38562(b) and affirmed by AB 197.

Finally, it bears repeating what was made abundantly clear as AB 197 was passed into law: the bill was never intended to limit ARB's authority to continue implementing the Cap-and-Trade Program going forward. *See* Assembly Daily Journal, 2015-2016 Regular Session (Aug. 31, 2016) (“[N]othing in Section 38562.5 shall be interpreted to preclude ARB from adopting any market-based compliance mechanism pursuant to AB 32.”); Statement of Assem. E. Garcia before Assem. Com. on Natural Resources (Aug. 24, 2016) (“The leadership of the Senate, who moved this bill out this week, is in support of the Cap-and-Trade Program. The leadership of the Assembly is in support of the Cap-and-Trade Program. The Governor of the State is in support of the Cap-and-Trade Program, and has asked that 197 be sent to his desk as a package with SB 32. So I want to state that the intention is by no means is to tamper with the Cap-and-Trade Program.”).

Based on the foregoing, the Cap-and-Trade Program need not be modified in any material fashion in response to AB 197. All that is needed to ensure direct emission reductions going forward within the Cap-and-Trade Program is the continued decline of the cap, a feature inherent to the Program and the effect of which on source emissions will become significantly more pronounced going forward. Claims to the contrary obscure or fail to appropriately recognize these indisputable features of the Program and the state's ambitious 2030 target, as established by SB 32.

B. Release of Anonymous Entity Positions is Not Needed and May Jeopardize Proprietary Information

Calpine believes that it is unnecessary at this time to expand the availability of entity-specific data regarding long and short positions, as was suggested by the Emissions Market Advisory Committee (“EMAC”).⁴ While Calpine understands the theoretical potential for market manipulation (i.e., acquisition of a dominant position), there appears to be a low likelihood that such manipulation can occur at a significant level under the Cap-and-Trade Program due to existing safeguards, including the regulation's holding limits. Moreover, while Calpine appreciates the proposal to mask entity identities, in practice it could take relatively little effort to deduce which entity (among an identifiable few) corresponds to which entry on an anonymous

⁴ *See* Borenstein, S., J. Bushnell and F. A. Wolak, “Information Release on Allowance Holdings in the Greenhouse Gas Emissions Cap-and-Trade Market,” 2-4, *available at*: https://www.arb.ca.gov/cc/capandtrade/emissionsmarketassessment/information_release_2014feb_rev.pdf.

bar graph showing net short positions. Disclosure of the information suggested by EMAC may therefore serve only to the detriment of entities with substantial need for compliance instruments. Calpine therefore discourages ARB from making any amendments of the sort suggested by EMAC. If ARB is determined to proceed with making such information available, Calpine suggests ARB consider and further evaluate a category-based approach comprising only long positions and only where such positions are substantially longer than an entity's projected emissions during both the current and next compliance period.⁵

C. Treatment of Greenhouse Gas Emissions in the Energy Imbalance Market

Calpine offers the following comments regarding proposed approaches to resolving inaccurate greenhouse gas accounting resulting from secondary dispatch, much of which was provided in expanded form to the California Independent System Operator ("CAISO") after its October 13, 2016 technical workshop.⁶

As a practical matter, Calpine observes that the type of leakage reflected in secondary dispatch is endemic to a regulatory regime in which California regulates carbon emissions, including emissions associated with imported energy, while surrounding states do not. Such a regime provides incentives to ascribe comparatively clean external resources to California loads, thereby resulting in shuffling rather than legitimate emission reductions. To the extent that CAISO tries to limit secondary dispatch within the Energy Imbalance Market ("EIM"), the incentive and ability to ascribe comparatively clean external resources to California loads would not go away; attribution could instead move outside EIM entirely through bilateral trading. With regard to a hurdle rate approach in particular, Calpine is concerned that, applied only to EIM, it would simply discourage the use of EIM and encourage bilateral contracting and self-scheduling, potentially undermining the benefits of a regional market. Absent a comprehensive approach (e.g., a hurdle rate applied uniformly across markets), it is not clear that any of the options considered will have a measurable impact.

As a legal matter, Calpine notes that the directives for ARB to account for emissions from all electricity consumed in the state and to minimize emissions leakage do not necessarily require that ARB wholly eliminate leakage. (Indeed, the directive to minimize leakage presumes that some amount of leakage is tolerable, but that ARB will adopt rules and regulations that reduce it to the extent feasible, consistent with the other directives provided by AB 32, including achievement of the maximum technologically feasible and cost-effective reductions.) Nor do these directives mandate that ARB impose an allowance surrender obligation on market participants to address the consequences of secondary dispatch. While Calpine appreciates ARB's interest in assuring complete, accurate and transparent accounting of the emissions associated with California load, Calpine cautions ARB against deciding on an approach that chills participation in the EIM or has the potential to disadvantage in-state generating assets.

⁵ Compare EMAC's proposed definition of long position to include emissions during the current compliance period, *id.* at 4.

⁶ Comments of Calpine Corporation on October 13, 2016 Regional Integration – California Greenhouse Gas Compliance Initiative Technical Workshop (Oct. 27, 2016), <http://www.caiso.com/Documents/CalpineComments-RegionalIntegrationCaliforniaGreenhouseGasCompliance-TechnicalWorkshop.pdf>.

California Air Resources Control Board

November 4, 2016

Page 5

Calpine encourages ARB to continue working with the CAISO and stakeholders to develop an appropriate solution in 15-day amendments.

Calpine is optimistic that uniform carbon pricing throughout WECC will obviate the need to address this problem and we therefore encourage ARB to continue exploring how California's post-2020 program may ultimately be linked with other carbon pricing regimes implemented pursuant to the Clean Power Plan.

* * * *

Thank you for the opportunity to submit these comments. Please contact us if you have any questions at 916-491-3366 or 925-577-2238.

Sincerely,



Kassandra Gough
Director, External Affairs
Calpine Corporation



Barbara McBride
Director—Environmental Services
Calpine Corporation

cc: Hon. Mary Nichols, Chair
Richard Corey, Executive Officer
Edie Chang, Deputy Executive Officer
Michael Gibbs, Assistant Executive Officer
Rajinder Sahota, Branch Chief, Cap-and-Trade Program
Jason Gray, Manager, Cap-and-Trade Market and Monitoring
Craig Segall, Staff Counsel



November 4, 2016

Rajinder Sahota, Branch Chief, Cap-and-Trade Program
California Air Resources Board (ARB)
1001 I Street
Sacramento, CA 95814

RE: Cap-and-Trade Regulation Amendments Workshop

Dear Ms. Sahota:

The American Carbon Registry (ACR), an ARB-approved Offset Project Registry (OPR) for the California cap-and-trade program, welcomes the opportunity to offer input on ARB's amendments to the cap-and-trade regulation, specifically with regard to consideration of the provisions of AB 197. Our comments herein focus on Section 5 of AB 197:

When adopting rules and regulations pursuant to this division to achieve emissions reductions beyond the statewide greenhouse gas emissions limit and to protect the state's most impacted and disadvantaged communities, the state board shall follow the requirements in subdivision (b) of Section 38562, consider the social costs of the emissions of greenhouse gases, and prioritize both of the following:

- (a) Emission reduction rules and regulations that result in direct emission reductions at large stationary sources of greenhouse gas emissions sources and direct emission reductions from mobile sources.*
- (b) Emission reduction rules and regulations that result in direct emission reductions from sources other than those specified in subdivision (a).*

We appreciate that ARB has laid out three options for achieving compliance with this provision, which can be summarized as reducing the offset usage limit, adjusting industrial allowance allocation, and retiring unsold pre-2021 allowances. Of these approaches, lowering the offsets usage limit, already only eight percent, would be the weakest and would even be counterproductive in achieving compliance with the above provision of AB 197.

A higher carbon price can ultimately be expected to result in lower greenhouse gas emissions at source, such as through efficiency enhancements and fuel switching. Among the three options presented, however, reducing offsets usage would be least effective at increasing the carbon price in the near term. This is because the allowance supply does not decline dramatically in the early years of the program. The

recent report, *A Preliminary Environmental Equity Assessment of California's Cap-And-Trade Program*¹, is being cited to justify further constraining offsets usage. It is critical to note that this study was limited to the first two years of the cap-and-trade program, the least aggressive compliance period. The mild cap decline, combined with successful complementary measures under the Scoping Plan, led to ample supply of allowances. During this particular span, allowance prices likely would not have been dramatically higher had there been no offsets supply. Compliance entities would have simply purchased and surrendered more allowances. Greenhouse gas emissions at source would have been no different.

It is important that ARB adhere to the letter of the law and established norms when determining the types of emissions covered by AB 197. The above provision of AB 197 explicitly requires ARB consider the “social costs of the emissions of greenhouse gases.” A common understanding of this social cost, and one increasingly recognized by state regulators and the courts, is U.S. EPA’s “social cost of carbon.” In estimating this cost, U.S. EPA incorporated only climate impacts. Criteria pollutant impacts were not included. Toxic pollutant impacts were not included. For ARB to interpret this social cost as anything beyond climate impact would be inconsistent with prevailing understanding of U.S. EPA. To “protect the state’s most impacted and disadvantaged communities,” as AB 197 mandates, is to mitigate these communities’ exposure to climate risk. Extreme weather events, heat, and drought imperil the lives and livelihoods of society’s most disadvantaged most acutely.

Reducing offsets usage would run counter to AB 197’s express focus on “social costs of the emissions of greenhouse gases.” As per AB 32 and the existing cap-and-trade regulation, all offsets represent “real” emissions reductions. In contrast, each allowance is a permit to release another tonne of CO₂ into our atmosphere. Offsets reduce the climate risks to which California’s disadvantaged communities are most vulnerable. Offsets advance AB 197’s goal of protecting these peoples.

Beyond the requirements of AB 197, offsets provide environmental and economic co-benefits, which can and do improve life in disadvantaged communities. Central Valley residents inhale fewer noxious odors when dairy digesters capture methane from manure. Native American tribes receive compensation for their conservation stewardship when they manage forests to sequester more carbon. Appliance disassembly to recover planet warming gases provides much needed jobs in economically depressed areas.

Aside from the measures ARB is currently considering to comply with AB 197, ACR encourages the development of additional options. One that ARB may wish to consider to prioritize “direct” emissions reductions could entail technical assistance. A program that identifies and facilitates implementation of emerging technologies could accelerate gains in production efficiency and cleaner energy.

Lastly, we would like to highlight that the aforementioned provision of AB 197 applies only when ARB adopts “rules and regulations pursuant to this division to achieve emissions reductions **beyond** the statewide greenhouse gas emissions limit” (emphasis added). That is arguably impracticable. Regulations are not intended to push California beyond compliance. When they do, it is incidental, and it would be difficult at best to parse regulations incentivizing entities to go over and above compliance from those that don’t.

¹ Cushing, et al, Sept. 2016.

We appreciate the opportunity to provide these comments, and we look forward to continued engagement as the process moves forward. If you would like to further discuss our thoughts, please feel free to get in touch.

Respectfully,

A handwritten signature in black ink that reads "Arjun Patney". The signature is fluid and cursive, with the first name "Arjun" being more prominent than the last name "Patney".

Arjun Patney
Policy Director, American Carbon Registry
an enterprise of Winrock International
arjun.patney@winrock.org



Mark C. Krause
Senior Director
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November 4, 2016

Ms. Rajinder Sahota
Assistant Chief, Industrial Strategies Division
California Air Resources Board
1001 I Street
Sacramento, California 95812

Re: Pacific Gas and Electric Company's Comments on the Air Resources Board's Proposed Modifications to the 2016 Cap-and-Trade Amendments

Dear Ms. Sahota:

Pacific Gas and Electric Company (PG&E) appreciates this opportunity to comment on the Air Resources Board's (ARB's) proposed modifications to the 2016 regulatory amendments to the California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms (Cap-and-Trade or Program) Regulation as presented at the workshop held October 21, 2016.

INTRODUCTION

PG&E continues to support Cap-and-Trade as a key climate program that will allow California to achieve its ambitious environmental goals while maintaining a vibrant economy. PG&E offers the following comments on staff's proposed changes from the October 21, 2016 workshop:

- I. Cap-and-Trade is well-designed and is working for Californians and the environment.**
 - A. The Cap-and-Trade Program is fundamentally well-designed, and capped greenhouse gas (GHG) emissions are declining and will be reduced at stationary sources.
 - B. While it is critical that California remain vigilant as to any potential negative health impacts that could result from regulating GHGs, California's existing stringent air toxics regulations remain the most effective way to protect community health.
 - C. Offsets help reduce GHG emissions and keep GHG compliance costs affordable for customers.

- D. ARB should maintain program design features that support a program that is sustainable in the long-term.
- II. **Electric distribution utility allocation should provide equitable protections and reasonable carbon cost transition for California customers.**
- A. Maintaining a reasonable allocation to electric distribution utilities (EDUs) is a critical component of a broader strategy to ensure equitable carbon cost impacts for California households.
 - B. The allowance allocation proposal should be modified as follows: 1) to recognize low carbon-intensive utilities with a broader definition of cost exposure; 2) to include a cap adjustment factor or an Renewables Procurement Standard (RPS) ramp up, but not both; 3) to accurately represent RPS in context of sales, not load, consistent with the RPS Program; 4) to remove consideration of additional achievable energy efficiency (AAEE); 5) to adjust for the potential retirement of Diablo Canyon Power Plant.
- III. **Gas allowance allocation should maintain planned consignment and cap adjustment factors.**
- A. The natural gas sector is fundamentally different from the electric sector, and therefore should be treated differently.
 - B. The current transition to full carbon cost of natural gas over a fifteen year period strikes the right balance.
- IV. **PG&E Supports Reasonable Measures in Support of Market Transparency:** So long as data is appropriately anonymized, PG&E supports the timely release of market data to support market transparency. However, PG&E notes that other, more effective means of preventing market manipulation should be prioritized including establishing a lower Allowance Price Containment Reserve (APCR) price as a disincentive to withholding.
- V. **Solutions for Secondary Emissions Accounting Should Not Jeopardize the Benefits of the Energy Imbalance Market:** An appropriate solution to account for secondary emissions in the California Independent System Operator (CAISO) Energy Imbalance Market (EIM) should not jeopardize the benefits of the EIM. More study may be necessary for the problem to be fully defined and to find a solution that balances accurate accounting with potential negative effects on the EIM and California customers.

I. PROGRAM DESIGN: CAP-AND-TRADE IS WELL-DESIGNED AND WORKING FOR CALIFORNIANS AND THE ENVIRONMENT

A. The Cap-and-Trade Program is Fundamentally Well-Designed and California is on Track to Meet the 2020 Target

The Cap-and-Trade program benefits Californians and the environment by ensuring reductions in greenhouse gas emissions over time while providing covered entities with flexible compliance options, helping maintain a vibrant economy. After years of public discussion and regulatory adjustments, the Program is generally well-designed and is achieving its lawfully mandated goal of greenhouse gas emissions reductions.

ARB has documented that the total GHG emissions from covered sources for the Program's first two-year compliance period were significantly lower than the ARB-determined GHG emissions cap,¹ and California is on track to meet the 2020 target of reducing GHG emissions to 1990 levels.² ARB has proposed new annual emissions caps for post-2020 in line with Senate Bill (SB) 32's mandate that California achieve a reduction of 40 percent below 1990 emissions by 2030, which require further, significant reductions in covered GHG emissions including direct GHG reductions at stationary sources like power plants and refineries. Cap-and-Trade is on the right track.

Some stakeholders have expressed concern that GHG emissions in certain sectors have seen a net increase since the start of the program. However, the fact that California is still on track to meet its 2020 goals despite these short-term upticks in emissions shows that Cap-and-Trade is performing as planned rather than signaling that the Program is flawed. While the longer-term GHG emissions trajectory is downward and in-line with Assembly Bill (AB) 32 and SB 32's goals, year-to-year variation in GHG emissions is to be expected. As ARB's own Market Simulation Group has demonstrated, there is significant uncertainty in the underlying business-

¹ Total emissions for 2013-2014 were 291.2 Million Metric Tons (MMT) of carbon dioxide equivalent (CO₂e). The Emissions limit for the same period was 322.5 MMT CO₂e. See the full 2013-2014 compliance report at <https://www.arb.ca.gov/cc/capandtrade/2013-2014compliance/2013-2014compliance.pdf>

² ARB's Scoping Plan homepage: <https://www.arb.ca.gov/cc/scopingplan/scopingplan.htm> (See Section "What is the Status of AB 32 implementation")

as-usual (BAU) forecast of GHG emissions due to uncertainty in BAU economic growth and activity rates and the influence of other complex real-world factors. Accordingly, it is not unusual that GHG emission levels will deviate from a straight line decline.

Cap-and-Trade includes design elements like allowance banking and multi-year compliance periods specifically to provide flexibility that allows entities to comply economically while the Program still achieves the goal of overall GHG emission reductions over time.

The story of recent GHG emissions trends in the electric sector is one example of the strength of the Cap-and-Trade Program. In 2011, above-average rainfall allowed for significantly more hydroelectric generation than in 2014 and 2015, which were drought years.³ Taking the most conservative estimate and assuming that all reduced hydroelectric generation was replaced by generation from natural gas plants, approximately 10 MMT CO₂e more emissions would have been emitted in 2014 and 2015. Similarly, the loss of the San Onofre Nuclear Generating Station (SONGS) plant in 2012, if backfilled entirely by natural gas generation, would have led to 7 MMT CO₂e in increased annual emissions from natural gas generation. These discrete events experienced by the power sector largely explain the observed increase in GHG emissions from the sector over the period from 2011-2014 (a relatively short time frame in a program that may eventually extend to 2050).

That power sector entities were still able to comply with Cap-and-Trade during this period while the State is still on track to meet its overall emissions reduction goal by 2020 reflects the fundamental soundness of the Program.

B. Regulations That Address Criteria Pollutants Directly Will Reduce These Pollutants

A fundamental element of the Cap-and-Trade Program since its inception is the stipulation that measures to reduce GHGs in California should not adversely impact local air quality. The Cap-and-Trade Adaptive Management Process, currently in development, is dedicated to studying this potential issue.

During this regulatory update to the Cap-and-Trade Program, environmental justice (EJ) advocates have expressed legitimate concerns regarding ambient concentrations of criteria and toxic air pollutants that affect community health in many areas of the state, particularly in economically disadvantaged communities. Many of the communities represented by EJ advocates are also home to PG&E customers.

³ Historical data available at http://www.energy.ca.gov/almanac/electricity_data/electricity_generation.html

PG&E believes that the most effective solutions to the legitimate concerns of EJ communities with regard to criteria pollutants and toxics will continue to be California's existing, stringent regulatory programs specifically designed to address these issues. These programs have significantly improved air quality in California over the past 40 years, and ARB and the local air quality management districts continue to work to improve the quality of air in the State. While more remains to be done for the health of our communities, overhauling the design of Cap-and-Trade, ARB's long-term GHG reduction program, is likely to result in little or no incremental improvement to air quality, and will likely compromise the primary objective of the Program.

Focusing on criteria and toxic emissions directly, rather than overhauling Cap-and-Trade, enables easier identification of the key drivers of air quality problems. In many cases, the key drivers of GHG emissions are different sources than those affecting air quality. For example, ARB's most recent statewide data on criteria emissions shows fuel combustion from electric utilities as responsible for one percent of NO_x emissions and 1.2 percent of PM_{2.5} emissions. In contrast, in-state electric power generation represented over 11 percent of statewide GHG emissions in 2012. This demonstrates that carbon emissions are not necessarily a proxy for identifying key criteria pollutant emissions sources.

A continued focus on direct criteria emissions sources is critical to driving better air and health outcomes for Californians. It bears repeating that the primary sources of NO_x and PM_{2.5} in the State are wildfires and transportation, respectively, and that NO_x and PM_{2.5} emissions have both stayed flat or declined since 2011.⁴ Moreover, electric generation facilities that emit GHGs are already subject to local air quality management district regulations which limit criteria pollutant emissions. These limits must be met regardless of a facility's compliance with the Cap-and-Trade Program. Cap-and-Trade is the right tool for achieving substantial, long-term GHG reductions; there are other long-established regulatory tools better-suited for addressing California's very real air quality and health concerns.

C. Offsets Help Reduce GHG Emissions and Keep Costs Affordable for Customers

The offset credit usage limit is currently set at eight percent of a covered entity's total compliance obligation. This usage limit should not be lowered post-2020, for a number of reasons.

For one, offsets represent a real environmental benefit. ARB has set up a strict regime to ensure that offset credits represent a real, quantifiable, enforceable, verifiable, additional, and

⁴ Historical and projected emissions data available at: <https://www.arb.ca.gov/app/emsinv/fcemssumcat2013.php>

permanent GHG reduction. Offsets reduce GHG emissions while providing important co-benefits. An example of one such offset project is the Yurok Tribe Sustainable Forest Project, an Improved Forest Management project at the mouth of the Klamath River in California. In addition to reducing GHG emissions and providing a cost-effective way for California businesses to meet their Cap-and-Trade obligation, the revenue generated through the offsets sales enables the Yurok Tribe to improve wildlife habitat and forest health, conserve salmon habitat, expand forestry staff, preserve their culture and acquire land in their ancestral territory.⁵ Improved forest health provides additional benefits, such as preventing wildfires, which in turn reduces criteria pollutant emissions leading to better air quality and community health in the state.

Second, offsets help keep GHG compliance costs affordable to customers as there may be compliance cost savings from purchasing offsets. This important cost-containment function will become even more important as the Cap-and-Trade Program becomes more stringent through 2030. Any consideration of reducing the offset limit must include a thorough analysis of the effects on the Cap-and-Trade market, compliance costs, and emissions. As part any such review, PG&E encourages ARB to present the results of scenarios with offset usage limits higher than eight percent as well as lower usage limits. A higher offset usage limit may be appropriate post-2020 as a cost-containment tool amidst an increasingly stringent program.

In summary, offsets are an important part of the Cap-and-Trade Program that result in direct environmental benefits while also benefitting California businesses and consumers as well as utility customers by maintaining affordable program costs. Reducing the offset usage limit would likely result in increased customer costs without any environmental benefit.

D. Program Features Must Continue to Support a Sustainable Program

One new program feature proposed by ARB staff for the post-2020 time frame is the retirement of unsold state-owned allowances between 2020 and 2021. This is unnecessary given that, as ARB staff have recognized, the Program “already includes a self-regulating mechanism for periods when allowance demand is low.”⁶ These existing mechanisms should be allowed to work and further steps to reduce supply and prop up demand should not be taken until current legislative and legal uncertainty in the future of the Program is resolved.⁷ Tightening the supply of allowances, as proposed, treats the symptom of short-term reduced demand but does not

⁵ <https://www.arb.ca.gov/newsrel/newsrelease.php?id=597>

⁶ October 21, 2016 Cap-and-Trade Regulation Amendments Workshop Staff Presentation, Slide 17

address the underlying problem, market uncertainty, and could affect the affordability and sustainability of the program once that external uncertainty is resolved. If retirement of state-owned allowances is considered, PG&E supports staff's proposal to analyze the cost of such changes.

An alternative approach to addressing unsold allowances would be for ARB to raise the holding limit for compliance entities. The current compliance entity holding limit is based on an assumed program end date of 2020 and should be updated to reflect program continuation through 2030. This would increase demand in the market while allowing compliance entities to plan for compliance in the future Program, or hedge their commodity exposure. Hedging is an important means to control costs. For entities with large obligations, the holding limit, particularly in the outer years, is too small to adequately hedge.

As the staff proposal mentioned above would further tighten the Cap-and-Trade Program at the same time as the state pursues a much deeper, ambitious emissions reduction trajectory, PG&E reiterates the suggestion that ARB should incorporate program design features before 2021 that ensure post-2020 allowance prices cannot exceed a maximum level deemed acceptable by ARB. This could be done by developing a mechanism to refill the Allowance Price Containment Reserve (APCR) if it is depleted. ARB has already proposed limited borrowing from future budgets through 2050 to refill the APCR as a buffer, but a firm price ceiling, as described in PG&E's previous comments, would improve the economic sustainability of the Program.⁸

It is in the interest of all Californians to avoid the potential for skyrocketing, unsustainable program costs that would lead to high prices for customers and could lead to negative environmental outcomes if the Program were to be suspended.

II. ELECTRIC DISTRIBUTION UTILITY ALLOCATION SHOULD ENSURE EQUITABLE PROTECTIONS AND REASONABLE CARBON COST TRANSITION FOR CALIFORNIA CUSTOMERS

A. Maintaining a Reasonable Allocation to EDUs is a Critical Component of a Broader Strategy to Ensure Equitable Carbon Cost Impacts for California Households

⁸ Pacific Gas and Electric Company. RE: April 5, 2016 Cost Containment Workshop. April 22, 2016. <https://www.arb.ca.gov/lists/com-attach/6-sectorbased3-ws-BXVXNIYyVVIQNQVq.pdf>

Allowance allocation is one of the primary mechanisms for addressing distributional concerns associated with the costs of cap-and-trade programs. In particular, independent analysts⁹ and low-income household advocates¹⁰ have recognized lump-sum rebates of allowance value as a way to ensure low-income households are not inequitably impacted when carbon costs are imposed on household costs.

California is implementing such a lump-sum rebate in investor-owned utility (IOU) service territories via the semi-annual climate credit,¹¹ which is made possible by ARB's allowance allocation to electric distribution utilities (EDUs). Fortunately, the lump sum credits appear to be working as intended.¹²

However, it is important to recognize that ARB's decisions regarding post-2020 allocation provision to IOU EDUs like PG&E are effectively also decisions regarding the size of post-2020 lump-sum climate credits. As such, we are disappointed with the proposed significant decrease (roughly 70 percent) in allowance allocation for EDUs from 2020-2030, which would directly reduce the Climate Credit provided to customers. ARB staff should make several changes, identified below, to the proposed EDU allocation provisions and continue to work with the Joint Utility Group in advance of staff's next allocation proposal. Maintaining a reasonable allocation to EDUs is a critical component of a broader strategy to ensure equitable impacts for California households.

B. Suggested Modifications to ARB's Allocation Methodology

PG&E suggest the following changes to ARB's allocation methodology. As a start, ARB staff should adopt a broader definition of cost exposure, and not one that only considers fossil emissions. The current emissions-centric approach results in significant allowance reductions from 2020 to 2021 for all utilities, but particularly sharp reductions for cleaner utilities with lower carbon intensive portfolios such as PG&E. Cost exposure related to assembling a clean portfolio and complying with AB 32 is not narrowly defined to purchasing allowances, and this fact should be recognized by the ARB's allowance allocation method.

⁹ Congressional Budget Office: https://www.cbo.gov/sites/default/files/cbofiles/ftpdocs/89xx/doc8946/04-25-cap_trade.pdf

¹⁰ Center on Budget and Policy Priorities: <http://www.cbpp.org/research/climate-change/the-design-and-implementation-of-policies-to-protect-low-income-households>

¹¹ <http://www.cpuc.ca.gov/climatecredit/>

¹² UCLA Luskin Center for Innovation: <http://innovation.luskin.ucla.edu/sites/default/files/FINAL%20CAP%20AND%20TRADE%20REPORT.pdf>

In addition, ARB staff should simplify the allowance allocation calculation by focusing on a single year (like 2020) instead of the 10-year period through 2030, as ARB staff had proposed in its March 29, 2016 workshop.¹³ In addition to simplicity, this type of approach has the benefit of not applying both an aggressive cap-adjustment factor and a large increase in RPS generation quantities, which both reduce allocation. A calculation that utilizes the cap adjustment factor or an increasing RPS quantity is more appropriate than utilizing both.

PG&E suggests ARB staff make two changes to its representation of the RPS program in the allocation calculations. First, the denominator used to calculate compliance with the State's RPS program is retail sales and not load (at the generation level).¹⁴ Accordingly, ARB staff should calculate RPS generation levels based on retail sales and not based on load to accurately reflect the quantity of renewable generation associated with a particular RPS percentage. Second, the allowable level of Category 3 Renewable Energy Credit procurement should be excluded from the calculation of RPS generation because this quantity of allowable RPS procurement does not provide zero-emissions resources from a Cap-and-Trade cost burden perspective.¹⁵

Allowance allocation is most reasonably calculated using loads without additional achievable energy efficiency (AAEE). As the California Energy Commission (CEC) notes, AAEE savings are associated with programs that are neither finalized nor funded, even if the CEC believes they are reasonably expected to occur.¹⁶ This uncertainty should be removed from the allocation calculation.

Additionally, linking allocation quantities to AAEE also creates perverse incentives for EDUs seeking to protect their customers from higher costs through allowance allocation while also being asked to aggressively expand energy efficiency by the state.

PG&E continues to support ARB staff's original proposal¹⁷ to make allocation adjustments to account for major changes to electricity resources such as coal plant divestiture and the availability of nuclear resources. For PG&E's service territory, such an adjustment is relevant in the next decade given the expiration of the current Nuclear Regulatory Commission operating licenses for Diablo Canyon Power Plant's (DCPP) two units in 2024 and 2025, PG&E and other parties' Joint Proposal for the Orderly Replacement of Diablo Canyon Power Plant (Joint

¹³ March 29, 2016 Post-2020 Emissions Caps and Allocation Workshop Staff Presentation

¹⁴ See: http://www.cpuc.ca.gov/rps_homepage/

¹⁵ See: http://www.cpuc.ca.gov/RPS_Procurement_Rules_33/

¹⁶ See: <http://www.energy.ca.gov/2013publications/CEC-200-2013-005/CEC-200-2013-005-SD.pdf>

¹⁷ March 29, 2016 Post-2020 Emissions Caps and Allocation Workshop Staff Presentation

Proposal),¹⁸ and the CPUC's latest Assumptions and Scenarios Ruling¹⁹ for the CAISO 2016-17 Transmission Planning Process and Future Commission Proceedings which uses a default assumption that DCCP Units will be retired in 2024 and 2025.

Accordingly, the proposed retirement of Diablo Canyon and the associated removal of a significant amount of zero-emissions power from the PG&E EDU portfolio should be accounted for in PG&E's allowance calculation. ARB staff's assumption in the proposed allowance allocation methodology is that the balance of load not met by solid fuel and zero-emission power is met by natural gas. The ARB should apply this approach as it relates to the replacement of Diablo Canyon to send a consistent signal in support of voluntary over-compliance with California's energy efficiency and renewable energy policies and to mitigate costs for households in PG&E's EDU service territory consistent with ARB's policy of customer cost protection.

Finally, we continue to encourage ARB and other state agencies to work to develop an approach for allocating allowances to EDUs associated with electrification.

III. GAS ALLOWANCE ALLOCATION SHOULD MAINTAIN PLANNED CONSIGNMENT AND CAP ADJUSTMENT FACTORS

PG&E supports ARB's proposal for continuing the current allocation methodology for natural gas suppliers, based on the 2011 emissions baseline.²⁰ However, PG&E is concerned with the sharp increase in cost impacts to customers (including low-income customers) from Staff's proposals for an accelerated cap adjustment factor (CAF) and accelerated consignment. In addition, given the dearth of options for alternatives to natural gas, or technologies to reduce its use compared to those available in the electricity sector, Staff's stated goal to create equity between EDUs and natural gas suppliers is premature. PG&E recommends maintaining the existing annual decline of the cap adjustment factor (~2%), maintaining the existing annual consignment increase (5%), and increasing the availability of offsets for natural gas. These recommendations are more fully explained below.

¹⁸ See : www.pge.com/jointproposal

¹⁹ See: <http://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=11673>

²⁰ Section § 95893 - Allocation to Natural Gas Suppliers for Protection of Natural Gas Ratepayers, Regulation for the California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms

A. The Natural Gas Sector Is Fundamentally Different From the Electric Sector, and Therefore Should Be Treated Differently

The Initial Statement of Reasons (ISOR) supporting the draft Cap-and-Trade amendments, as well as materials shared at the October 21st workshop, cite equity between natural gas suppliers and EDUs as a reason to accelerate consignment for natural gas. However, this fails to recognize important differences between the natural gas sector and the electric sector:

1. Different Renewables Markets - The renewables market for natural gas is miniscule when compared to the level of renewable resources available to the electric sector; the variety of alternatives, availability of supply and maturity of the markets vary greatly. For example, with respect to maturity of the market - when the 20% RPS was enacted in 2002, 11% of PG&E's electric deliveries were already from RPS-qualifying sources. In contrast, PG&E currently procures 0% of gas for delivery through its pipelines from renewable sources. While PG&E continues to actively work with developers to execute affordable interconnection projects, no projects have been implemented yet and development of new sources is slow.

Unlike the sun or the wind, the feedstocks for renewable natural gas (RNG) are finite, and existing volumes are fully subscribed. The cost of RNG is also several magnitudes higher than the cost of conventional natural gas. In addition, RNG faces constraints such as high costs and complexity of gas conditioning for varying feedstocks, new technologies for converting feedstocks that haven't been proven at scale yet, and gas quality issues. Other barriers to development include high start-up costs, interconnection difficulties due to geographic diversity, high transportation costs and siting delays – all of which demonstrate the nascent state of the RNG market in comparison to the electric renewables market. Without substantial incentives, credits or other policy measures to buy down the cost of RNG and overcome barriers to entry, the market will be difficult to develop. It is important to note that the development cycle for projects is much longer than the timeframe between now and 2021 when Staff's proposed changes would go into effect.

2. Different Assessment of Compliance Obligations – For the natural gas sector, the compliance obligation is levied directly on the gas utility based on deliveries to non-capped customers, compared to the generator or first deliverer in the electric sector. Electric IOUs and other utilities are required to consign allowances in order to prevent market advantage over generators and others in the electricity market. However, natural gas utilities are the same entities that will be buying back the allowances they consign to the auctions, so the same risks do not apply.

Additionally, publicly owned utilities in the electric sector are currently allowed to choose whether to consign or surrender their allowances.²¹ These differences will persist regardless of the level of consignment for natural gas utilities, so reaching 100% consignment sooner will not lead to full parity within the Cap-and-Trade Program.

3. Different Opportunities for Efficiencies – Unlike the electric sector, where constantly improving technologies have afforded ever-increasing energy-efficiency savings through new light bulbs, pump motors, window films and more, opportunities for natural gas efficiency are far fewer given the already high efficiency of natural gas systems. In addition, the variety of purposes electricity is used for offer many opportunities for conservation, while natural gas is predominantly used to combust and produce heat, providing very limited options for conservation.

4. Different Elasticities of Demand - PG&E believes that increasing consignment requirements is not an effective lever to increase conservation or efficiency for natural gas. Historically, natural gas demand from residential, small commercial, and small industrial customers has not been highly responsive to retail price signals.²² PG&E has observed this lack of a statistical relationship between changes in price and demand from smaller customers and reflects this in forward-looking demand forecasts, such as those used for the California Gas Report. Direct incentives for promoting efficiency or conservation may work more effectively.

Given all these differences between the electric sector and the natural gas sector, accelerating consignment to achieve “equity” would in fact be inequitable since the natural gas sector does not have the same breadth of alternatives available for customers to seek.

B. The Current Transition to a Full Carbon Cost Strikes the Right Balance

The impact of the proposals to double the annual rate of decline for the CAF and sharply accelerate the consignment requirement will negatively impact customers. PG&E’s recommendations are based on our support of carbon reduction approaches that customers will embrace, while maintaining affordable customer rates.

1. Existing Decline of Cap Adjustment Factor Should be Maintained – The purpose of allocating direct allowances is to mitigate cost impacts to customers while achieving GHG

²¹ Sec. 95892(b) Transfer to Utility Accounts, Regulation for the California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms

²² Bernstein, M.A., Griffin, J. “Regional Differences in the Price-Elasticity of Demand for Energy”, National Renewable Energy Laboratory, February 2006 <<http://www.nrel.gov/docs/fy06osti/39512.pdf>>

emission reductions. Reducing direct allowances will increase cost pass-through and decrease the sale of those allowances to generate Climate Credits for residential customers (including low-income CARE customers). Table 1 below shows that Staff's proposed CAF is estimated to provide significantly smaller climate credit revenues than under the existing regulations.

Table 1: Estimated Annual Residential Climate Credit & Compliance Costs for PG&E in 2030²³

CAF and Consignment Scenario	Residential Climate Credit	Annual Compliance Cost
Current Regulations ²⁴	\$81	\$54
Staff Proposal ²⁵	\$60	\$54

2. Existing Pace of Consignment Requirement Increase Should be Maintained

Staff's proposal at the October 21st workshop to jump directly from 50% consignment in 2020 to 100% consignment in 2021 is unnecessarily extreme. Staff has not provided any support for making such a precipitous increase as opposed to more moderate options, other than expressing the general desire to create equity between sectors and incentivize GHG reductions. As argued above, the differences between the natural gas and the electric sector at this stage mean that a more gradual approach is warranted and other policy options to incentivize RNG development will be more effective to promote GHG reductions.

Table 2 below provides estimated compliance cost comparisons for two scenarios in 2021: 1) continuation of current consignment and CAF rates and 2) Staff's accelerated consignment and CAF rates. Table 2 illustrates that the proposed changes would increase average annual compliance costs for residential, small and large commercial customers by 54% to 75% compared to the current regulations.

²³ All values shown in real 2016 dollars; scenarios assume a low GHG allowance price derived from the auction floor price in 2016 escalated by 5% a year and adjusted for 2% inflation.

²⁴ Current regulations = a 5% increase in consignment per year and the current cap adjustment factor decline

²⁵ Staff proposal = 100% consignment in 2021 and post-2020 cap adjustment factors for "Standard" sectors presented in slide 47 of the Staff Presentation at the October 21st Workshop.

Table 2: Sample Rate Impacts for PG&E in 2021²⁶

	Current Regulations²⁷	Proposed Changes²⁸
Total Compliance Cost (\$ Millions)	\$156	\$280
Compliance Cost per Therm	\$0.06	\$0.09
Average Annual Compliance Cost Per Customer		
Residential	\$21	\$37 (54%)
Small Commercial	\$179	\$313 (75%)
Large Commercial	\$17,900	\$31,323 (75%)

3. The Offset Limit Should be Raised Beyond 8% for Natural Gas

Even if all of the constraints limiting the development of the RNG market can be overcome in the next few years, new RNG projects will still take years to be developed and become operational. In the meantime, GHG compliance costs will continue to increase post-2020 (regardless of which CAF or consignment options are used). In the post-2020 timeframe, offsets will be a critically important cost-containment tool for natural gas suppliers to meet their compliance obligation on behalf of their customers. As stated above, given the nascent RNG market and the lack of technologies for energy efficiency, the natural gas sector is in a different situation than electric and needs access to other compliance alternatives. Raising the offset limit above 8% for the natural gas sector would help protect customers when compliance costs start increasing, while still providing GHG reductions.

²⁶ All values shown in real 2016 dollars; scenarios assume a low GHG allowance price derived from the auction floor price in 2016 escalated by 5% a year and adjusted for 2% inflation.

²⁷ Current regulations = a 5% increase in consignment per year and the current cap adjustment factor decline

²⁸ Staff proposal = 100% consignment in 2021 and post-2020 cap adjustment factors for “Standard” sectors presented in slide 47 of the Staff Presentation at the October 21st Workshop

A more moderate annual decline in the CAF (~2% annually), the existing consignment increase (5% annually), and access to more offsets would still introduce a growing price signal while allowing the natural gas sector to develop more options for alternatives and protect customers from unnecessary costs. PG&E looks forward to continuing to work with ARB to meet our common goals of reducing GHG emissions while protecting natural gas customers.

IV. MARKET DATA TRANSPARENCY: PROVIDE PUBLIC ASSURANCE WHILE MAINTAINING A FAIR MARKET

PG&E supports a fair, fraud-free, and transparent Cap-and-Trade market. To this end, ARB currently makes available a great deal of information associated with the Cap-and-Trade program. These data include:

- Quarterly CITSS Registrant Reports
- Quarterly Auction Summary Results Reports
- Annual Compliance Reports
- Annual summary of transfer reports
- Quarterly Compliance Instrument Reports
- Other data related to Cap-and-Trade including GHG emissions reporting and California Climate Investment fund proceeds and investments

PG&E supports the timely release of anonymized data, including entity positions, as a means to increase market transparency. When calculating entity positions, PG&E suggests using a 3-year compliance period obligation. It is important to use a reasonable time period when calculating the obligation so that legitimate hedging activities are not misinterpreted as withholding.

The Emissions Market Advisory Committee (EMAC) referenced in the staff presentation suggests publishing anonymized entity positions as a means to increase the difficulty and cost of market manipulation through withholding.²⁹ Given some of the complexities of calculating entity positions (e.g., time horizon of obligation, forecasting future year obligations based on previous years, differences in hedging strategies among entities), publication of anonymized positions may not be the most effective way to prevent market manipulation. Instead, ARB should establish a lower APCR price floor as a disincentive against withholding. A lower APCR price

²⁹ EMAC. Information Release on Allowance Holdings in the Greenhouse Gas Emissions Cap-and-Trade Market. February, 2014. Pages 1 and 4. Available here: https://www.arb.ca.gov/cc/capandtrade/emissionsmarketassessment/information_release_2014feb_rev.pdf

floor would not only serve as a soft price cap to limit potential gains from a withholding strategy but would also provide some cost containment assurance for covered entities.

V. CAISO EIM SECONDARY EMISSIONS EFFECT: AN APPROPRIATE SOLUTION SHOULD NOT JEOPARDIZE THE BENEFITS OF THE EIM

As presented at the ARB workshop on October 21, ARB and CAISO continue to work toward an approach to account for secondary emissions in the EIM. Any such approach must weigh the magnitude of the secondary emissions problem against the solution's cost and potential to result in negative, unintended consequences.

PG&E is a proud supporter of California emission reduction goals, and views the EIM as an important tool for reducing GHG emissions. The EIM market helps avoid renewables curtailment in CAISO, provides a larger market for California-generated clean energy, and can provide clean energy to displace emitting resources in and outside of California. As such, PG&E is particularly concerned about ARB and CAISO striking a suitable balance between appropriately accounting for GHG emissions resulting from serving California load and maintaining a robust EIM. Any approach to capturing secondary emissions must preserve price signals and resulting dispatch orders that encourage participation in the EIM.

CAISO has demonstrated that EIM dispatch lowered overall EIM emissions over a six month period, and used increased export of California-generated renewable energy to displace high-emitting resources outside of California.³⁰ California contributes to emissions reductions across the EIM footprint, and so an evaluation of California emissions impact should consider those reductions alongside any emissions caused by serving California load. Increasing import costs for California without recognizing the emissions benefits of California exports may diminish the benefits to California of EIM participation and raise questions about the value of a multi-state balancing authority area. A solution to address secondary emissions should not jeopardize achievement of full societal, market, and emissions benefits of a multi-state construct.

PG&E recently submitted comments to the CAISO regarding technical solutions for accounting for secondary emissions which are included as an appendix below. As expressed in said comments, additional study of the secondary emissions problem is warranted so that the problem can be adequately defined and addressed with minimal disruption to the market.

³⁰ https://www.caiso.com/Documents/EIMGreenhouseGasCounter-FactualComparison-PreliminaryResults_Jan-Jun_2016_.PDF

VI. CONCLUSION

In conclusion, PG&E continues to support Cap-and-Trade as a program that will help the State meet its aggressive environmental goals while maintaining a healthy economy. PG&E hopes that the ARB will seriously consider the suggestions made herein, and looks forward to continuing to collaborate as changes are made to prepare the Cap-and-Trade Program to meet the state's 2030 goals.

Sincerely,

/s/

Mark Krausse
Senior Director
Pacific Gas and Electric Company

CC: Richard Corey
Edie Chang
Steve Cliff
Mary-Jane Coombs
Jason Gray
Bill Knox

Comment Log Display

Below is the comment you selected to display.

Comment 55 for Cap-and-Trade Regulation Amendments Workshop (ct-amendments-ws) - 1st Workshop.

First Name: Josie
Last Name: Hickel
Email Address: josie.hickel@chugach.com
Affiliation:

Subject: Comments re: Cap & Trade Regulations, Proposed Carbon Offset Credit Limits

Comment:

Josie Hickel
Chugach Alaska Corporation
3800 Centerpoint Drive, Suite 1200
Anchorage, AK 99503

California Air Resources Board
1001 I Street
Sacramento, CA 95812

November 4, 2016

Re: Comments of Chugach Alaska Corporation on ARB's October 21
Cap-and-Trade Regulation Workshop and the Proposal to Reduce the
Offset Credit Usage Limit

Dear Air Resources Board Staff:

Thank you for giving us the opportunity to comment on the California Air Resources Board's (ARB) October 21st workshop presentation. We would like to address the portion of the workshop regarding AB 197 and Post-2020 Cap-and-Trade Program Design, and in particular ARB's proposal to lower the offset credit usage limit of 8%.

Chugach Alaska Corporation (Chugach), an Alaska Native Regional Corporation, was established in 1972 pursuant to the Alaska Native Claims Settlement Act of 1971. We represent more than 2,500 Alaska Native shareholders historically residing in the Chugach region. We have a deep commitment to preserving the cultural heritage of our shareholders, and our lands are at the very core of that heritage. Our landholdings include 5,000 miles of coastline that follow the southern tip of the Kenai Peninsula, on through the Kenai Fjords, Prince William Sound, and the Gulf of Alaska. Our lands are filled with timber, minerals and wildlife, which we manage for the benefit of our shareholders consistent with our cultural values.

We are guided by principles of subsistence use and historical preservation in utilizing our land. We are currently in the process of developing our own forest offset project, which we believe will provide economic opportunities within our communities,

preserve our lands in a manner consistent with our values, and give us an opportunity to do our part in combatting a warming climate. The effects of climate change no doubt threaten traditional subsistence lifestyles that support many of our Native shareholders, and jeopardize the very resources that are at the heart of our cultural heritage. We are concerned with ARB's proposal to reduce the ability to use offset credits - a move that would bring into question the offset credit program and the many benefits it provides.

We applaud California's initiative in leading many of the efforts against a warming climate. ARB's efforts have paved a way to realizing a solution to a problem that transcends borders. The offset program is a vital part of this path forward, as it helps stabilize the costs of the Cap-and-Trade Program and ensures its continued vitality as a mechanism to slow climate change. While the cost containment features of the offset program are among the most touted, the additional benefits are what resonate with Chugach. The offset program has provided us the capacity to assist in the fight against climate change in a manner that preserves our values and our resources, while providing economic opportunities to our Alaska Native shareholders. The program incentivizes participation across jurisdictions and peoples, helping to create a diverse and unified front to stem the tide of our warming climate. That is precisely what is needed to combat a problem that touches every area of the globe.

Hundreds of thousands of acres of healthy forests, managed under the program's protocols, make it indisputable that the program works. Millions of tons of carbon have been sequestered. These forests also help maintain essential wildlife habitats and preserve the balance of fragile ecosystems around the country. In addition, developing such a project in the Chugach region will help us preserve our ancient heritage, values and way of life.

We hear loud and clear the voices of those that have suffered as a result of the development of resources and industrialization. Our Native shareholders who maintain a subsistence way of living are under a persistent threat of their resources being depleted due to climate change, a problem that has also been exasperated at times by resource development. The offset program, however, far from aggravating these problems, provides a means to address them. Alleviating the impacts of climate change can only serve to protect the interests of every person the world over.

All of these benefits would be put in jeopardy if ARB were to continue with its proposal to reduce the offset credit usage limit. Cost stability would be diminished. Incentives to participate in the program would be reduced. The capacity of the program to activate a network of joined partners in the fight against climate change would be reduced. Chugach respectfully requests that ARB not reduce these benefits by reducing the offset credit usage limit.

Sincerely,

Josie Hickel
SVP Energy & Resources
Chugach Alaska Corporation

Appendix A

Comments of Pacific Gas and Electric Company on the Regional Integration California Greenhouse Gas Compliance Stakeholder Technical Workshop

Submitted by	Company	Date Submitted
<i>Hannah Kaye hannah.kaye@pge.com; (415) 973-8237</i>	<i>Pacific Gas and Electric Company</i>	<i>November 1, 2016</i>

Introduction

Pacific Gas and Electric Company (PG&E) was pleased to participate in an October 13, 2016 stakeholder workshop as part of the California Independent System Operator (CAISO) Regional Integration California Greenhouse Gas (GHG) Compliance initiative. PG&E encourages the CAISO to continue facilitating such workshops, which provide valuable opportunities to convene stakeholder perspectives around highly complex issues. PG&E also commends the CAISO for its ongoing collaboration with the California Air Resources Board (CARB), which informed the workshop and will continue to guide the development of GHG accounting methods in the EIM and a multi-state balancing authority area.

Comments

PG&E joins the CAISO, CARB, and many other stakeholders in seeking to understand the overall impact of the EIM on GHG emissions. One piece of the EIM emissions puzzle is secondary dispatch, and PG&E urges the CAISO and CARB to work with stakeholders to develop a clear and complete picture of this issue. PG&E is hesitant to endorse a solution prior to more fully understanding the secondary dispatch emissions problem. The suitability of a solution will depend on the magnitude of the problem weighed against the solution's cost and potential to drive unintended consequences. Clarity around the problem is essential in order to design a solution that achieves secondary emissions goals while maintaining market, societal, emissions reduction, and other policy objectives. Secondary dispatch is a complex issue, and PG&E looks forward to addressing it through ongoing collaboration with the CAISO, as well as CARB and other stakeholders.

Prior to discussing specific options, PG&E notes that a precise definition of emissions from secondary dispatch is needed in order to develop any suitable approach.

Developing an accurate approach to capturing secondary emissions requires a precise definition of what dispatch actions will be defined as secondary dispatch, and the circumstances under which emissions caused by secondary dispatch would require the surrender of CARB

allowances. Criteria and considerations for designing and evaluating potential solutions will depend on the definitions adopted by CARB and the CAISO.

In its most recent presentation to stakeholders, CARB stated that, “Secondary dispatch illustrates the potential backfill effect of higher emitting resources to serve EIM load when the optimization attributes lower emitting resources to serve California load.”³¹ The CARB presentation further notes that secondary dispatch is neither defined in the EIM tariff nor observable by market participants.³² Further defining secondary dispatch and the circumstances in which such emissions should be captured is an essential prerequisite to understanding the scope and magnitude of the issue, and designing a reasonable and implementable approach to addressing it.

In addition to providing clear definitions, the CAISO should also consider implications of any proposed secondary dispatch solution on the EIM.

The CAISO stakeholder workshop focused on approaches to accounting for secondary dispatch emissions in the EIM, with the understanding that an adopted approach would need to be scalable in a multi-state balancing authority. PG&E appreciates that, ultimately, the method selected to capture secondary emissions will have to balance the goals of accuracy and precision with the realities of technical limitations and the need to reliably operate the grid. The CAISO and CARB must also evaluate whether the proposed solution is likely to advance the overall emissions reduction goals of the EIM and, in the future, a multi-state balancing authority area.

PG&E is a proud supporter of California emissions reduction goals, and views the EIM as an important tool for reducing GHG emissions. The EIM market helps avoid renewables curtailment in CAISO, provides a larger market for California-generated clean energy, and can provide clean energy to displace emitting resources in and outside of California. As such, PG&E is particularly concerned about the CAISO striking a suitable balance between appropriately accounting for GHG emissions resulting from serving California load and maintaining a robust EIM. Any approach to capturing secondary emissions must preserve price signals and resulting dispatch orders that encourage participation in the EIM market.

CAISO has demonstrated that EIM dispatch lowered overall EIM emissions, and used increased export of California-generated renewable energy to displace high-emitting resources outside of California, such as coal-fired plants.³³ California contributes to emissions reduction across the EIM footprint, and so an evaluation of California emissions impact should consider those

³¹ <https://www.arb.ca.gov/cc/capandtrade/meetings/20161021/oct-21-workshop-slides.pdf>, slide 5

³² <https://www.arb.ca.gov/cc/capandtrade/meetings/20161021/oct-21-workshop-slides.pdf>, slide 5

³³ https://www.caiso.com/Documents/EIMGreenhouseGasCounter-FactualComparison-PreliminaryResults_Jan-Jun_2016_.pdf

reductions alongside any emissions caused by serving California load. Increasing import costs for California without recognizing the emissions benefits of California exports may diminish the benefits to California of EIM participation and raise questions about the value of a multi-state balancing authority area. A solution to address secondary emissions should not jeopardize achievement of full societal, market, and emissions benefits of a multi-state construct.

At this time, PG&E is unable to support all of the conclusions reached by the CAISO during the stakeholder workshop.

The CAISO presented three options during the stakeholder workshop, and suggested that only one, Option 3³⁴, is currently feasible.

- PG&E is not convinced that Option 1³⁵, which considers net emissions over a defined period of time, could not serve as a basis for an acceptable solution. Capturing the value of clean energy imports and exports from and to California is a worthwhile exercise for determining the contribution of EIM to emissions reduction.
- PG&E agrees with the CAISO that Option 2 should not be considered, as it is not currently feasible to implement.
- PG&E finds that Option 3, a hurdle rate, is more feasible than Option 2, but introduces risks that must be weighed carefully against the presumed benefits in developing a method to calculate the hurdle rate.

Regardless of the approach ultimately adopted, the CAISO will need to allocate the compliance obligation from secondary dispatch. The selected solution must appropriately assign the compliance obligation and cost burden for those emissions, and ensure that cost allocation does not disrupt the EIM's economic dispatch of energy resources.

Option 1

EIM actions may cause increased emissions from secondary dispatch in EIM Entities to support imports into California in some periods, while reducing emissions in EIM Entities during other periods by exporting clean power to displace emitting generation. The proposed Option 1 would determine net emissions across a defined period of time and, if emissions were found to be greater than those captured by EIM resource attribution, CARB instruments would be retired.

³⁴ See slides related to Option 3 in stakeholder workshop presentation <http://www.caiso.com/Documents/UpdatedAgenda-Presentation-RegionalIntegrationCaliforniaGreenhouseGasCompliance-TechnicalWorkshop.pdf>.

³⁵ See slides related to Option 1 in stakeholder workshop presentation <http://www.caiso.com/Documents/UpdatedAgenda-Presentation-RegionalIntegrationCaliforniaGreenhouseGasCompliance-TechnicalWorkshop.pdf>.

At this time, CAISO staff is not considering an Option 1 approach. PG&E believes that further exploration of secondary emissions occurring in EIM, over a longer period of time than is currently available, is warranted. Studying the emissions from secondary dispatch caused by imports into California as well as emissions reductions resulting from export of clean energy from California will provide CARB and other stakeholders with additional data to determine the scope of the secondary emissions issue and whether netting might be appropriate to consider in a solution. In a six month analysis, CAISO showed that EIM dispatch lowered overall emissions in the EIM footprint. Looking at the findings from a longer period of time will provide more data on how secondary dispatch emissions might be addressed appropriately and with minimal disruption to the market.

Option 1 is an out-of-market solution. The additional emissions not considered by EIM would be calculated after the market has run and any costs for emissions would not be considered in the EIM. PG&E does caution that an out-of-market solution carries risk of being uneconomic and inefficient depending upon the costs of the out-of-market actions. A solution based on Option 1 should not be adopted without first evaluating the magnitude of net secondary emissions observed over the course of at least a year. Findings from this initial study period will help to determine whether the secondary dispatch solution lends itself better to a market design change (which also carries costs and risk) or another approach.

Option 2

PG&E shares the CAISO concern that running a dispatch to find optimal base schedules, followed by running the EIM market in real-time, may not be technically possible.³⁶ PG&E is also concerned that developing an optimization model that limits import from a resource to its incremental dispatch, may involve formulation changes that could greatly increase computational requirements. PG&E joins the CAISO in concluding that such a computationally-intensive mechanism requires further study, and that attempting to adopt such an approach in the real time market today would create risks for market operations and reliable dispatch.

Option 3

Given the complexity of the problem, technical limitations, and outstanding questions, PG&E recognizes that a hurdle rate may suffice as a reasonable approximation of the emissions impacts of secondary dispatch. The hurdle rate would have to reflect market conditions, and not be an administrative rate set far in advance of the EIM. Without a defined hurdle rate, or process for determining one, PG&E is not yet able to offer a more thorough evaluation.

³⁶ See slides related to Option 2 in stakeholder workshop presentation:
<http://www.caiso.com/Documents/UpdatedAgenda-Presentation-RegionalIntegrationCaliforniaGreenhouseGasCompliance-TechnicalWorkshop.pdf>.

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Submitted electronically

November 4, 2016

Rajinder Sahota
Branch Chief, Cap-and-Trade Program
California Air Resources Board
1001 I Street
Sacramento, CA 95812

Re: *Comments of the Northern California Power Agency on October 21 Workshop*

Dear Rajinder:

The Northern California Power Agency¹ (NCPA) appreciates the opportunity to provide these comments to the California Air Resources Board (CARB) staff on the October 21 Mandatory GHG Reporting and Cap-and-Trade Program Workshop (October 21 Workshop) related to the August 2, 2016 Proposed Amendments to the Cap-and-Trade Program Regulation (Proposed Amendments). In these comments, NCPA responds to the October 14, 2016 *Post-2020 Allocation to Electrical Distribution Utilities Informal Staff Proposal* (Staff Proposal), and to issues raised during the October 21 Workshop and in staff's Workshop Presentation. While the focus of these comments is limited to the October 21 workshop and informal allocation proposal, many of the concerns raised in the context of NCPA's written comments on the Proposed Amendments² are relevant to these discussions and remain outstanding. NCPA does not reiterate those comments herein, but urges staff to continue to work with stakeholders on resolution of those matters.

NCPA supports continuation of the Cap-and-Trade program (Program) and believes that it should remain a cornerstone of California's climate strategy. The program ensures state-wide

¹ NCPA is a nonprofit California joint powers agency established in 1968 to construct and operate renewable and low-emitting generating facilities and assist in meeting the wholesale energy needs of its 15 members: the Cities of Alameda, Biggs, Gridley, Healdsburg, Lodi, Lompoc, Palo Alto, Redding, Roseville, Santa Clara, and Ukiah, Plumas-Sierra Rural Electric Cooperative, Port of Oakland, San Francisco Bay Area Rapid Transit (BART), and Truckee Donner Public Utility District—collectively serving nearly 700,000 electric consumers in Central and Northern California.

² Comments of the Northern California Power Agency on Proposed Amendments to the Cap-and-Trade Program Regulation, September 19, 2016; <https://www.arb.ca.gov/lists/com-attach/89-capandtrade16-BWtdOFAhUWMLUgdk.pdf>.

emissions reductions without the imposition of additional source-specific mandates and measures, enabling compliance entities to plan and meet emissions reduction targets in the most cost-effective manner. The cap-and-trade program also provides a sound basis for transitioning the state into compliance with the Environmental Protection Agency's Clean Power Plan without requiring the promulgation of extensive new mandates. Despite this, the program has faced a great deal of criticism for what some believe it fails to do.

Discussions during the October 21 workshop covered a range of issues affecting compliance entities and the Program, but were largely shaped by a single common theme; the need for programmatic changes to address perceived shortcomings in the Program's efficacy or expectations associated with the direction set forth in Assembly Bill 197. NCPA has significant concerns about the influence of these expectations on proposals to modify the Program structure and allocation of allowances to electrical distribution utilities (EDUs), as they greatly increase the compliance burden for covered entities. Recent reports have highlighted the very real concerns raised by environmental justice community advocates regarding the need to ensure that the State's climate policies lead to real emissions reductions in the most impacted communities. NCPA is supportive of the state's efforts to further reduce criteria and other pollutants from source through direct measures that are technologically and economically feasible. Those efforts, however, should not be used as a basis to supplant or alter the existing framework and design features of the cap-and-trade program. Indeed, the cap-and-trade program provides billions of dollars for programs and measures that reduce climate change and associated impacts; a significant portion of which are designated directly to low-income and disadvantaged communities.³

The concerns identified in the September 2016 Preliminary Environmental Equity Assessment of California's Cap-and-Trade Program⁴ can and should be addressed; however, the study – by its own admission – reflects a *preliminary analysis* based on a limited data set viewed over a short time period. As the study concludes, “[f]urther research is needed before firm policy conclusions can be drawn from this preliminary analysis. As regulated industries adapt to future reductions in the emissions cap, California is likely to see more reductions in localized GHG and co-pollutant emissions.”⁵ Therefore, the results cannot – and should not – form the basis for programmatic changes without more informed assessment, including analyses of the cost and other implications that are also relevant. One such factor is the impact that more direct regulation will have on the price of electricity for all Californians, including those in the very communities mentioned in the study.

The cap-and-trade program has been demonstrated to play a vital role in reducing the state's emission. Further, it does so in a manner that allows compliance entities to minimize the costs impacts of meeting aggressive emissions reduction targets. For entities like NCPA's member agencies that provide electricity to California's residents and businesses, this has a direct bearing on the price of electricity those customers pay. NCPA strongly cautions against programmatic

³ https://arb.ca.gov/cc/capandtrade/auctionproceeds/ci_annual_report_2016_final.pdf

⁴ Preliminary Environmental Equity Assessment of California's Cap-and-Trade Program (Preliminary Assessment), September 2016, http://dornsife.usc.edu/assets/sites/242/docs/Climate_Equity_Brief_CA_Cap_and_Trade_Sept2016_FINAL2.pdf

⁵ Preliminary Assessment, p. 10

changes like those discussed during the October 21 workshop that will result in greater compliance costs for EDUs and increased electricity prices across the state.

2021-2030 Allocation to Electrical Distribution Utilities

Allocation of allowances to EDUs provides direct mitigation to California’s residents and businesses by helping to offset the electricity rate increases resulting from GHG-reducing programs and measures. California’s utilities are subject to numerous mandates as part of the State’s comprehensive climate policy objectives, each of which impacts the price of electricity that customers must pay. This mitigation of the adverse rate impacts on California’s residential and commercial electricity customers is of paramount importance in the post-2020 program, as the tightening cap and increasing mandates put upward pressure on compliance costs and electricity prices.

In the October 14 Staff Proposal and during the October 21 workshop, staff outlined its proposal for post-2020 allocation of allowances to EDUs. Staff noted that the proposal is based on “cost burden,” which is defined as the “anticipated incremental cost of power to serve load due to the requirement to surrender compliance instruments in the Cap-and-Trade Program.” While similar to the methodology used for the 2013-2020 allocation, the October 14 proposal differs in several material respects, and most notably on the extent to which it provides meaningful mitigation to the EDUs on behalf of their electricity customers. The allowance allocation proposal is concerning because of the substantial decrease in mitigation provided post-2020, and in particular, the significant difference between the 2020 allocation and proposed 2021 allocation and steep reductions in allocations through to 2030.

Since release of the proposal, NCPA has worked with staff and other utilities to clarify the assumptions and data used therein. NCPA will continue to work towards ensuring that the data accurately reflects each EDU’s load profile and associated factors designated in staff’s characterization of the cost burden, and correct inadvertent errors or miscalculations. In the meantime, NCPA offers these perspectives based on the information available so far, but looks forward to continuing to work with staff and other stakeholders on refinement of the proposal in advance of the release of 15-day changes. However, even as those specific inputs are refined, NCPA remains concerned with the overall characterization of the allocation methodology and the significant extent to which the proposal reduces the mitigation available for electricity customers.

As proposed, the allowances allocated to EDUs in 2021 reflects a significant drop from the 2020 allocation, yet corresponds with a tightening emissions cap. This reflects an approximately 65% reduction from 2021-2030 for EDUs whereas the overall cap decrease is aimed at meeting a 40% reduction mandate. The constricted allocation is compounded by application of both the 50% renewable portfolio standard (RPS) mandate and an aggressive cap decline factor over the course of the allocation period. NCPA recommends that the interaction between application of the increasing renewable mandate and corresponding cap decline factor be further assessed, and adjusted to alleviate the steep trajectory.

Accounting for Load Growth v. Fixed Allocation: The staff proposal includes two different options for determining the load used to base each EDU’s allocation. The first option would account for load changes over time as estimated in the CEC demand forecast or S-2s. The

alternative is to apply a static number with loads fixed for 2021-2030 at the level estimated for 2020 in the demand forecast or S-2s. Allocation of allowances should cover the EDUs' cost burden, and should do so over the course of the program. Electricity usage will vary across utilities, but transportation of the transportation of the transportation and other sectors of the economy to lower emissions puts increase demand on electricity generation as a cleaner fuel source. Even accounting for increases in energy efficiency and other load-reduction options, California's economy is expected to grow, and that growth will directly impact the load EDUs' will be serving in the future. Since some utilities anticipate more varied load growth than others, EDUs should be able to designate which option best meets their anticipated – and yet unknown – load growth.

RPS Adjustment: The RPS Adjustment is an important tool that helps mitigate compliance costs, recognizes EDU investments in renewable energy, and aligns the common objective of the cap-and-trade and RPS programs. NCPA appreciates staff's recognition that the previous proposal to eliminate the RPS adjustment and allocate allowances to compensate for renewable energy that cannot be directly delivered into California would have resulted in substantial harm to many EDUs. Staff's revised proposal to continue the RPS adjustment post-2020 addresses many of the concerns raised by stakeholders in their September 19 written comments and during the September 22 Board meeting. However, as staff noted during the October 21 workshop, there are still concerns with the way RPS adjustment claims are being report and credited which must be resolved. NCPA looks forward to working with CARB staff on the necessary clarifications and guidance to support accurate reporting of RPS-eligible resources and ensure that those entities that paid a premium for the renewable energy credit (REC) associated with the imported electricity are able to claim the RPS adjustment, including refining and modifying current proposed changed to the Program and MRR that would remove requirements to report and verify RECs. Amendments to the cap-and-trade program and MRR must continue to recognize the significance of RECs as a fundamental element.

Transportation Electrification: Electrification of the transportation sector is a critical component of the state's GHG reduction strategy. Transformation of the transportation sector is occurring right now and increased electrification has a direct impact on the EDUs. While this impact is readily acknowledged, staff's proposal does not allocate any allowances to the EDUs to mitigate the cost impacts of increased electrification on electricity customers. NCPA appreciates staff's commitment to continuing to work with stakeholders and the energy agencies on addressing the impacts that transportation electrification will have on EDUs, and urges the agency to make this a priority issue. Comprehensive and coordinated discussions and very important, as is recognition of the immediate impacts on EDUs as part of the current rulemaking.

RPS Program Mandate: The proposal includes a component linked to the EDUs' requirement to meet the state's RPS Program mandates; state law requires retail sellers to procure eligible renewable resources equal to 33% of their retail sales by December 31, 2020 and 50% of retail sales by December 31, 2030.⁶ As part of the cost burden calculation, staff's proposal states that the RPS mandate will be applied to "load," whereas the statute provides that the RPS mandate applies to retail sales. Application of the 33%-50% RPS mandate to total load rather than retail sales can overstate the amount of zero-emissions resources in the EDUs'

⁶ Public Utilities Code Sections 399.15, 399.30.

portfolio, further reducing the total number of allowances allocated. The calculation used in staff's proposal should be corrected to properly reflect that the EDU's RPS obligation is based on retail sales and not on a retail seller's total load.

Reduction for Industrial Covered Entities' Purchased Electricity: NCPA shares the concerns expressed by other stakeholders regarding staff's proposal to reduce allowances allocated to EDUs to reflect the purchased electricity of industrial covered entities. Doing so complicates the manner in which EDUs – and POUs in particular – return allowance value to customers. It creates the potential for reducing the ultimate benefit to customers that are *not* covered entities because covered entities may still benefit from various programs and measures funded by allowance proceeds. Likewise, the covered industrial customers that received a direct allocation are likely to receive a “double benefit.” As noted in NCPA's September 19 comments, this proposal impacts ratemaking and program design, and should not be adopted.

Early Action in the Context of Decreasing Cap: In characterizing the differences between the 2013-2020 allocation and the current proposal, staff noted that early actions are not recognized post-2020 because those credits were intended to recognize actions taken prior to initiation of the new program (what is now the current program). This rationale, however, is flawed to the extent that the concept of early actions does not look at costs associated with EDU reductions that go beyond the current program *and* the fact that the post-2020 cap-and-trade program is not merely a continuation of the current program, but one that includes a significant reduction in the total emissions cap. As such, it is entirely appropriate for allowances to be allocated to the EDUs based on costs associated with actions taken to reduce emissions *beyond the current mandate*. To do otherwise will disincentive compliance entities from taking such actions in the future as they question the benefit of doing so considering the potential for ever-changing reduction mandates. And while it is true that actions that result in EDU emissions reductions ultimately reduce the EDU's cap-and-trade compliance costs, those other programs and measures are often costlier overall than cap-and-trade program compliance instruments. Staff is strongly urged to review the stakeholder comments on the definition of “cost burden” and ensure that allowance allocations properly recognize the role that the EDUs play in California's climate reduction strategy.

AB 197 & Post-2020 Cap-and-Trade Program Design

During the October 21 workshop, Staff discussed the need for potential changes to the Program to address new requirements mandated by AB 197 and in response to stakeholder comments about the efficacy of the current Program design features. First and foremost, as staff acknowledged, AB 197 *does not* mandate that any changes be made to the cap-and-trade program. Despite this, however, staff is considering changes, including reducing the ability of compliance entities to use offset credits, adjusting allocation of allowances to industrial covered entities, and retiring unsold state-owned allowances making them unavailable for compliance entities in the later years of the program. Each of the proposals has the same result: increasing cap-and-trade program compliance costs. For NCPA's members, this means increased electricity prices. NCPA does not believe that any of these changes are warranted, nor justifiable at this time. The cap-and-trade program is part of a comprehensive suite of programs and measures designed to meet the state's climate change objectives. It does not take the place of some

facility-level measures, nor is it designed to meet the same objectives as those measures. Rather, it complements the state's other emissions reductions programs by filling a gap between no-regulation and onerous site-specific mandates; it does so while providing a way for entities to achieve mandated reductions in the most cost effective manner. The result is a statewide reduction in GHG emissions and mitigated cost impacts on California's consumers, residents, and businesses. It is within this construct that any programmatic changes should be viewed.

Of greatest concern to NCPA is the proposal to retire state-owned allowances that are not sold in the auction before 2020. Doing so will significantly constrict the availability of compliance instruments leading into a time when they will be needed the most. It is incorrect to view these allowances as "excess" instruments or otherwise unnecessary based on the low volume of activity in recent auctions. As noted by NCPA and several other stakeholders in the September 19 comments, uncertainties regarding the cap-and-trade program, current market conditions, and myriad other factors are impacting the price and volume of allowances sold in the auction. Due to these uncertainties, the current market should be not viewed as an indication of the extent to which the allowances will be needed to meet the stricter reduction mandate moving forward. Constricting the availability of allowances will not necessarily result in more immediate reductions.

There is no evidence to support the correlation that fewer allowances in the market will result in the sought-after facility-level reductions the change is aimed at effecting. Instead, it will merely drive up the price of allowances and the price of program compliance. Furthermore, economic modeling indicates that achieving the 2030 cap will be a challenge for compliance entities, making the availability of compliance instruments in future years even more important in controlling program costs. The availability of unsold allowances is recognition that entities are achieving reductions under the current program, but should not be taken as an indication that the current trajectory of reductions can be maintained in the context of the 2030 (and beyond) more stringent emission reduction targets.

Market Data Transparency

A great deal of information regarding the cap-and-trade program auctions and markets is made publicly available by CARB. Stakeholders, regulators, and the public have varying interests in reviewing data about market participants, compliance entities' holdings and transactions, and auction results. The release of more information must be carefully considered to ensure that disclosure is narrowly tailored to address a specific and necessary need and does not jeopardize the market position of participants or compromise compliance strategies of those required to buy, sell, and surrender compliance instruments. During the 2013 rulemaking to amend the regulation, there was extensive discussion regarding market oversight and monitoring, and data disclosure. The culmination of several workshops, proposals, and rounds of comments is reflected in the data that is current made publicly available. Amendments to the Program were adopted that reflect a balance between the need for CARB oversight, the public's right-to-know, and protecting market participants.

NCPA does not believe that the release of more detailed information regarding compliance entities' market transactions is necessary; indeed, it is ill advised. The release of facility-level data does not provide additional benefits for market oversight or create greater market efficiencies. It does, however, provide insights into allowance procurement strategies utilized by

compliance entities, leaving those entities at risk of being gamed based on the information learned by third parties. Even when provided in an aggregated format, it creates the potential for market manipulation. There is already sufficient publicly available information to ensure that the market is functioning properly and to verify that entities are complying with the program mandates. Information on an entity's compliance with the Program is already released in Annual Compliance Reports. Information on GHG emissions by reporting entity is also reported and published annually. Likewise, quarterly auction reports, publication of allowance allocations, and summaries of allowance transfers are also publicly available. Cumulatively, this data provides considerable insight into the availability of compliance instruments versus compliance obligations. Any additional "transparency" would not further the objective of ensuring that the market is functioning properly or that participants are complying with all applicable rules. Rather, its sole purpose would be to allow monitoring of entity-specific compliance strategies. Information relevant to an entity's emission reduction strategy is not market-related data; CARB should not release this additional entity-specific data in any metric.

Emissions Accounting in the Energy Imbalance Market:

No stakeholder disputes the importance of accurately accounting for GHG emission under the cap-and-trade program, including emissions associated with transactions in the ISO Energy Imbalance Market. It is equally important to ensure that attribution of emissions that will result in a compliance obligation not result in increased electricity cost or otherwise alter the efficacy of the EIM. Staff is seeking input from stakeholders on potential options that will be incorporated into the cap-and-trade program amendments to address this accounting concern. At the same time, the ISO is assessing options to address this issue as part of its review of GHG compliance in the context of the regional grid integration assessment. On October 13, the ISO presented an update of its Regional Grid Integration – GHG Compliance Initiative that set forth the options under consideration.⁷

During the October 21 workshop, staff highlight two options it is currently reviewing. Staff's "incremental deeming option" is the same as Option 2 presented at the ISO October 13 technical workshop. Staff's second option, the "dynamic hurdle rate option," is a modification of the ISO Option 3. Neither option fully addresses the problem identified by CARB nor the concerns raised by stakeholders regarding the attribution of the GHG compliance obligations or impacts on the functionality of the EIM. Further, as NCPA noted in comments to the ISO,⁸ there are several questions regarding the ISO's proposed options that must be addressed before moving forward; including how the GHG accounting proposals will protect against the potential for discriminatory treatment between in-state and out-of-state generators that could result in disadvantaging lower-emitting generators in the EIM.

⁷ ISO Technical Workshop on Regional Integration California Greenhouse Gas Compliance, October 13, 2016; <http://www.caiso.com/Documents/UpdatedAgenda-Presentation-RegionalIntegrationCaliforniaGreenhouseGasCompliance-TechnicalWorkshop.pdf>

⁸ Comments of Northern California Power Agency Regional GHG Compliance October 13 Technical Workshop, October 27, 2016; <http://www.caiso.com/Documents/NCPAComments-RegionalIntegrationCaliforniaGreenhouseGasCompliance-TechnicalWorkshop.pdf>

While resolution of this issue will require a solution coordinated between CARB and the ISO, both agencies are currently engaged in separate processes; CARB is working on proposed 15-day changes to the Cap-and-Trade Program Regulation and the ISO is developing GHG Compliance options for a potential regional market. Further compounding uncertainties regarding resolution of this matter is the fact that CARB is considering options not entirely aligned with the options being considered by the ISO. This creates significant challenges for stakeholders in providing meaningful feedback. NCPA urges CARB to address resolution of this issue in a single, coordinated tranche with the ISO. Once a viable solution has been determined as part of the coordinated process, each entity can then take the necessary steps to incorporate the proposal into their respective proceedings for final approval and implementation.

Conclusion

The Cap-and-Trade Program has played a critical role in success of California's climate change objectives and should continue. Compliance entities are successfully reducing emissions.⁹ The important contribution that EDUs make to emissions reductions and the corresponding cost burdens should also continue to be recognized through meaning allocation of allowances to EDUs for the benefit of their electricity customers. Staff should to continue to work with the EDUs and other affected stakeholders to ensure that the allocation of allowances fully captures the EDUs' cost burden and provides the maximin mitigation to California's electricity customers. NCPA looks forward to this continued collaboration and development of a revised allocation proposal for 15-day changes. Please do not hesitate to contact the undersigned or Scott Tomashefsky at 916-781-4291 or scott.tomashefsky@ncpa.com if you have any questions regarding these comments.

Sincerely,



LAW OFFICES OF SUSIE BERLIN
Attorneys for the **Northern California Power Agency**

⁹ <https://www.arb.ca.gov/newsrel/newsrelease.php?id=872>



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November 4, 2016

Clerk of the Board
California Air Resources Board
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Sacramento, CA 95814

RE: October 21, 2016 MRR and Cap-and-Trade Regulation Workshop

Dear Ms. Sahota:

On behalf of the members of the California Council for Environmental and Economic Balance (CCEEB), we thank the California Air Resources Board (ARB) for this opportunity to comment on the proposed regulation for potential amendments to the Cap-and-Trade Program. CCEEB is a non-profit, non-partisan association of business, labor, and public leaders, which advances balanced policies for a strong economy and a healthy environment.

Overview

With SB 32 (Chapter 249, Statutes of 2016) now law, CCEEB believes that additional emphasis on Cap-and-Trade is necessary to achieve cost-effective emission reductions and to send a clear market signal to facility operations and projects. CCEEB supports a well-designed Cap-and-Trade Program as the most economically efficient, transparent, and environmentally effective policy for California to achieve statewide greenhouse gas emission reductions and meet the 2030 goal.

Compliance flexibility allows California businesses to select reduction strategies that best suit their unique needs and evolving circumstances, while delivering real emission reductions more efficiently and at less cost than direct measures. Cap-and-Trade continues to achieve GHG emission reductions while sending a clear and transparent price signal throughout California's economy. This in turn prompts behavior change that reduces emissions and spurs the investment and commercialization of advanced technologies. Additionally, Cap-and-Trade provides the potential to export the policy to other jurisdictions through linkage or sector-based offsets, providing a real platform for California to realize its goals as a climate leader.

Prescriptive regulatory amendments, such as, release of market data, cost burden allocation approach, reducing offsets, and unused allowance retirement, set California on a limited path with narrow solutions that will ultimately be costlier, limit technological development, and lead to economic and emissions leakage. Our post-2020 policies should support the opportunity for new, emerging technologies and control strategies, and allow California to do what it does best – innovate.

Moreover, climate change cannot be mitigated by California alone. Policies that reduce greenhouse gases in the most economically efficient way serve as valuable examples that encourage other jurisdictions to link to California, or emulate the State's approach. Adding extraneous policies, stringency, or complexity that does not enhance the efficacy of the program will discourage rather than encourage other states, provinces, and countries to join the fight against climate change. Given today's economic realities, pursuing high cost policies that constrain Cap-and-Trade will only serve to further isolate California from potential sub-regional, national, and international partners. Other jurisdictions will not follow costly programs that create additional economic pressures and impede sustainable economic growth. Even worse would be policies that limit or outright bar California from joining in partnerships with other jurisdictions, either through linkage or use of offsets. Insular policies may achieve in-state goals, but they will not solve global climate change.

ARB, with public input, has spent the last decade developing a strong Cap-and-Trade Program. In light of SB 32's even more ambitious carbon reduction targets, now more than ever, a well-designed Cap-and-Trade Program is needed to help California meet its environmental goals while maintaining a strong economy. We appreciate the work that ARB staff has done to launch Cap-and-Trade; however, we are at a crossroads due to competing political priorities and litigation that could upend the program's success. We urge ARB to keep climate change at the forefront of its policy objectives.

AB 197 – Measured Response

Assembly Member Eduardo Garcia (D-Coachella), the author of AB 197, testified in Assembly Natural Resources Committee on August 24, 2016:

“I also want to just clearly state that we to are supportive of the Cap-and-Trade program, the leadership of the Senate who moved the bill out this week is in support of the Cap-and-Trade program, the leadership of the Assembly is in support of the Cap-and-Trade program, the governor of the state is in support of the Cap-and-Trade and has asked that 197 be sent to his desk as a package with SB 32. So, I wanted just to state that the intention is by no means to tamper with the Cap-and-Trade program.”

In an August 31, 2016 letter to the Assembly Journal, Assembly Member Eduardo Garcia stated, *“It is my intent that nothing in Section 38562.5 shall be interpreted to preclude ARB from adopting any market-based compliance mechanism pursuant AB 32.”*

Based on these statements, CCEEB urges ARB staff to be measured in its response to AB 197 and limit proposed amendments to the Mandatory Reporting Rule and Cap-and-Trade Program at this juncture. Now is not the time to propose radical departures from current program design based on inference of intent without explicit statutory guidance. It is clear that Assembly Member Eduardo Garcia, the Legislature, and the governor did not intend for ARB to substantially deviate from the existing Cap-and-Trade design.

Unfortunately, the proposal presented by staff at the October 21 workshop, does just that. Moreover it conflicts with AB 32's mandate to ensure cost effectiveness. Issues of concern

include a reduction of offsets, shifting the cost burden through reduction of industry assistance, and retiring allowances from the pre-2020 allowance price containment reserve (APCR). Nothing in AB 197 directs ARB to take such drastic actions. It is premature to make these changes prior to completion of at least two more compliance periods, when the full scope of the program will have been in effect and back-loaded elements of the Scoping Plan implemented. We note that at the workshop, staff acknowledged that the Cap-and-Trade Program already achieved direct emissions reductions.

The Cap-and-Trade proposal appears to be designed with a “cost burden” assumption that higher compliance costs will result in increased direct emissions reductions. CCEEB disagrees with this premise. Rather, CCEEB believes that the post-2020 program needs to be designed to *increase* cost effectiveness, both as a means to maximize GHG emissions reductions (i.e., “biggest bang for the buck”) and as a way to prevent emissions and economic leakage in the post-2020 program as the declining cap drives up the cost of carbon.

Nancy McFadden, executive secretary for the governor, stated on August 4, 2016, “*Let this be clear: We are going to extend our climate goals and **Cap-and-Trade program** – one way or another. The governor will continue working with the Legislature to get this done this year, next year, or on the ballot in 2018.*” This statement stands, and while SB 32 sets a new 2030 climate goal, there is still need to explicitly adopt Cap-and-Trade. Legislation will likely be introduced in the 2017-18 Legislative Session that will explicitly address this; it is prudent to hold off on speculating legislative intent until there is legislation dictating how Cap-and-Trade should be designed post-2020.

The Visible Hand - Release of Additional Market Data, Retirement of Unused Allowances, and Reduction of Offsets

CCEEB opposes the release of market sensitive information on holding and compliance accounts. The release of this information may make entities vulnerable to market manipulation and serves no purpose that cannot be met by compliance reporting already available to ARB. This data includes:

- Quarterly CITSS Registrant Reports
- Quarterly Auction Summary Results Reports
- Annual Compliance Reports
- Annual summary of transfer reports
- Quarterly Compliance Instrument Reports
- Other data related to Cap-and-trade including GHG emissions reporting and California Climate Investment fund proceeds and investments

CCEEB is willing to discuss what additional aggregated data could be included, but rejects the informal proposal presented at the workshop, as we believe that it would substantially damage the market.

The retirement of unused allowances further constricts the market. While this proposal might be in reaction to the limited participation in recent auctions, CCEEB flatly rejects the proposal as it would have substantial unintended consequences. As previously stated, litigation and lack of

post-2020 certainty are impacting participation in recent auctions. However, these issues will likely be addressed in the near future. Restrictive amendments made in response to these problems may hurt California's leadership position and the economic efficiency of the program over the long term.

Additionally, the proposal to reduce the offset limit to 4% will hurt California's leadership position, disregards the importance of carbon sinks, and constrains the reach of Cap-and-Trade to a very few facilities and fuels. Offsets extend the influence of Cap-and-Trade to sectors and jurisdictions not covered by California's climate policy. If the ultimate goal is to mitigate and reduce greenhouse gases, this policy change will reduce California's impact, yet increases costs to Californians.

Need for Open Data and Reproducible Study Results

CCEEB is concerned by the difficulty in analyzing the economic impacts of the proposed amendments due to the lack of information on trade exposure status, holding limits, and other cost containment policies (besides the Allowance Price Containment Reserve). ARB is being guided by leakage studies conducted by Resources for the Future and the University of California, Berkeley. However, the raw data and assumptions used for these highly caveated reports are not available. Furthermore, authors of both studies have cautioned against an over reliance on results. We fear that ARB has taken the conclusions from these studies as facts and are proceeding forward without due caution. Examples of the researchers concerns on use of the data:

In the UC Berkeley Paper, Meredith Fowlie explained that the results do not “estimate leakage potential for any particular industry with any degree of precision.” (Fowlie, et al, p. 41) The authors go on to state, “However, the general patterns that emerge are insightful.” (ibid, p. 42) These general patterns include conclusions such as the greater the level of competition, the higher the demand elasticity and greater the potential for economic and emission leakage. This intuitive result does not appropriately provide a foundation for a leakage analysis that can provide results “with any degree of precision.”

Further, authors explained that it is difficult to accurately identify the point of origin of U.S. trade exports. “This makes it difficult to separately identify California trade flows.” (ibid, p. 16) Authors go on to explain how they use a proxy for purposes of this exercise.

These are but two examples of the difficulty of accurately evaluating the impact of California-only policy on Energy-Intensive Trade-Exposed industries. Given this uncertainty, policy makers must remain focused on the primary goal, reduced GHG emissions.

We ask ARB to work with stakeholders and make the missing information publicly available so that others can reproduce results from the leakage studies. Peer review is essential. This is important since the proposed amendments seek to substantially reduce industry assistance to all sectors, in many cases by half or more compared to today. Public engagement has been further stymied by a lack of detail about post-2020 program design, which limits stakeholders' ability to assess potential economic and operational impacts between 2020 and 2030. Regulated entities

need access to this information in order to verify findings and determine how proposed program changes will affect California's businesses and economy.

CCEEB is also concerned by the method by which ARB is calculating the 2030 "cap" for the Cap-and-Trade Program. Staff assumes that 77 percent of statewide emissions will be under the cap by 2020. When applied to 2030, this would set the cap at 200.5 MMT per year, which we believe could be overly stringent. The mix of covered entities and amount of associated emissions will change over time. ARB should apply a more robust analysis to the 2030 cap, rather than simply accepting assumptions made during the 2010 rulemaking.

Based on the limited information we currently have available, CCEEB makes the following observations:

- ARB appears to be focused on only preventing emissions leakage, to the exclusion of other program goals, including prevention of economic leakage.^[1] Although it might be expected that California facilities are so efficient that emissions leakage and economic leakage are the same, this is not always the case. As applied to manufacturing, which must operate at a relatively efficient capacity, economic leakage could result in reduced investment and manufacturing loss. For example, in both cases below, the manufacturer loses market share to out-of-state competitors even as emissions remain the same or even potentially increase if production is replaced by less efficient sources, i.e., economic leakage occurs without emissions leakage:
 - Demand destruction: If California's demand for products decreases, then the amount of emissions associated with California's carbon footprint also decreases. California would consider emissions leakage for products for which there is California demand. If demand drops, however, and industry increases exports but faces out-of-state competition, this results in economic leakage. For example, if demand goes from 100 units to 90, instate supplied 50 but now 30 and out-of-state supplied 50 but now 40, ARB would only address 10 units, not the full 20.
 - Increases made by out-of-state producers that have the same emissions as in-state producers may not be considered emissions leakage, but it is economic leakage.
- Emissions Leakage may not be one for one. If emissions leakage occurs because production shifts to a less efficient out-of-state facility, with products transported to California to meet in-state demand, then emissions leakage is greater than 1:1. If actual emissions leakage is not 1:1, then ARB is under estimating the potential for leakage by basing their assumptions on a 1:1 exchange.

CCEEB proposes the following Cap-and-Trade Program Amendments:

1.) Remove Unnecessary Constraints on the Market that Increase Cost

^[1] Page 3, Section 38501 (h) It is the intent of the Legislature that the State Air Resources Board design emissions reduction measures to meet the statewide emissions limits for greenhouse gases established pursuant to this division in a manner that minimizes costs and maximizes benefits for California's economy, improves and modernizes California's energy infrastructure and maintains electric system reliability, maximizes additional environmental and economic co-benefits for California, and complements the state's efforts to improve air quality.

Portions of the proposed amendments and existing program unnecessarily constrain the market. The advantage of a Cap-and-Trade program is to allow market pressures to create solutions that best fit business models and consumer behaviors. Due to the current market size, some limitations are necessary. However, care must be taken to ensure market liquidity. Of concern are the following:

- The holding limit is too low. As written, the Cap-and-Trade programs holding limits create an uneven playing field that wrongly favors bankers and traders, that do not have a compliance obligation to plan for, over large regulated entities that are constrained in the quantity of their holdings due the size of their compliance obligation relative to a holding limit. Compliance entities must be able to hold and trade a larger portion of their allowances to adequately manage their risk and plan for compliance throughout the Cap-and-Trade program, including any post-2020 Program.

CCEEB recommends that the program allow compliance entities to hold sufficient allowances to cover their obligation for the entire compliance period based on a rolling three-year emissions obligation and enable a much more liquid market where an entity could adequately hedge its forward risk without major complications.

- CCEEB has concerns with an annual surrender as it doesn't allow facilities to freely adjust their holdings over the compliance period, removing the benefit of a 3-year compliance period. While there may be legitimate concerns about default risk, the ARB should not penalize entities that are not true risks. To address this, ARB should establish a financial assurance test that would exempt non-risk compliance entities from an annual surrender. We note that all compliance entities have an interest in preventing others from defaulting, and that any financial assurance test would need to be rigorous to avoid risk from defaults.
- Business fluctuations at the end of a compliance period should be anticipated. These fluctuations could adversely impact the smooth operation of the market. To minimize market impacts, CCEEB recommends that ARB allow vintage allowances (i.e. borrowing from current year) to be used during the true-up period. This will provide a mechanism for the end of compliance true-up and will increase market confidence.

2.) Establish a Program to Monitor California's Economic Health and Market

The Cap-and-Trade regulation impacts a significant portion of California's businesses and consumers. It is imperative that the State monitor leading indicators that reflect the economic health of California. The ARB must be positioned to identify any potential problems that may be inadvertently caused by this regulation, and in time so that any regulatory structural problems can be corrected before they cause significant damage to the economy. CCEEB recommends that the ARB include provisions in the Cap-and-Trade regulation to:

- Monitor specific economic indicators, including Cap-and-Trade market elements, such as, the price in the quarterly auctions, the functioning of secondary markets, adequacy of the Allowance Price Containment Reserve, detection of market manipulation, offset supply, evidence of contract shuffling, progress towards achieving the 2020 target, total cost of the program, jobs in manufacturing, vacancy rates, home sales, volume of trade

through ports, GSP, energy prices, and other indicators used by the Department of Finance to monitor the health of California's economy;

- Establish formal reviews of the regulation, based on market monitoring, at least once each compliance period; and
- Develop and implement a more structured process and approach for evaluating the comparative cost-effectiveness of program measures, as well as the relative cost-effectiveness of those measures vis-à-vis the Cap-and-Trade program, and identify any potential problems.

CCEEB has long recommended the inclusion of transparent economic indicators to evaluate program success. In a letter to the ARB on May 17, 2007, regarding *Proposed Early Actions to Mitigate Climate Change in California*, CCEEB stated, "that it is important to view the market mechanisms as a continuum that continually examines the economic impact of the program and allows for realistic turnover of capital investments." CCEEB suggested that, "the [ARB] consider recommending additional details surrounding the implementation of the Cap-and-Trade program in its report so that any market system failure can be properly mitigated with as minimal impact to the California economy as possible. This detail should include identification of the criteria and data that will be needed to determine that there is a working market and the information that needs to be tracked to identify market system failures before they cause significant harm."

Market monitoring is essential to help ensure reasonable market behavior and results, and to instill confidence among market participants and other stakeholders. For example, the Federal Energy Regulatory Commission requires that all organized electricity markets (including the CAISO) have independent market monitors. Independence helps ensure monitoring is done objectively and is aligned with the best interest of the auction. CCEEB recommends that an Independent Market Monitor be established with authority to: (1) review bids prior to the running of any auction; (2) provide analysis of the competitiveness of any auction, preferably on an ex-ante basis (e.g. prior to running the auction); and, (3) report findings and concerns to the ARB and the California Senate Energy, Utilities and Communications Committee.

3.) Establish a Process to Refill the Allowance Reserve

In addition to the primary cost containment mechanism of using offsets, CCEEB supports an allowance reserve as an insurance policy against events, such as unexpected market dynamics or difficulties obtaining ARB-approved offsets. An Allowance Reserve provides market certainty and helps contain costs. We understand that it is the ARB's intent to fix any problems through the regulatory process, or initiate the emergency provision of the Health and Safety Code, Section 38599, if the reserve is depleted. We believe that the regulatory process may be too time consuming to respond, and that relying on the emergency trigger creates undue disruptions and is unwarranted. Instead, CCEEB recommends that the ARB preplan for contingencies and adopt a process to backfill the reserve before it is completely depleted. The refill mechanism should trigger once the reserve is 50% depleted to bring more supply into the market, recognizing that use of the reserve indicates scarcity and potential liquidity problems. To preserve environmental integrity, we note that the Legislature and the ARB could utilize a portion of the revenue from the sale of "refilled" allowances to purchase and retire an equivalent quantity of high-quality GHG instruments (such as offsets) from another program.

4.) Adopt Offset Protocols as Quickly as Possible and Avoid Unnecessary Limitations

CCEEB supports the idea of unlimited, high-quality offsets to contain costs. Essentially all the studies on the economics of Cap-and-Trade show that offsets are critical to minimize costs. In some models (most notably those by USEPA, Congressional Research Service, and CRA International), Cap-and-Trade cost reductions range from 40% to 80%, depending on the model and the any restrictions on the use of offsets. Limiting offsets increases costs to California businesses, which leads to leakage of both jobs and emissions out of state. Within California and the nation, economic modeling has demonstrated that offsets provide near-term opportunities for cost-effective, verifiable GHG reductions that deliver long-term, sustained emissions reductions. Offset credits should be allowed without any geographical or quantitative restrictions. Unfortunately, ARB staff's informal proposal is to further limit offsets; this would be counter-productive, costly, and parochial at a time when California is striving to provide international climate leadership.

Previous adverse local impact arguments for offset limitations have been challenged by the ARB Co-Pollutant Emission Assessment, which found *de minimis* co-pollutant co-benefits from quantitative restrictions on offsets. Quantitative restrictions on offsets do not provide meaningful co-benefits. As such there, is little reason to limit the use of offsets as a compliance instrument. Abundant offsets will ultimately provide environmental benefits, demonstrate state leadership, spur deployment of advanced technologies, while effectively contain costs. yet this regulation unreasonably restricts their use.

Developing economies are using more energy to fuel their economic growth, thereby increasing global GHG emissions, and rejecting binding caps on emissions. Constraints on offsets, in the belief that local co-benefits can be realized, inhibits the adoption of GHG policies in other nations. For example, deforestation causes 15% of our global GHG emissions- representing a higher global percentage than transportation. Offsets present a huge shovel-ready solution, implementable today at scale, with a high impact on a dollar-per-dollar basis, meaning the dollars go further towards averting climate change than many complementary measures adopted pursuant AB 32. Imposing limits on the use of offsets, on the other hand, simply raises the cost of the emission reduction program, and comes at the risk of undermining political support for without providing real environmental benefits.

Instead, the ARB should move rapidly to (1) *raise* the offset limitation above 8%, (2) adopt additional offset protocols for projects viable in California, (3) recognize national and international offset programs, and (4) remove restriction on carrying over unused portions of an entity's offset limit into subsequent compliance periods. This will ensure that local benefits are captured while still leading the developing world towards a low-carbon future. Additional supply options should include:

- Use of additional Climate Action Reserve Protocols;
- Use of offsets from Western Climate Initiative Partners;
- Support the development of REDD+ Projects;
- Approve protocols developed by California air districts, as appropriate.
- Allow unused offset allocations to be carried over

5.) Expedite Linking with Other GHG Cap-and-Trade Programs

California businesses continue to need access to a pool of verifiable offsets and allowances. The EU carbon markets produce robust offsets and allowances. Linking to the EU would ensure a supply of high-quality and tradable market instruments for California's carbon market.

If and when, a Clean Power Plan (CPP) mass-based trading program emerges, California's program should be positioned to link with it. This provides more opportunities to reduce emissions as well as larger markets for California's clean energy technologies and products.

Relying on a limited market Cap-and-Trade program to reduce emissions in California without linkage to a broad, liquid market diminishes the economic efficiency of Cap-and-Trade and undermines the policy goals.

CCEEB recommends expediting linkage and making it a priority. If linkage to sizable multi-jurisdictional markets and economies that equal or exceed California's is not possible, then CCEEB believes that other cost-containment measures must be adopted to soften the economic impact of this regulation and limit leakage of jobs and emissions.

Natural Gas Suppliers

In recognition of the challenges facing natural gas suppliers to source alternative supplies of natural gas, current regulations provide a gradually decreasing cap adjustment factor and a gradually increasing minimum consignment percentage to avoid sudden and significant ratepayer impacts. ARB's proposal to nearly double the annual rate of decline from the current cap adjustment factors, and increase the consignment percentage to 100% in 2021, will result in significant costs to Californians and reduce the amount of consignment revenue available for cost mitigation. Accelerated cap adjustment factors and consignment percentages will have a severe impact on Californians. CCEEB requests that ARB not increase the consignment factor to 100% in 2021 and maintain the current plan is 5% per year reaching 100% in 2030.

Municipal Solid Waste

Municipal solid waste (MSW) combustion facilities (waste-to-energy) are currently included in the Cap-and-Trade program by virtue of the fossil-derived waste components of the incoming waste stream. The three-impacted waste-to-energy facilities, all serving state municipalities, receive post-recycled waste that can either be managed at these facilities or at a local landfill. Directing post-recycled MSW to a landfill instead of a waste-to-energy facility results in a greater amount of greenhouse gas emissions due to release of fugitive landfill methane emissions. In fact, if an avoided methane component is added to lifecycle calculations of overall emissions of the waste-to-energy facilities—using a methodology approved and reviewed by ARB staff—then the GHG CO_{2e} emissions would actually be negative.

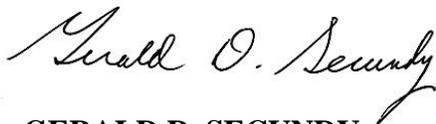
The waste-to-energy facilities have no ability to control the incoming MSW, so there could be no opportunity to reduce fossil-based CO₂ emissions, leaving the purchase of allowances, or CARB compliance obligations, as the only option. These facilities cannot pass allowance costs through to their customers since the customers would instead choose the cheaper option of landfilling, resulting in a greater amount of greenhouse gas emissions, as described previously, an “internal to California leakage.”

CCEEB believes that these waste-to-energy facilities should receive a full exclusion from compliance obligations rather than the partial exclusion outlined in Health and Safety Code Section 95852.2 (d). This is consistent with other widely recognized international Cap-and-Trade frameworks, proposed Federal climate legislation, and the regional program RGGI, and should be an important consideration for future linkage. Existing State law, H&S Code Section 41516, recognizes the important nature of these facilities, and “that such projects should therefore be encouraged as a matter of State policy.” A huge financial burden placed on local governments to purchase allowances, with a strong potential to increase greenhouse gases if these facilities were forced to close, is not consistent with State policy. Considering SB 1383, these facilities should receive their exclusion until 2020 when the SLCP strategies are implemented.

Conclusion

CCEEB thanks the ARB for considering our comments on the proposed amendments to the Cap-and-Trade regulation. CCEEB represents a broad cross-section of the covered entities in California. As such, CCEEB is able to represent diverse industry sectors and offer our assistance to the ARB in developing these ideas further. CCEEB looks forward to playing an integral role in the future development and operability of California’s Cap-and-Trade Program. Should you wish to discuss our comments in more detail, please contact me or Jackson R. Gualco, Kendra Daijogo or Mikhael Skvarla, CCEEB’s governmental relations representatives at The Gualco Group, Inc. at (916) 441-1392.

Sincerely,



GERALD D. SECUNDY
President

cc: Honorable Chair & Members of the Air Resources Board
Mr. Richard Corey, the Air Resources Board
Mr. William J. Quinn, CCEEB
Ms. Janet Whittick, CCEEB
The Gualco Group, Inc.



California Municipal Utilities Association

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November 4, 2016

Ms. Rajinder Sahota
Chief, Climate Change Program Planning & Management Branch
California Air Resources Board
1001 I Street
Sacramento, CA 95814

**Re: Comments of the California Municipal Utilities Association on the October 21, 2016
Mandatory GHG Reporting and Cap-and-Trade Program Workshop**

Dear Ms. Sahota:

The California Municipal Utilities Association (“CMUA”) respectfully submits these comments to the California Air Resources Board (“ARB”) on the Mandatory GHG Reporting and Cap-and-Trade Program Workshop, held on October 21, 2016. CMUA’s comments provide input into the parallel ARB and California Independent System Operator (“CAISO”) processes on how to apply California carbon policy to expanding regional energy markets. CMUA’s comments are relevant to the existing Energy Imbalance Market (“EIM”) and the proposed integration of PacifiCorp into the full CAISO day-ahead market.

In previously submitted comments to the CAISO,¹ CMUA examined options to address this issue through the lens of certain policy guideposts. In those comments, CMUA urged the CAISO to develop a carbon accounting process that adheres to these policy guideposts. The same guidance should be used to inform ARB’s process. Certain of those guideposts include the following:

- **The Market Should Incentivize Behavior:** The market design should incent appropriate market participant behavior, not simply attribute costs. Simply creating an obligation without a means to modify behavior to reduce emissions does little to achieve policy objectives, namely reduce carbon emissions. One such example of potential market distortion is allowing the CAISO market to cover the cost of compliance obligations via an uplift collected from CAISO load to address leakage concerns due to the so-called “secondary dispatch.” CMUA’s concern is that uplift payments can adversely affect market outcomes, undermine the effectiveness of price signals, and potentially reduce market efficiency. CMUA urges the CAISO to prioritize possible market design solutions that incorporate carbon costs into the optimization, which would affect dispatch decisions through market participant bidding.

¹ CMUA Comments on “Regional Integration California Greenhouse Gas Compliance Issue Paper,” Sept. 23, 2016, available at <http://www.caiso.com/Documents/CMUAComments-RegionalIntegrationCaliforniaGreenhouseGasCompliance-IssuePaper.pdf>.

- **Unhedged Cost Exposure:** Any design should be cognizant of new cost exposure for smaller entities, some of whom may not be covered entities under ARB's rules. The design should also not create exposure that cannot be hedged or otherwise mitigated due to the fact that the source of the cost exposure is largely outside of the entities' control.
- **Economic Impacts on Generation:** CMUA is concerned that disparate rules for resources in a single optimization will discriminate against California-based resources and contribute to reduced market revenues for those resources.

At the CAISO's Technical Workshop held October 13, 2016, CAISO staff set forth three options to address GHG emissions within the context of a regional market. Based on ARB staff's presentation at the October 21, 2016 Workshop, it is CMUA's understanding that ARB has removed consideration of Option 1 due to the fact that the ARB regulation does not recognize intertemporal benefits. However, CAISO could quantify any emissions greater than the EIM resource attribution in a balancing account during a calendar year, which could be fully offset by retiring an equivalent number of instruments in that year. CMUA is also struggling to juxtapose the removal of this option when initial studies have indicated that the EIM dispatch overall may be resulting in significant GHG benefits.² ARB materials clearly indicate that the driving rationale for raising the issue of the dispatch within the EIM is to capture the overall impact of GHG emissions on the atmosphere. A reduction in GHG emissions directly resulting from EIM dispatch would appear to be highly relevant when determining whether in fact EIM or other regional dispatch are consistent with this objective. CMUA urges further consideration of Option 1, especially since EIM data is still under development and the EIM footprint has changed significantly to include additional low-emitting resources.

Only Option 2 (modifying the optimization to maintain resource-specific cost and attribution of emissions) would appear to recognize the key CMUA principle that the carbon costs should be considered in the optimization, rather than in an administrative, extra-market mechanism. While the Workshop presentation reflected CAISO concerns regarding the technical feasibility of implementing Option 2, CAISO staff did clarify that they were still reviewing this option and have not yet concluded that it is not implementable. CMUA would like to understand further the concerns of the CAISO staff regarding the technical feasibility of implementing Option 2, and urges ARB and the CAISO to continue assessing this option. Given that there appears to be some support at the conceptual level for this option, it is incumbent upon ARB, the CAISO, and the stakeholders to fully explore what possibilities may overcome these technical barriers.

The CAISO proposes to pursue what it has identified as Option 3. ARB staff has indicated that it is considering a modified version of Option 3. The CAISO Option 3 would involve developing and applying a uniform "hurdle" rate for energy transfers into California from external resources other than external resources contractually committed to California load serving entities

² Energy Imbalance Market GHG Counter-Factual Comparison, August 25, 2016, *available at* http://www.caiso.com/Documents/EIMGreenhouseGasCounter-FactualComparison-PreliminaryResults_Jan-Jun_2016_.pdf.

CMUA Comments on October 21, 2016 Workshop

November 4, 2016

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(“LSEs”). CMUA is highly concerned about this approach. First, consistent with CMUA’s principles stated above, applying a uniform hurdle rate to all energy transfers into California may not accurately reflect the costs for emissions in the prices for GHG-emitting resources. As CMUA understands it, potentially lumping high and low-emitting resources creates perverse incentives by disadvantaging low-emitting resources and advantaging higher emitting resources. The prices for low-emitting resources will be elevated as compared with resource-specific attribution of emissions costs, and the prices for high-emitting resources will be suppressed, leading to dispatch outcomes directly contrary to the objectives of California’s GHG program. In addition, LSEs within California will have no ability to predict the levels of additional charges for which they may be responsible nor to mitigate such charges by changing behavior. Moreover, it would appear extraordinarily difficult, if not impossible, to calculate a hurdle rate that neither over-collects nor under-collects the emissions costs for energy transfers into California. As a result, the entities responsible for providing compliance instruments for such transfers will have a clear risk of incurring unreimbursed costs.

Option 1 should continue to be considered as ARB works with the CAISO and stakeholders on resolution of this issue, and it seems clear that the underlying rationale for rejecting Option 1 must be further examined. If there are regulatory and statutory limitations that thwart the pursuit of a common sense solution, then given that we are in the throes of a regulatory process, now would be the time to identify and address these impediments.

CMUA appreciates the opportunity to provide these comments on the October 21, 2016 Workshop, and thanks the ARB for its review and consideration.

Respectfully submitted,



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4 November 2016

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California Air Resources Board
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Submitted Online: https://www.arb.ca.gov/lispub/comm2/bcsubform.php?listname=ct-amendments-ws&comm_period=1

IETA COMMENTS ON CALIFORNIA AIR RESOURCES BOARD'S CAP-AND-TRADE REGULATION AMENDMENTS WORKSHOP

The [International Emissions Trading Association](#) (IETA) welcomes the opportunity to provide comments on California Air Resource Board (ARB)'s [Cap-and-Trade Regulation Amendments Workshop](#), held on 21 October 2016.

California is entering a critical phase in its global climate action leadership. As the leading voice for the world's international business community on climate markets and finance, IETA is a staunch supporter of California's strong commitment to Cap-and-Trade and tangible environmental market links with other jurisdictions. **IETA therefore commends ARB's continued support of Cap-and-Trade as a vital, cost-effective cornerstone tool in California's climate policy architecture.** We regard market solutions as the best means to: drive climate action and investment across key sectors of the economy; meet climate targets cost-effectively; and accelerate low-carbon transformative economic and societal changes.

KEY TAKEAWAYS AND RECOMMENDATIONS

A selection of IETA's key observations and recommendations to ARB are summarized below.

- 1. Reducing greenhouse gas (GHG) emissions and improving local air quality are two distinct and separate issues.** While cross-over impacts exist, their respective objectives should be assessed and regulated independently, as to avoid inefficiencies and confusion.
- 2. California's 2030 and 2050 emission reduction targets are significant and will lead to significant GHG reductions across multiple sectors.** The current Cap-and-Trade program's alignment of cap levels with these targets is a prudent policy position that will catalyze direct GHG emission reductions across the State. This extremely important market-based tool will ensure measurable environmental outcomes and certainty that reduction targets are achieved. Cap-and-trade will achieve this goal in the most cost-effective manner, while also driving clean finance and investment across the state.

3. **California's leadership on climate mitigation is unmatched. The State's actions are driving climate partnerships and adoption of climate policy – particularly carbon market action – beyond California's borders (e.g. Asia, Canada etc.). Stifling the market or constraining critical cost-containment program elements, such as lowering offset usage limits post-2020, will be a regression in this climate leadership.** ARB should also consider the impacts that program reforms will have on current and potential partner jurisdictions. Taking radical steps to reduce compliance flexibility or prevent future linkages will undermine California's reputation at this pivotal juncture in both regional and international climate fora.
4. **Offsets are an integral aspect of California's long-term strategy to mitigate climate risks.** Carbon is a global pollutant and climate impacts to California are not jurisdictionally constrained to in-state reductions. California's offset program drives **real additional reductions** both within and beyond state borders. Offsets also encourage climate action, clean investment and technology deployment across non-covered sectors – many of which are located in disadvantaged communities.

STRUCTURE OF DETAILED COMMENTS

IETA's comments on proposed Cap-and-Trade regulation amendments, along with broader workshop-related observations, are structured around the following categories:

1. Potential Design Changes;
2. Role of Offset Credits;
3. AB197 Interpretation; and
4. Treatment of Unsold Allowances.

1. POTENTIAL DESIGN CHANGES

California's Cap-and-Trade program will drive GHG emission reductions by covered entities over the mid to long-term. Such reductions are driven by the stringency of 2030 and 2050 reduction targets.

Any additional modifications to Cap-and-Trade program design, like retiring unsold allowances, could lead to significant price spikes post-2020; an uneconomic climate solution that could increase program costs and negatively impact the competitiveness of California industry.

Worse yet, the adoption of prescriptive command and control GHG emissions reduction regulation – measures in lieu of Cap-and-Trade – could result in even higher cost implications to the consumer and broader economy. Under this scenario, California emissions intensive, trade-exposed (EITE) industries facing international competition could easily be driven out of the state, leading to carbon leakage and counterproductive results. For other sectors, significant cost increases would be borne by the California consumer, with real potential for broad political backlash across a swath of California constituencies, including stakeholders in disadvantaged communities.

2. ROLE OF OFFSET CREDITS

IETA strongly opposes the reduction of the offset usage limit in California’s Cap-and-Trade program post-2020. The reduction of offsets usage will ultimately translate into higher compliance costs for California businesses and impair the State’s ability to meet its targets for 2030 and 2050. Direct reductions will be driven by the aggressive emissions reduction trajectory of 2030 and 2050 Cap-and-Trade program caps.

Offsets are “real” emissions reductions, as required by AB 32 and the existing cap-and-trade regulation. Reducing the limit on offsets usage reduces flexibility for regulated entities to find the most cost-effective mechanisms to meet emission reduction targets. This results in higher costs to ratepayers and consumers, which would disproportionately impact lower income families, who typically are required to spend a higher percentage of their income on energy, transportation fuel and carbon intensive goods.

Offsets reduce GHG emissions while providing important co-benefits, including across California’s disadvantaged communities. Some examples include:

- **Yurok Tribe Sustainable Forest Offsets Project:** Improved Forest Management project at the mouth of the Klamath River in California. Revenue generated through offset sales enables the Tribe to improve wildlife habitat and forest health, conserve wildlife habitat, expand forestry employment, preserve culture and acquire land in their ancestral territory. Improved forest health provides additional benefits, such as preventing wildfires, which in turn reduces criteria pollutant emissions leading to better air quality and health outcomes in the state.
- **Usal Redwood Forest Carbon Project:** One of the largest Improved Forest Management carbon projects in the country encompasses more than 49,000 acres of productive redwood/Douglas-fir forest located on the North Coast of California. Extensive restoration has been conducted while sustainably managing the project to ensure carbon storage and fish and wildlife habitat maintenance for the long-term benefit of the region’s citizens.
- **Pacific Rim Dairy Digester:** This 15,000 cow dairy in California’s Central Valley installed a digester and 1 MW electric generating engine in late 2014. The installation of a digester has a number of localized environmental benefits. It eliminates ammonia emissions, which causes respiratory problems, and improves ground water and soil quality. Digesters significantly reduce pathogens associated with manure, preventing salmonella, E. coli and other dangerous pathogens that can contaminate local watersheds in disadvantaged communities.

Before making any regulatory changes on offset usage limits post-2020, IETA urges ARB to conduct a thorough and transparent cost and environmental (GHG) impact analysis of this design modification. As part of this analysis, IETA encourages ARB to examine and showcase future scenarios where offset usage limits are also increased from the current 8%. In fact, we believe that increased offset usage limits post-2020 will not only be desirable but likely critical to ensure program resilience, political acceptability, cost-effectiveness and overall environmental integrity and assurance that 2030+ targets are achieved.

3. AB197 INTERPRETATION

AB 197 mandates that ARB consider the “social costs of the emissions of greenhouse gases.” Fortunately, the U.S. Government’s “social cost of carbon” table of figures provides a working reference point¹. The social cost of carbon incorporates climate impacts and only climate impacts. Impacts from other air pollutants are excluded. ARB would be not only justified, but accurate, in interpreting social cost as limited to climate impact.

IETA’s believes that AB 197’s requirement to “protect the state’s most impacted and disadvantaged communities” necessitates reducing these communities’ exposure to the worst impacts of a changing climate. Among these are extreme weather events, heat, and drought – real and rising threats to all of us, but with disproportionately greater impact to those in society’s most vulnerable communities.

4. TREATMENT OF UNSOLD ALLOWANCES

IETA has previously cautioned ARB that the current program design for reoffering of unsold allowances into the market could quickly lead to scenarios where market participants will not be given another opportunity to purchase allowances before they are either transferred into the APCR or, in the currently contemplated amendment, permanently retired. **This type of program design feature can easily create short-term market pricing spikes.**

The current perceived legal and policy risk of California’s Cap-and-Trade program provides a disincentive to market participants to hedge compliance obligations in advance of regulatory deadlines. This **short-term dampening on auction participation will effectively be dealt with under the program’s current self-regulating mechanism for periods when allowance demand is low. Therefore, further adjustment is unnecessary.**

¹ US Environmental Protection Agency, Social Cost of Carbon, <https://www.epa.gov/climatechange/social-cost-carbon>

CONCLUSION

IETA appreciates the opportunity to help inform California's proposed Cap-and-Trade regulation amendments and future market. If you have questions or require more information, please contact Katie Sullivan, IETA's Director of the Americas and Climate Finance, Katie Sullivan (sullivan@ieta.org).

Sincerely,



Dirk Forrister
IETA President and CEO





Michael Shaw
Vice President, Government Relations

November 4, 2016

Mary Jane Coombs
California Air Resources Board
1001 I Street, 2nd Floor
Sacramento, California 95814

RE: CMTA Comments on ARB Informal Staff Proposal on Cap-and-Trade Regulation Industry Assistance Factor Calculation

Ms. Coombs,

The California Manufacturers & Technology Association (CMTA) respectfully submits the following comments on the Cap-and-Trade Regulation Industry Assistance Factor Calculation Informal Staff Proposal. We appreciate the opportunity to comment on this important proceeding and support ARB's effort to reduce GHG emissions while protecting California industry.

CMTA works to improve and enhance a strong business climate for California's 30,000 manufacturing, processing and technology based companies. Since 1918, CMTA has worked with state government to develop balanced laws, effective regulations and sound public policies to stimulate economic growth and create new jobs while safeguarding the state's environmental resources. CMTA represents 400 businesses from the entire manufacturing community -- an economic sector that generates more than \$230 billion every year and employs more than 1.2 million Californians.

A WELL-DESIGNED CAP-AND-TRADE PROGRAM REMAINS MOST COST EFFECTIVE STRATEGY
CMTA continues to support the development of a well-designed cap-and-trade program that supports cost effective opportunities for covered entities to meet their compliance obligations to reduce GHG emissions. With varying abilities of manufacturers to reduce GHG emissions at a particular facility, it makes sense to create a number of options for companies to comply. The cap-and-trade program along with offset credits help control compliance costs while meeting obligations to reduce emissions.

LEAKAGE RISK RESEARCH DOES NOT FULLY ACCOUNT FOR IMPACT ON MANUFACTURERS
As CMTA pointed out in [June 10th comments](#), the leakage risk studies mandated by Board Resolutions 11-32 and 12-33 fail to appropriately assess leakage risk created by the significant cost increases. The NERA Economic Consulting firm that accompanied our comments focused on the adequacy of the data, robustness of the results, and applicability of the approach to determine leakage risk for policy application based on the information provided in the study papers. Continuing to rely on this information creates an unreliable basis for efforts to reduce GHG emissions as the understated leakage risk means that emissions-related activities are more likely to leave California and increase outside of jurisdictions that fully account for the cost in the way California does.

Given the significant potential financial impact of these changes, CMTA believes that ARB should address post-2020 industry assistance factors in a separate 45-day comment period as the impact of the proposed changes represents significant cost increases to those covered entities. [Return to Table of Contents](#)

INCREASED COMPLIANCE COSTS RESULT IN ECONOMIC, GHG LEAKAGE

The proposed changes to assistance factors for the post-2020 period directly affect more than 30 CMTA members resulting in significantly higher compliance costs that make the state less attractive to manufacturing facility investments and job growth. California already lags the nation in manufacturing investments drawing in less than a quarter of the investments in new and expanded facilities than the rest of the nation and consequently the state also sees growth well below the national trend.

The proposed assistance factor adjustments threaten the continued prosperity of some highly mobile industries, including our landmark aerospace sector by 94 percent, breweries by 49 percent and paper products by 54 percent or more. Other California industries also face major assistance factor reductions that will increase the likelihood of emissions leakage. Some of these industries have been characterized as energy-intensive and trade-exposed, but these proposed assistance factor adjustments seem to ignore the impact of increased compliance costs and place these sensitive industries at greater risk.

Manufacturers are highly sensitive to increased costs and react negatively to imbalances created when costs are imposed in one region versus another where they are not. The increased cost raises the possibility of the emissions activity leaving California and picking up elsewhere as the company faces stiff domestic and international competition.

The loss of existing manufacturing is not the only form of leakage risk facing California. As manufacturing returns to the U.S. from overseas, much of that growth is occurring in other states resulting in emissions and jobs that do not fall under California's reduction program.

INCREASED EMISSIONS FROM TRANSPORTATION

The loss of manufacturing in California means that more inputs and finished products will need to be shipped into and through California in order to meet consumer demand. It is unreasonable to expect consumer demand for basic products, such as cereal, toilet paper, alcohol or gasoline, to change significantly. However, it is to be expected that where those products are manufactured will change as these manufacturers face increased costs in the millions and tens of millions of dollars annually.

This is true particularly in the case of unique California facilities that only face out-of-state or international competition.

CONCLUSION

It is critical that ARB err heavily on the side of reducing the risk of leakage both in terms of GHG emissions and jobs. ARB should retract the proposed assistance factor adjustments and maximize the industry assistance in order to minimize impacts to California. It is highly recommended that ARB also look to maintain the current level of industry assistance through the third compliance period rather than follow through with projected cuts. California can remain a national and international leader without placing its middle-class job creating manufacturing sector at greater risk.

I look forward to working with you on this and future climate change policy issues. Please do not hesitate to contact me regarding this matter to answer any questions or concerns you may have.

Sincerely,



Michael Shaw

Friday, 4 November 16

Richard Corey
Executive Officer
California Air Resources Board
1001 "I" Street
Sacramento, CA 95814

RE: October 21, 2016 Cap and Trade Regulation Amendments Workshop

Dear Mr. Corey:

Thank you for the opportunity to share comments on topics discussed at the October 21 workshop on proposed amendments to the Cap and Trade Regulation.

New Forests (www.newforests.com.au) invests institutional capital in sustainable forestry and environmental markets, including over 1.8 million acres of timberland globally and over 400,000 acres of forest carbon offset projects for the California cap and trade system, primarily with family forest landowners and Native American Tribes. A stakeholder in the development of the forest carbon offset protocol since its earliest iterations in the voluntary market, we write to share our perspective on the important role played by the offset program established by CARB in achieving the goals of AB32.

1. **The offset program implements economic diplomacy for climate mitigation and is an important element of delivering on AB32's mandate that California exercise national and global leadership on climate action.**
 - a. In the Findings and Declarations of the legislature that open the text of AB32, the California legislature noted that: "National and international actions are necessary to fully address the issue of global warming. However, action taken by California to reduce emissions of greenhouse gases will have far-reaching effects by encouraging other states, the federal government, and other countries to act." The legislature further noted that "The program established by this division will continue this tradition of environmental leadership by placing California at the forefront of national and international efforts to reduce emissions of greenhouse gases". AB32 therefore stresses the importance of designing and implementing GHG emissions reduction programs as models that can be adopted and/or imitated elsewhere in the United States and in the world. Climate leadership – encouraging other political jurisdictions to act on climate mitigation – is central, not peripheral to the intent of AB32.
 - b. While the offset program is frequently thought of as a cost-containment mechanism in a cap and trade system that can deliver material environmental and social co-benefits, it should be recognized as an important tool of climate diplomacy. As a result of the offset program created by the State of California, through costs imposed on GHG polluters,

forest landowners around the country are being paid for long-term commitments to maintain forest stocks and grow older-growth forests, farmers are earning revenue for the capture of methane, and ozone-depleting substances are being destroyed. These activities are happening in political jurisdictions that may not have climate policies yet, but whose support is needed for this country to collectively move towards effective climate action.

- c. The California offset program should therefore not be thought of as peripheral to the achievement of AB32's GHG emission reduction goals, but rather as a program design element that is critical to the achievement of the national and international climate leadership mandated by AB32.
2. **The forest offset program is driving landscape-level change in forest management in the United States, change that is critical to achieving emissions reductions necessary to achieve IPCC targets.** It is not widely understood that the forestry sector is critical to achieving the IPCC goal of limiting global warming to 2 degrees Celsius. In fact, as of 2015 IPCC models forecast over 600 gigatons of negative emissions through 2100, primarily through forest growth and bioenergy with carbon capture and storage ("BECC") – over 10 years of global emissions at current rates. Early investment in changed management in the forestry sector and in BECC is vitally important. A carbon price that influences forest management is a necessary precondition of this investment. *And yet, the California forest carbon offset protocol and offset market is the single largest price signal globally for changed forest management.* With over 5 million forested acres registered or listed under the California forest offset protocol in the United States, within a few years of inception the California offset program is already leading the world in fostering increased investment in improved forest management that can deliver on climate targets for the forest sector. CARB should consider ways that its offset program can increase investment in land use and land use change for positive climate impacts, rather than reducing offset usage in the cap and trade system.
3. **Many rural areas in California and around the country experience Environmental Justice concerns that can be ameliorated by existing offset protocols.** Many rural areas in California and around the country experience undue environmental burdens, particularly in areas with low-income and minority populations. Native American populations in particular are frequent Environmental Justice advocates on issues relating to air pollution, water pollution, fisheries depletion, and natural resource access and management. It is important, therefore, to note that Native American Tribes are a key constituency using the California Forest Offset Protocol to finance forest restoration and re-acquisition of ancestral territory to deliver critical environmental and economic benefits to their communities. As one example, the Nature Conservancy recently profiled the Yurok Tribe's use of the California Forest Offset Protocol to re-acquire ancestral territory and improve their ability to care for the salmon fisheries on the Klamath river: for more information, see <http://www.nature.org/magazine/archives/carbon-cache.xml>.

- a. The offset program should therefore be viewed as an important tool for delivering on the mandates in AB32 and AB197 to implement GHG emission reductions in a fashion that respects and furthers environmental justice goals.

For the above reasons, we recommend that CARB not lower the offset usage limit post-2020 below 8%. We suggest that the current usage limit has created a market that is delivering important outcomes contemplated by AB32: national climate leadership, a landscape-level impact on forest management across the United States, and rural environmental justice, particularly on Native American lands.

Sincerely,

Brian Shillinglaw

President, New Forests Inc.



To: Mary Nichols, Chair
California Air Resources Board

Fr: Climate Change Policy Coalition

Date: November 4, 2016

Re: California Air Resources Board’s Consideration of the Proposed Amendments to the Cap-and-Trade Regulation

The Climate Change Policy Coalition (CCPC) is a coalition of business and taxpayer groups working for effective implementation of California’s climate policies (AB 32 and SB 32). CCPC represents regulated entities subject to the cap-and-trade program, and our goal is to provide a constructive voice in how program improvements are proposed and design element updates are adopted by the California Air Resources Board (ARB).

These comments are in response to the ARB’s ‘Proposed Amendments of the Cap-and-Trade Regulation’ workshop conducted on October 21, 2016 [informal 15-day comment period].

15-Day Comment Period:

As stated in CCPC, earlier comments in September 2016, we believe the cap-and-trade program can become an effective regulatory program to reduce emissions in a cost effective manner that maintains the competitiveness of California’s businesses – but how that’s done can make or break California’s economy. We remain concerned that the use of 15-day comment periods is insufficient for stakeholders to properly review and add constructive substantive comments for such an integral part of California’s climate change policies. We recommend ARB Board direct staff to work within the 45-day comment period framework(s) moving forward to ensure the end product is

the best designed and can be sustained.

The Importance of a Well Designed Cap-and-Trade Program:

The ARB cap-and-trade regulation amendments workshop conducted on Friday [October 21, 2016] regrettably created more uncertainty with regard to the proposed amendments to the regulation. These problems continue to include critical design flaws which should be addressed as we move forward in the regulatory process.

Allowance Allocation Formula:

The revised allowance allocation formula from the October workshop has raised concerns among businesses in the regulated community. ARB must take into consideration any unintended consequences that will result in the competitiveness of our California producers along with economic and emissions leakage that will occur should the allocation formula become too rigid.

Reductions in GHGs are driven by the cap, not by allowance allocation. Reductions in GHGs are improved if the state minimizes leakage as required in AB 32 38562(b)(7) because leakage causes emissions outside of the cap to increase. The program can better meet California's climate goals by extending the full industry assistance factor. For these reasons, we recommend that ARB extend full industry assistance factor into future compliance periods.

Energy Intensive Trade Exposure [EITE]:

By the authors' own admissions the academic studies being relied upon by ARB staff contain a number of areas of caution or caveats within the studies. We recommend the Board direct staff to continue to not only work with the researchers but also the regulated industries. These industries have a more comprehensive view of the methodologies that should be employed rather than the 'apples to oranges' approach the studies have now employed.

The difficulty of accurately evaluating the impact of California-only policy vis-à-vis EITE industries is demonstrated in the deficiencies in these studies. Given this uncertainty, policy makers must retain focus on the primary goal, reduced emissions. It is crucial that policy not place an anti-industry bias above this environmental goal.

AB 197:

The October 21, 2016 workshop presentation contained only two slides dedicated to AB 197. It is critical to note, how the bill language will be interpreted and implemented could create higher costs to our climate change policies. CCPC along with other like-minded groups oppose using the cap-and-trade program to respond to AB 197. This issue will require a lot of thought and input from all stakeholders – especially those in the regulated cap-and-trade program. Further CCPC members continue to oppose any design that included facility-specific reductions (*as suggested on slide 14*).

ARB Executive Officer Richard Corey stated in a letter (*September 17, 2015*) to BAAQMD Executive Officer Jack Broadbent, “*...a local cap on Bay Area refinery emissions, which are already regulated by California’s Cap-and-Trade Program, would not provide any additional GHG emissions reductions beyond the statewide cap.*”

That logic for the Bay Area should apply across the state with regard to facility-specific caps.

CCPC has specifically asked for an update to learn how ARB intends to integrate or overlay AB 197 language with the Adaptive Management Tool along with OEHHA’s CalEnviroScreen 3.0. To date that update has not been scheduled.

The above comments are a direct response to the October 21st workshop, however the below issue remain of concern to CCPC members as ARB moves forward with the cap-and-trade regulatory amendments.

September 2016 Comments Submitted Regarding Amendments to the Cap-and-Trade Regulation:

ARB Lacks Statutory Authority to Set Post-2030 Allowance Budgets

SB 32 (Pavley) does not authorize the Governor or the ARB to establish a greenhouse gas emissions limit that would be applicable after 2030 – and in passing this legislation, lawmakers made clear that they shall have oversight of climate change policies going forward. We recommend that ARB remove post-2030 caps from this rulemaking.

Lack of Post-2020 Design Detail Impedes Stakeholder Input

CCPC objects to the lack of critical regulatory detail regarding several 2030 design elements in the proposed regulation. There is no way to analyze the economic impacts of the proposed 2020-2030 cap due to the lack of information on trade exposure status, holding limits or other cost containment policies (besides APCR). The mix of covered entities and the amount of emissions will change over time and the new 2030 goal is very stringent, the rationale for the cap number should be more robust than simply that ARB applied the same percentage as in 2010's rulemaking. It is not clear why it is necessary to make the cap for cap-and-trade more stringent than the overall state goal of 256.6.

This current and ambiguous approach limits stakeholder input and may constrain the scope of what ARB can consider in subsequent 15-day changes.

Offsets Must Be Expanded to Capture Additional Cost Containment and Emissions Reduction Benefits

Offsets are a proven and cost-effective means of meeting AB 32 compliance obligations. They are also an effective means of achieving significant GHG emissions reductions in other jurisdictions which lack GHG regulatory programs. Expanded and expedited use of offsets is

consistent with ARB's statutory obligation to achieve the maximum technologically feasible and cost-effective GHG emissions reductions. For example, authorization of sector-based offsets will be critical to ensuring adequate offset supply in future compliance periods, and as ARB has observed, should be incorporated into the cap-and-trade regulation in advance of the third compliance period.

Allowance Price Containment Reserve (APCR) Design Increases Costs and Decreases Liquidity Conflicting with ARB's Objectives

A new proposed provision allows ARB to transfer unsold allowances from the Current Auction, if unsold for 24 months after their initial sale

date, to be transferred to the APCR and made available through a Reserve Sale. This process would come into effect January 1, 2018.

ARB's proposed method of continuing allowance diversions from annual budgets and proposing to funnel unsold allowances into the APCR is concerning.

Artificially raising costs conflicts with AB 32's statutory objective to develop market mechanisms as cost-effectively as possible. It could lead to a very large APCR decreasing liquidity in the overall market. ARB's stated desire to increase market liquidity (*ISOR Executive Summary, pp. 7*) conflicts with the APCR changes. ARB should continue to return unsold allowances to the auction.

Emission Reductions and Relative Cost-Effectiveness of Each Measure

Robust and regular oversight and informational hearings must accompany any post-2020 climate policies. We believe ARB should, at a minimum, review each current regulation resulting from AB 32 and determine if, (1) the regulation has accomplished the intended GHG reduction objectives or, (2) if the regulation has failed to achieve its goal and may simply have placed undue burdens on California's businesses

and consumers without reducing our GHG emission levels, and (3) if there were a more effective means of achieving the intended reduction. Each measure adopted in the 2030 Target Scoping Plan and accompanying regulations should be held to the same standards of accountability.

Appendix F

The regulations and implementation of the provisions of California's greenhouse gas policies will have significant impact on businesses within the state, particularly those in the industrial sector that are directly affected by a mandate to report GHG emissions levels or participate in the cap-and-trade program. As such it is important that the early and sustained input from a representative group of industrial entities be a part of ARB's process to develop regulations in this area. ARB must take the step to establish an "Industrial Advisory Council" (IAC) to meet on a regular basis to evaluate and provide feedback to ARB staff during the regulatory development process in this formal capacity.

The California Global Warming Solutions Act of 2006 (AB 32) directed ARB to form the Economic and Technical Advisory Committee to "to advise the state board on activities that will facilitate investment in and implementation of technological research and development opportunities." In a similar fashion, the IAC would advise ARB regarding activities that will support industrial activity toward achieving California's overall GHG reduction goals. Taking this step would improve the regulatory development process.

Conclusion:

Recently an opinion-editorial authored by two preeminent economists ran in the *Sacramento Bee*¹ stating, "Cap and trade...deserves a central place in the

¹ Lawrence H. Golder, Robert N. Stavins (October 30, 2016) "New emissions targets make cap and trade the best low-cost, market-based approach" *Sacramento Bee* <http://www.sacbee.com/opinion/op-ed/soapbox/article110900142.html#storylink=cpy>

arsenal of weapons California uses to address climate change. Rather than step away from this progressive policy, the state should increase its reliance on this progressive, market-based approach.”

With that said, CCPC reiterates comments submitted earlier and cannot stress enough the importance of working in collaboration with ARB. Used as a keystone to California’s climate change policies, a well-designed cap-and-trade regulation is the only effective way to reach the overall goals of AB 32 in reducing GHG emissions and providing effective strategies to help reach the other significant clean air and water environmental goals.

CCPC looks forward to finding solutions and working with ARB staff to improve the cap-and-trade program and amendments necessary to ensure we have a program in place that meets the goals of AB 32 while protecting the stakeholders being held accountable for the system to be a success. Should you have any questions or need anything further from us, please feel free to contact Shelly Sullivan at (916) 858-8686

cc: California Air Resources Board Members
Dr. Steve Cliff, Senior Advisor to the Chair
Richard Corey, Executive Officer
Edie Chang, Deputy Executive Officer



BP America, Inc.

Ralph J. Moran
1201 K Street, Suite 1990
Sacramento, CA 95814
(916) 554-4504

DATE: November 7, 2016

Via Email

Rajinder Sahota
California Air Resources Board
1001 I Street, P.O. Box 2815
Sacramento, CA 95812

Subject: BP Comments on the Concepts Discussed at the 10/21 Cap and Trade Workshop

Dear Rajinder:

BP America, Inc. submits these comments on CARB's October 21st public workshop, particularly on the AB 197 & Post-2020 Cap and Trade Program Design section.

As California looks toward meeting its longer term GHG reduction goals, it's more important than ever that the focus be on the most efficient and cost effective approaches. BP is concerned about the proposals which would have the effect of undermining needed cost effectiveness of the state's climate change programs – presenting grave challenges to the long-term sustainability of program.

Maintain and Expand the Benefits of Offsets

BP finds the proposal to reduce the 8% offset limit extremely concerning, especially given the myriad analyses (including some performed by CARB) that clearly demonstrate the benefits of the use of offsets. As emission reduction goals become much more challenging, the need for and benefits of cost containment will become more, not less, important. We therefore suggest that CARB consider raising the offset limit, not lowering it, including a separate and incremental carve out for use of sector-based offsets.

Moreover, in order for offsets to provide their full cost containment benefit, they must be available to the market and provide an attractive compliance alternative to regulated parties. In addition to the previously mentioned concerns about quantitative limits, there is also the potential that even if offsets are available, some regulated entities may not be inclined or able to use them because of many of the offset program's design elements. Failure by some parties to utilize offsets impacts all market participants. Therefore in addition to increasing the quantitative limit on the use of offsets, CARB should:

- 1) Work expeditiously to create a clear timeline and path forward for the inclusion of sector based offsets, such as through the REDD+ protocol.
- 2) Create a system to carry over to new compliance periods and distribute amongst all market participants, the ability to use offsets unused by the overall market in a previous compliance period.

- 3) Reduce the perceived risks to the use of offsets by improving and bringing certainty to the invalidation process.
- 4) Reduce uncertainty by avoiding making major changes to protocols without early and proactive outreach to stakeholders – as was done in the recent update to the Forestry Protocol.
- 5) Overhaul the time-consuming process for approval of new offset protocols and approval of individual projects within existing protocols.

California has an opportunity to contribute to the creation of a class of global carbon entrepreneurs by sending a signal to every corner of the globe that carbon reductions have value. The offset program has already resulted in engaging and benefiting vulnerable communities such as Native American Tribes. California's encouragement of the development of high quality offsets in other states and countries – and acceptance of these verifiable emission reductions - demonstrates that we are willing to not only encourage these actions but to credit them - and in so doing reduce the costs of these policies on our citizens here at home. The offset program must be expanded and improved, not reduced.

Avoid Marginalizing the Most Cost Effective Approach

We are also concerned about proposals which would reduce the use and benefits of the state's cap and trade program. CARB appears to be instead considering increasing the use of expensive and non-scalable command and control measures at a time when the state should instead be doubling down on the most cost effective approaches. This is not 2006. The state has several years of experience operating under both a market-based approach and command and control measures. There is clear evidence that, even with the many improvements that can be made, the cap and trade program is by far the most cost effective approach to reducing GHG emissions. A market-based approach, such as an improved and expanded version of the state's cap and trade system, is the only policy alternative that provides the assurance of meeting a specific emissions reduction target - while delivering this outcome at the lowest cost. A market-based approach can react quickly to evolving technologies and new approaches in a way that a regulatory approach or series of complementary policies simply cannot.

As California looks toward the meeting its longer term goals, it's more important than ever that the focus be on the most efficient and cost effective approaches. The state's cap and trade program should be the backbone of these efforts – not simply a backstop. Continuing, or doubling down on the current path which relies heavily on complementary policies - we believe greatly increases the potential for the state's efforts to be both expensive and unsuccessful.

Protect Sensitive Market Data

The staff presentation on October 21st suggested that CARB may be considering releasing entity level market data, specifically for retirements by quantity, vintage and instrument type (slide 21). BP strongly opposes the release of any entity specific data, pertaining to retirements or otherwise, as this would allow other participants to back calculate into important proprietary information such as refinery production or import/export activity. In discussion at the workshop (slide 23), it was also suggested that CARB staff are considering the publication of additional market data including a reference to a proposal from an EMAC report. The EMAC approach suggests publishing information on the net compliance position of entities within the market by providing an index of concentration of net positions (with identities masked). BP sees a number of problems with this approach, including:

- Many entities acquire allowances in order to hedge future obligations, however the timeframe each entity chooses to forward hedge will vary based on individual risk appetite. Therefore, applying a uniform compliance window assumption in order to calculate the net position for all entities, even within a sector, will produce highly inaccurate results.

- A snapshot of an entity's account at any given point in time cannot accurately reflect that entity's intention or requirement for compliance as future purchases and sales may not be reflected. For example, some entities will hold inventory in their own account contracted for delivery to a counterpart at a later date while other entities will appear to have a short inventory position though they have contracted with others to purchase their needed requirement at a future date.
- The EMAC logic suggests the measure would help identify when entities may be holding a high share of the market, however CARB already has a safety valve on such behavior with the presence of the holding limits.
- Holdings by account can vary significantly over time due to the above activities and timing of transfers. Taking a snapshot could provide misleading information that if wrongly interpreted could engender market volatility – the opposite of the intended affect.

Conclusion

In order to use its leadership in a way that increases the potential for a critical mass of followers – California must successfully encourage action by others. Currently the state seems to be suffering from an identity crisis with respect to its role in addressing climate change. On one hand, the state's policymakers acknowledge the global nature of the problem, the need for others to act and the role of the state as an example in effective policymaking. On the other hand, state policymakers seem intent on advancing policies that compel in-state emission reductions and that erect very high hurdles before the efforts of other jurisdictions or carbon entrepreneurs outside the state are recognized and credited. The state must decide whether it is internationalist or isolationist when it comes to climate change. As Berkeley economist Severin Borenstein has said, "It's time to make our Global Warming Solutions Act about global solutions"¹.

Sincerely,

Ralph J. Moran
Sr. Director, Governmental & Public Affairs
BP America, Inc.

cc (via email): Richard Corey
Edie Chang
Steve Cliff

¹ Severin Bornstein, Blog post 4/7/14, Energy Economics Exchange, University of California at Berkeley, Haas School of Business



Western States Petroleum Association
Credible Solutions • Responsive Service • Since 1907

Catherine Reheis-Boyd
President

November 28, 2016

Ms. Rajinder Sahota
California Air Resources Board
1001 I Street
Sacramento, CA 95814

via e-mail at: rsahota@arb.ca.gov

Re: WSPA Comments on ARB's informal draft concepts for AB 197 Implementation, Proposed Post-2020 Assistance Factors and Market Data Disclosure

Dear Ms. Sahota:

The Western States Petroleum Association (WSPA) is a non-profit trade association representing companies that explore for, produce, refine, transport and market petroleum, petroleum products, natural gas and other energy supplies in California and four other western states. WSPA appreciates this opportunity to provide comments on the Air Resources Board's (ARB) informal draft concepts for further changes to the proposed Cap-and-Trade regulation amendments to address: 1) AB 197 implementation; 2) post-2020 assistance factors; and 3) market data disclosures, discussed during ARB's October 21, 2016 public workshop.

In addition to the following comments on the above noted policy issues, WSPA recommends that ARB take several specific actions consistent with its stated policy positions and statutory obligations. These recommendations are summarized here by topic area for ease of reference.

1. AB 197 Implementation Concepts

- **“Cost Burden” Allocation** –The staff presentation suggests greater reliance on on-site emissions reductions in lieu of Cap-and-Trade as a rationale for reducing allocation, disregarding recommendations from ARB's Executive Officer to the contrary. ARB should abandon this concept.
- **Offsets** – If ARB were to reduce the current 8% offset use limit, it would undermine program cost containment. WSPA recommends that ARB accelerate its current timetable for adoption of sector-based offsets and couple this action with an expansion of the current use limit from 8% to 16% in the post-2020 timeframe as a means of balancing the

additional cost pressure that will result from ARB's proposed increase in the cap decline rate.

- **Allowance Price Containment Reserve** - ARB should quantify the potential impact of its current APCR proposals and the concept of retiring unsold pre-2021 APCR allowances on market liquidity and program costs. ARB should also allow more transparent public discussion of these issues through a full 45-day public notice and comment period. Pending this review, ARB should continue to return unsold allowances to auction.
- **Scope of the Current Cap-and-Trade Rulemaking** – The AB 197 concepts are not sufficiently related to ARB's current proposals and therefore should not be included in 15-day changes to the current rulemaking.

2. **Allowance Allocation Concepts and Issues:**

- **Limitations of Foundational Research** - The leakage risk studies conducted by UC Berkeley and Resources for the Future (RFF) contain data irregularities and methodological uncertainties acknowledged by the study authors. They should not be used as the basis for ARB's post-2020 allocation policy decisions.
- **Use of Sector-Specific Data** – ARB's conceptual assistance factor adjustment for refining is at odds with readily available refining-specific data. ARB should use Energy Information Administration data to determine the actual percentage of refinery energy produced onsite.
- **Non-Manufacturing Sectors** - ARB should not attempt to apply the UC Berkeley and RFF manufacturing sector studies, nor any regression analysis, to non-manufacturing sectors, as was done in the November 10, 2016 addendum to staff's informal allocation proposals.
- **Alternative Methodologies for Non-Studied Sectors** - ARB should consider prior recommendations from National Economic Research Associates (NERA) to use a computable general equilibrium (CGE) model which can actually address sector-specific circumstances.
- **Calculation of Assistance Factors** - ARB should provide sufficient documentation to allow stakeholders to reproduce the calculations supporting its conceptual assistance factors for all sectors.

3. **Market Data Disclosure** - All data pertaining to the market positions of individual entities should be designated as confidential business information (CBI) and should be protected from public disclosure.

AB 197 Implementation Concepts

WSPA opposes further modifications to the Cap-and-Trade program in response to AB 197 (Garcia, 2016). California climate law specifically requires ARB to “design any market-based compliance mechanism to prevent any increase in the emissions of toxic air contaminants or criteria air pollutants.”¹

¹ Health and Safety Code Section 38570(b)(2)

As staff stated during the October 21 workshop, ARB designed the Cap-and-Trade program to prioritize direct emissions reductions at regulated facilities. In fact, current limitations on emissions trading are so stringent that the state is likely to sacrifice future opportunities for greater greenhouse gas (GHG) emissions reductions as this back-loaded program matures. Further restrictions along the lines of staff's implementation concepts – 1) reducing the offset use limit (currently 8% of compliance obligation), 2) shifting allocation methodology to a “cost burden” approach (effectively reducing industry assistance) and 3) retiring unsold pre-2021 vintage allowances from the Allowance Price Containment Reserve (APCR) – would only serve to undermine a primary purpose of the program to reduce GHG emissions in the most cost-effective manner. Staff's AB 197 implementation concepts are also in direct conflict with AB 32 requirements to ensure that emission reduction measures are as cost-effective as possible.²

ARB is already on record asserting that limits on GHG emissions at individual facilities already subject to the Cap-and-Trade program could result in a number of undesirable consequences³, including:

- Failing to reduce statewide GHG emissions,
- Increasing GHG emissions outside of the local jurisdiction,
- Increasing the cost of statewide GHG emission reductions, and
- Shifting business activity to outside of the local jurisdiction.

It is unclear why ARB would consider the above noted changes as part of a Cap-and-Trade rulemaking process when they contradict the core principles of existing California climate law and are not needed to align the Cap-and-Trade program with AB 197.

Offsets Proposals

As WSPA indicated in our September 19, 2016 comments on ARB's proposed amendments to the Cap-and-Trade regulation, offsets are a proven, cost-effective means of meeting AB 32 compliance obligations. The current offset use limit should be expanded, not reduced, and such action would be entirely consistent with ARB's statutory obligation to achieve “the maximum technologically feasible and cost effective GHG emissions reductions.” In the near term, one of the most critical changes needed in the Cap-and-Trade regulation is authorization of sector-based offsets to ensure adequate offset supply in future compliance periods. As ARB has observed, sector-based offsets should be incorporated into the Cap-and-Trade regulation in advance of the third compliance period. This action, along with a measured increase in the offset use limit, would send a clear signal to jurisdictions weighing climate action against economic prosperity that ARB is committed to a robust and cost-effective market-based program over the long term.

WSPA recommends that ARB accelerate its current timetable for adoption of sector-based offsets and any other offset protocols it may be considering. WSPA further recommends that these proposals be coupled

² Health and Safety Code Sections 38560, 38561, 38562 and 38564.

³ Letter from Mr. Richard Corey, Executive Officer of the Air Resources Board to Mr. Jack Broadbent, Chief Executive Officer of the Bay Area Air Quality Management District, dated September 17, 2015.



with an expansion of the current use limit from 8% to 16%, to take effect in 2021 as a means of balancing the additional cost pressure that will result from ARB's proposed increase in the cap decline rate.

APCR Proposals

ARB's current APCR proposals involve increasing the 120 million allowances that will exist in the APCR at the end of 2020 by at least 54 million through continued diversion from annual budgets, and adding unsold allowances to this total. WSPA previously commented that these proposals will artificially constrain the allowance market by reducing the volume of allowances in circulation and are likely to inflate program cost. Layering in a policy to retire unsold allowances would amount to a step-down reset of the cap. ARB previously workshopped this concept but ultimately dismissed it in developing its proposed amendments to the Cap-and-Trade regulation. Moreover ARB should not assert that the accumulated volume of allowances in the APCR under its pending regulatory proposals "is sufficient to meet the cost containment needs of the program through 2031"⁴, and then extract a significant portion of those allowances from the cap without knowingly undermining program cost containment. This rationale alone should be a sufficient basis for rejecting the APCR unsold allowance retirement concept.

WSPA recommends that ARB quantify the potential for its current proposals and this AB 197 APCR concept to diminish market liquidity and increase program costs. ARB should also allow more transparent public discussion of these issues through full 45-day public notice and comment periods. Pending this review, WSPA recommends that ARB continue to return unsold allowances to auction.

Scope of the Current Cap-and-Trade Rulemaking

WSPA also maintains that the scope of the changes envisioned in these concepts falls well outside of the changes identified by ARB in its August 3, 2016 Notice of Proposed Rulemaking. The 45-day notice is silent on the offset use limit. ARB's current proposal for unsold pre-2021 allowances is to divert them to the post-2020 APCR. While we oppose the current staff proposal on the basis that it may lead to a more restricted market, retiring these allowances would likely have a much greater negative impact on market liquidity and program cost containment. ARB's "cost-burden" concept for allowance allocation is still largely undefined, but appears on its face to depart from the leakage risk methodology currently proposed for allowance allocation. A reasonable interpretation of the Administrative Procedures Act (APA) suggests that these concepts are not sufficiently related to the current proposals and therefore should not be included in 15-day changes to the current rulemaking. Rather, if ARB chooses to pursue them, it would need to issue a new 45-day notice for a separate Cap-and-Trade rulemaking consistent with APA requirements.

Direct Reductions at Petroleum Refineries

ARB published a summary report in mid-2013 showing that the 12 refineries subject to ARB's "Regulation for Energy Efficiency and Co-Benefits Assessment of Large Industrial Facilities" have implemented over four hundred projects to reduce GHG emissions. The ARB report states that approximately 78 percent of the estimated 2.8 million metric tonnes per year of GHG reductions

⁴ Proposed Amendments to the California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms, Initial Statement of Reasons, page 13.

associated with these projects have already been achieved.⁵ A third party review by San Francisco State University concluded that the refinery project reports demonstrated “a thorough effort.”⁶ The results of ARB’s refinery energy efficiency audits strongly suggest that opportunities for significant energy efficiency gains in this sector are limited at best. Efforts to implement direct GHG reductions at petroleum refineries above and beyond the reductions that will be driven by the declining cap are likely to result in the “undesirable consequences” previously identified by ARB’s Executive Officer.

Post-2020 Allowance Allocation Policy

ARB and some Cap-and-Trade stakeholders are pushing for changes in allowance allocation based on the concern that the current methodology might allow regulated entities to avoid an economic penalty for their emissions and will not generate sufficient revenue to support the Administration’s climate policy goals. While some stakeholders continue to advocate for a zero allocation, under such a scenario California producers would face competitiveness challenges that would lead to economic and emissions leakage. As California producers lose sales to producers outside California, the state’s economy suffers and greenhouse gas (GHG) emissions transfer from California to other states. Thus the challenge facing ARB is to design an allocation policy that is most likely to minimize the adverse impact of trade exposure on energy intensive, trade exposed (EITE) industries.

The question at the heart of this challenge is how many allowances ARB should allocate to various industry sectors in order to effectively minimize leakage, protect the environmental goals of the Cap-and-Trade program, and protect the California economy. In the current proposal, ARB seeks to accurately evaluate the market performance impacts of its proposed trade exposure policy, including identifying every market that would increase production in response to increased production costs in California and the emissions change in those markets.

Such an evaluation leads to three possible outcomes:

1. ARB perfectly identifies the number of allowances to allocate in order to minimize leakage.
2. ARB allocates more allowances than what is needed to minimize leakage.
3. ARB allocates an insufficient number of allowances and will not minimize leakage.

While ARB may be seeking outcome 1, given the uncertainty of such an exercise, it is very unlikely ARB would perfectly identify the number of allowances needed to minimize leakage. The probability of result 1 is not only small, but with so few robust studies upon which to base its trade exposure assessments, it is impossible to accurately estimate this probability. If ARB’s prediction is too low, leakage is more likely to occur. Given this inherent uncertainty, ARB must consider outcomes 2 and 3.

Outcome 2 provides EITE industries more allowances than needed to minimize leakage. In theory, this approach would provide California producers value they do not need to remain competitive with non-California producers. However, outcome 2 would still maintain the environmental incentives provided by the Cap-and-Trade program. California producers would face the emissions cost associated with the

⁵ Energy Efficiency and Co-Benefits Assessment of Large Industrial Sources; Refinery Sector Public Report; California Air Resources Board Stationary Source Division; June 6, 2013:

<http://www.arb.ca.gov/cc/energyaudits/eeareports/refinery.pdf>

⁶ Air Resources Board staff presentation, Energy Efficiency and Co-Benefits Assessment Public Reports Workshop, June 30, 2015, slide 30: <https://www.arb.ca.gov/cc/energyaudits/meetings/063015/presentation.pdf>.

declining cap, either directly or as an opportunity cost. California producers would likely react to the environmental incentives under outcome 2 in precisely the same manner as they would under outcomes 1 or 3. Since the allocation is greater than what is needed to minimize leakage, the GHG emissions reduction goal is protected.

Outcome 3 provides EITE industries with fewer allowances than needed to minimize leakage. Under this scenario, California producers would become less competitive with non-California producers, and as a result some of the emissions reduced in California would truly be transferred to other states. Outcome 3 would achieve the GHG emissions reduction goal by forcing California facilities to reduce throughput or shut down, leading to both emissions and economic leakage. In addition, since California facilities tend to operate more efficiently than facilities in other jurisdictions, any such leakage to other jurisdictions would likely result in a net increase in GHG emissions.

Of the three possible outcomes, 1 and 2 protect the environmental goals of the Cap-and-Trade program while outcome 3 does not. However, because ARB is unable to predict allocation needs in any industry sector with a high degree of precision, further attempts to pursue outcome 1 could jeopardize Cap-and-Trade emission reduction goals. Thus, if ARB views the program's environmental goals as paramount, then it must pursue outcome 2 to ensure that outcome 3 does not occur. WSPA also encourages ARB to consider conditional allowance allocation metrics that would allow it to course correct if and when necessary.

Proposed Post-2020 Allowance Allocation Issues

ARB is proposing to use highly uncertain and heavily caveated studies to make decisions that could have major adverse impacts on California jobs and the economy. Table 8 of ARB's Cap-and-Trade Regulation Industry Assistance Factor Calculation Informal Staff Proposal (October 14, 2016) and the November 10, 2016 addendum forecast dramatic reductions in industry assistance for most regulated sectors. In many cases, these proposals are less than half of the assistance factors provided in the current regulation. As we reiterate below, the authors of the research underpinning these proposals caution against the very conclusions ARB is drawing from their studies.

ARB represents the study findings and its own supporting analysis as accurate predictors of future circumstances in specific industry sectors, despite the many assumptions upon which they are predicated, lingering uncertainty about the feasibility of the Administration's GHG emissions reduction targets, and the increasingly urgent need for more cost-effective approaches as the statewide cap declines. ARB is contemplating a leap of faith analogous to approving a drug based on a single study that does not have conclusive results. As we indicate above, erring on the side of greater leakage protection would still ensure the state's ability to achieve the targeted GHG reductions. Thus there is no need to gamble the program's environmental goals and the state economy on the accuracy of ARB's long term predictions.

1. Limitations of Foundational Research

ARB should not base its post-2020 allocation policy decisions on the leakage risk studies conducted by UC Berkeley and Resources for the Future (RFF). In both cases the study authors acknowledged data limitations and methodological uncertainties that compromise the predictive power of the results. The UC Berkeley authors stated that: "The imprecision of our estimates

makes it difficult to estimate leakage potential for any particular industry with any degree of precision.” The RFF authors cite uncertainties in historical energy price variation and plant investment decisions. Both authors expressly caution against using their studies to predict future market outcomes.

Apart from the study authors’ caveats, regression models based on historical markets cannot reliably predict future market behavior, especially in light of the transformational changes ARB envisions in the post-2020 timeframe. ARB’s proposed methodology relies on unrealistically low long-term estimates of carbon prices. Proposed changes to the Cap-and-Trade regulation and other sector-specific climate policies ARB is contemplating to achieve the SB 32 target will likely result in higher carbon prices, increasing leakage risk for most industry sectors and necessitating higher levels of trade exposure protection than currently proposed.

WSPA also notes that the UC Berkeley estimates are based on the premise that California facilities can only reduce their emissions by curtailing production.⁷ This premise is at odds with ARB’s characterization of the Cap-and-Trade program – “Market forces spur technological innovation and investments in clean energy.”⁸

For these reasons, the proposed methodology for estimating leakage risk and resulting assistance factors are no more defensible than ARB’s current energy intensity and trade exposure-based approach.

2. Transparency and Collaboration

The data and code used to develop the leakage risk factors is not available for stakeholders to reproduce the outcomes. For example, as noted below, ARB does not disclose the source data supporting its assumptions regarding percentage of energy generated on-site in various industry sectors.⁹ Using confidential data precludes transparency and prevents external review and public accountability. If ARB truly intends transparency, as described in slide 35 of the October 21, 2016 staff presentation, then it needs to provide stakeholders the ability to conduct a detailed review of the proposed methodologies.

Ironically, the proposed assistance factor changes, combined with other proposed Cap-and-Trade and MRR changes, promise much more uncertainty at a time when Cap-and-Trade program stakeholders need greater long term certainty.

⁷ Measuring Leakage Risk, Meredith L. Fowlie, Mar Reguant, and Stephen P. Ryan, May, 2016, page 14: “Domestic producers emit damaging pollution at a constant rate of e_d per unit of q_d ...”

⁸ <https://www.arb.ca.gov/cc/capandtrade/capandtrade.htm>

⁹ Cap-and-Trade Regulation Industry Assistance Factor Calculation Informal Staff Proposal, Table 2, October 14, 2016.

3. Price Impact of Allocation Methodology

ARB and some stakeholders seem to believe that the current approach to industry allocation has served to drive allowance prices downward. However, ARB still fails to acknowledge the fact that more than 80% of the emissions reductions anticipated under the current Scoping Plan depend on complementary policies. It bears repeating that sector-specific regulatory programs dampen the Cap-and-Trade market. Overlapping direct measure policies on some Cap-and-Trade-regulated sources reduces pressure on other capped sources such that there is a larger surplus of Cap-and-Trade allowances, which in turn suppresses allowance prices. This strategy only serves to increase total program costs and shifts emissions from one sector to another. Doubling down on direct control measures for post-2020 emissions reductions, as is currently being advocated by some stakeholders, will continue to artificially suppress allowance prices, regardless of how ARB allocates allowances.

4. Carbon Price Differential

ARB has stated that leakage potential decreases when other jurisdictions *implement* a carbon price for the same sectors regulated by California. We agree, but remind ARB that the status of carbon regulations in other jurisdictions has not changed meaningfully since the last round of Cap-and-Trade amendments in 2014. With the exceptions of Quebec (2014), South Korea (2015) and Ontario (anticipated in 2017), all small markets that collectively represent about 1% of global GHG emissions, Cap-and-Trade programs in other jurisdictions are either proposed or conceptual and implementation is not imminent. In particular, the Paris accords are non-specific and non-binding.

Moreover, the carbon price differential matters. To prevent emissions and economic leakage and truly level the playing field between California and its “trading partners”, carbon prices must be equivalent across jurisdictions. At this point in time, countries and states that trade with California do not have equivalent carbon prices, and this disparity creates additional economic incentive to increase imports of globally traded commodities like crude oil and refined products. Therefore, *any* reduction in assistance factors will create added pressure for potential leakage of GHG emissions to other regions.

5. Technical and Petroleum Sector-Specific Issues

a. Proposed Trade Exposure Methodology

ARB “corrected” obviously wrong positive values either by adjusting those values to zero, or adjusting them downward “to match an average level of decrease in value added and/or output based on sectors with similar energy intensities”¹⁰, rather than throwing out the spurious results.¹¹ These decisions require further explanation and clarification. On their face, they call into question the equations/regressions derived using what is effectively manipulated data. The fact that the results contain obviously wrong positive

¹⁰ Ibid, Figure 6, item 3, page 9.

¹¹ Ibid, page 14.

values also calls into question the accuracy of the rest of the results. ARB staff acknowledged the unreliability of the data during the October 21 workshop by stating on slide 30 that data “smoothing” was recommended by the UC Berkeley researchers. Moreover, commenters stated that this “smoothing” only normalized the balance of the data. It did not fill or otherwise address data gaps and limitations. Using this data as the basis for evaluating sector leakage renders ARB’s proposed methodology arbitrary and inherently unreliable.

Similarly, ARB corrected non-studied sector leakage factors by using linear regressions to back out fuels such as coal that were included in the US Census data.¹² ARB should use reliable and representative data to calculate these factors, and not resort to unproven methodologies to “correct” the data.

b. Estimated Floor Prices

The floor prices established and used by the UCB and RFF studies (\$10 and \$24 respectively) are unrealistic. The researchers noted that elasticity is impacted by price. ARB’s newly proposed policies intend to increase investment signal by increasing allowance price. This is a prime example of why using historical data to predict the future is inappropriate. ARB must document the assumptions embedded in its 2030 floor price estimate (\$24.88 per MTCO₂e). The marginal compliance cost used in the analysis is low and does not fully reflect the true cost of compliance related to complementary measures. In addition, it’s not entirely clear whether ARB used the same carbon price for manufacturing sectors with non-purchased fuel.¹³

c. Energy Produced On-Site

WSPA agrees in concept with ARB’s proposal to adjust assistance factors to account for on-site energy production. However, ARB’s estimate of the fraction of total emissions from consumption of fuels purchased by refineries¹⁴ is 20% higher than the Western Region refinery data reported by the Energy Information Administration (EIA)¹⁵. Based on current EIA data, refinery energy produced onsite accounts for 60% of refinery energy consumption, meaning purchased fuels account for 40%. ARB does not provide a reference for its proposed 60% estimate. It is also not possible to determine where the non-purchased fuel is accounted for in Table 4-5. ARB’s assumption underestimates refinery leakage risk and diminishes the trade exposure protection that would otherwise be afforded to refineries under ARB’s proposed methodology.

d. Refining Data Set

The data set is not representative of refining and may not be representative of many other industry sectors. The International Market Transfer study (UC Berkeley) is based on a

¹² Ibid, page 3.

¹³ Ibid, page 12.

¹⁴ Ibid, Table 2 (60%).

¹⁵ US Energy Information Administration data for PADD 5 refineries, 2014.

single data set that covers 50,000 sources (Annual Survey of Manufacturers). The ASM data does not take into account changes in industry-specific markets. Using this data set can therefore mask the impact of changes in energy prices and understate leakage risk. A third party review by National Economic Research Associates (NERA), states that accurate assessment of leakage risk requires use of process models that capture sector-specific production details. The refining sector would be better represented by EIA 810 and 820 reports.

e. Hydrogen Plant Emissions

WSPA remains concerned that failure to properly account for emissions from on-site hydrogen production (which is 20-30% of total refinery emissions) will understate refinery energy intensity. This mistake would lead to the false conclusion that these facilities are better insulated from the economic impacts of California's climate programs, and therefore can sustain lower levels of industry assistance. ARB must be transparent in how it addresses this refinery-specific circumstance.

f. Non-Manufacturing Sectors – November 10 Addendum

In the October 21, 2016 addendum to staff's informal allowance allocation proposals, ARB indicated it was reconsidering its earlier proposal to estimate leakage risk for the oil and gas sector and other "non-studied" sectors based on estimates derived from "similar" studied sectors. We support this decision. ARB should not attempt to apply the UC Berkeley and RFFI manufacturing sector studies, nor any regression analysis, to non-manufacturing sectors. ARB has acknowledged that the US Census data is not well suited to the non-studied sectors because it does not differentiate among the fuels used in California. Moreover, extending the results of the manufacturing sector research to non-manufacturing sectors without regard to the limitations expressly identified by the study authors would only compound the error embedded in the proxy leakage risk estimates. This approach would likely lead to findings that are less representative of non-manufacturing sectors than ARB's current energy intensity and trade exposure-based approach, resulting in inadequate assistance factors that will promote rather than prevent leakage.

In light of these facts it is unclear why, in the November 10, 2016 addendum to staff's informal allowance allocation proposals, ARB chose to reverse course and use the US Census data for manufacturing sectors to estimate the domestic leakage potential for non-studied sectors, and apply regressions developed for "studied" manufacturing sectors to define allowance allocation factors non-studied sectors. Preliminarily, WSPA has several significant concerns with the November 10 addendum related to ARB's estimation of energy intensity for California oil and gas operations.

ARB defines energy intensity as "the fraction of total costs coming from energy consumption". WSPA infers from this definition that energy intensity for the oil and gas sector is the total energy costs divided by the total cost to extract and treat oil and gas prior to sale, where:

- Total energy costs include the cost of electricity, natural gas, and in the case of thermally enhanced oil production, any purchased steam.
- Total costs to extract include energy cost, capital costs and non-energy expenses including overhead.

In an attempt to verify ARB's energy intensity estimates in the November 10 addendum, one WSPA member calculated energy intensities for 10 oil fields. Eight of these oil fields employ steam injection used for enhanced oil recovery (EOR). Two of these oil fields employ primary oil production methods. Energy intensities were calculated for each field for 2015 and 2016 to date. The oil fields employing EOR had energy intensities of 0.222 for 2015 and 0.211 for 2016. The non-EOR oil fields had energy intensities of .074 for 2015 and 0.092 for 2016.

The November 10 Addendum listed an energy intensity estimate of 0.050 for the oil and gas sector (Table 1, page 7), which is significantly lower than the observed values noted above. WSPA has reviewed the US Census data footnoted on page 1 of the Addendum and has not been able to identify the actual data or the methodology ARB used to develop their energy intensity estimate. Given the higher energy intensity typical of California EOR production, and the fact that the majority of EOR production in the US occurs in California, use of US national energy intensity averages would significantly understate the actual energy intensity of California oil and gas operations. This approach would penalize California producers by yielding a lower allowance allocation factor than is warranted based on their actual energy intensity.

WSPA requests that ARB reevaluate the appropriateness of energy intensity estimates used in the November 10 Addendum and work with WSPA members to collect a broader set of data from all (or a representative sample) of the California producers to ensure they accurately reflect the range of actual California oil and gas production operations.

g. Alternative Methodologies for Non-Studied Sectors

In response to staff's solicitation for comments on alternative methodological approaches for "non-studied" sectors, we refer ARB to NERA's prior recommendation to use a computable general equilibrium (CGE) model, which can actually address sector-specific circumstances.¹⁶ The attached appendix summarizes NERA's comments and recommendations on ARB's contractor reports relevant to petroleum sectors.

h. Calculation of Assistance Factors

ARB needs to provide more documentation to explain how staff calculated the proposed Assistance Factors (AF). There are too many inconsistencies in the averaging and

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calculations of the AFs to trust the results presented in Table 7 of the October 21, 2016 addendum. For example, the average IMT for refineries is calculated in Table 1 to be 11% by averaging 12% and 11%. We request that ARB provide sufficient additional data to clarify that this calculation is correct. Also, Table 7 has a 0 for “Value Added Domestic AF Component”. We might expect this value to be 0.3 pursuant to Table 4, but it is difficult to determine what it should be since ARB does not fully explain how the tables were derived. WSPA specifically requests that ARB provide the spreadsheets it used to calculate the Assistance Factors.

i. International Assistance Factor

ARB states on page 5 of the Initial Statement of Reasons that “staff set the international assistance factor component equal to the average of the raw IMT and regression IMT.” CARB should explain its rationale for this approach. As described in the UC Berkeley study (page 39), the international market transfer rate (IMT) is a measure of “the increase in foreign imports plus the reduction in domestic exports (measured in dollar terms) associated with a dollar reduction in domestic production.” While it may be reasonable to assume that this measure is related to the appropriate Assistance Factor for a given sector, it is not clear why the international component of the Assistance Factor should precisely equal the IMT.

j. Basis for Assumed Domestic Price Drop

ARB assumes a 7% domestic drop at a 2022 floor price (SRIA price of \$17) equivalent to a 10.245% domestic drop at 2030 floor price. WSPA requests that ARB clarify the basis for the 7% cutoff “Domestic Drop” (DD) value.

Market Data Disclosure

WSPA opposes release of market sensitive information on holding and compliance accounts. We maintain that all data pertaining to the market positions of individual entities, along with information about corporate associations, should be designated as confidential business information (CBI) and should be protected from public disclosure. As we have stated in previous written comments, public disclosure of this information could increase the potential for market manipulation and decrease overall market liquidity. The draft concepts for additional market information disclosures presented during the October 21 public workshop serve no purpose that is not already addressed by the large amount of data available on emissions and offsets.

WSPA agrees that market trend analysis is important, and sufficient data to support such analysis should be publicly available. For example, ARB should report information concerning surrender of offsets for compliance purposes. However, this objective should be achieved through aggregation and de-identification of individual participant data. ARB should reach out to market participants prior to posting market data or reconfiguring existing aggregated data to ensure that it does not inadvertently disclose CBI.

WSPA appreciates ARB's consideration of our comments and we look forward to your responses. If you have any questions, please contact me at this office, or Tiffany Roberts of my staff at troberts@wspa.org.

Sincerely,

A handwritten signature in blue ink, appearing to read "Catherine A. Boyd".

Enclosure

cc: Richard Corey - ARB
Edie Chang - ARB
Mary Jane Coombs – ARB
Tiffany Roberts - WSPA

Appendix

Summary of NERA Comments and Recommendations on ARB Contractor Trade Exposure Reports

- Using data on a large number of industries with heterogeneous characteristics risks confounding the effects of changes in specific markets on those industries with the effects of changing energy prices. “For example, crude oil prices varied widely over the period but their effect on refining is not represented. Thus if crude oil prices were falling during a sub-period when natural gas prices were rising, the regression analysis might conclude that refinery output was relatively insensitive to increases in the prices of natural gas and electricity.”¹⁷
- As noted above, the omission of energy sources consumed at California refineries other than natural gas and electricity (e.g., fuel-gas, petroleum coke, and fuel oil) results in underestimating the energy intensity of those refineries. “To the extent that California refineries are less energy intensive than refineries outside California, this omission leads to an understatement of the leakage that would occur if output from California refineries were displaced by output from refineries outside the state.”¹⁸ This omission renders the current analyses in both studies to be inappropriate for the refining section.
- Proper assessment of leakage risk for petroleum refining requires use of process models that capture specific production details. “The combination of low value-added, sunk investments, process plus fuel use emissions and low cost national and international transportation of products make it impossible to capture in a simple econometric model or production function an accurate picture of the regional shifts in refinery activity likely to be caused by California-only carbon policies.” NERA indicates that process models can only be used to approximate leakage if they contain data for all competing refineries in the US and overseas, or if they are linked to computable general equilibrium (CGE) models to capture the interindustry and indirect effects of changes in fuel prices and refined product production.¹⁹
- Regression models are based on past market structure and cannot accurately predict future changes in market behaviour. “As one example, the regression analysis cannot capture the effects of changes in the marketplace that could cause an industry that is currently not trade exposed to become trade exposed. Specifically, the regression model cannot anticipate the future implications of California’s shrinking demand for transportation fuels and the pressure this would place on California refineries to sell product to markets outside the state when the refining sector is put into the Cap-and-Trade system.”²⁰

¹⁷ NERA report, page 15.

¹⁸ NERA report, page 15.

¹⁹ NERA report, page 24.

²⁰ NERA report, page 13.



November 24, 2016

Rajinder Sahota
Branch Chief, Cap-and-Trade Program
CALIFORNIA AIR RESOURCES BOARD
1001 I Street
Sacramento, CA 95812
Via e-mail

SUBJECT: Comments of the San Francisco Public Utilities Commission (SFPUC) on the California Air Resources Board (CARB) Staff Proposal to Allocate Cap-and-Trade Allowances to Electric Distribution Utilities (EDUs)

Dear Ms. Sahota;

The San Francisco Public Utilities Commission (SFPUC), as an Electric Distribution Utility (EDU) provides almost 1 million MWh each year of clean, zero-GHG electric energy to San Francisco's government facilities and selected retail customers.¹

As an EDU, the SFPUC offers the following comments on CARB staff's proposal for allocating post-2020 cap-and-trade allowances. CARB's latest proposal;

- Unfairly disadvantages and penalizes EDUs such as the SFPUC that have already taken early action to significantly reduce their GHG emissions;
- Significantly and unfairly underestimates the "cost burden" that even EDUs that are 100% renewable incur under the cap-and-trade program; and
- Would drastically reduce funding post-2020 for the SFPUC's on-going programs to reduce GHG emissions.

To address these concerns, the SFPUC proposes that the floor for allocating allowances to utilities that are 100% renewable should be set at a minimum of 20%, rather than 5% as currently proposed, and should remain constant over the 2021-2030 compliance periods.

Edwin M. Lee
Mayor

Anson Moran
President

Ike Kwon
Vice President

Ann Moller Caen
Commissioner

Francesca Vietor
Commissioner

Vince Courtney
Commissioner

Harlan L. Kelly, Jr.
General Manager



¹ The SFPUC also operates a Community Choice Aggregation (CCA) program, CleanPowerSF.

Additionally, the SFPUC supports continuing to allocate all allowances directly to the electric utility rather than allocating electric-related allowances to Energy Intensive/Trade Exposed Industries (EITE) as CARB is proposing. However, if CARB chooses this approach the SFPUC proposes where a single government entity (such as a city) operates both the POU and the EITE industry, allowances would continue to be allocated to the POU. This would allow the government entity to exercise its own discretion to maximize the value and use of the allowances.

Each of these points is discussed below.

Allocation of Allowances to EDUs Such as the SFPUC Should Reflect Early Action and Historically Low GHG-Emissions

In allocating allowances for the initial 2013-2020 compliance period, the SFPUC advocated that any allocation of allowances should reflect, and reward, EDUs that had already significantly reduced their GHG emissions. The California Global Warming Solutions Act requires that;

In adopting regulations pursuant to this section and Part 5 [cap-and-trade], to the extent feasible and in furtherance of achieving the statewide greenhouse gas emissions limit, the state board shall...

Ensure that entities that have voluntarily reduced their greenhouse gas emissions prior to the implementation of this section receive appropriate credit for early voluntary reductions.²

The SFPUC provides 100% of its electric energy from GHG-free resources such as its Hetch Hetchy hydroelectric system and in-city solar facilities, and has used these resources to, for example, operate the largest fleet of GHG-free electric powered buses and streetcars in the nation. The SFPUC's GHG footprint is already at a level that California's other EDUs are unlikely to achieve by the end of the 2030 (or perhaps even the 2040 or 2050) compliance periods.

The SFPUC should not be disadvantaged in the allocation of allowances relative to other EDUs that continued to rely on fossil-fuels, including coal-fired generation, to meet their energy needs.

One option, previously proposed by the SFPUC, is that CARB should establish a minimum allocation to each EDU. This allocation should be based on a "best practice" benchmark that CARB uses for other industries. A potential "best practice" benchmark for electric generation, for example, would be the system-

² Health & Safety Code 38562(b)(3)

wide average GHG emissions that CARB expects California's EDUs to reach by 2030 as a result of the state's GHG-reduction efforts or approximately 0.17 ton/MWh.³ EDUs that already meet, or exceed this target, should be recognized for their early action in reducing GHG emissions in the allowance allocation process.

The Latest Proposal Significantly and Unfairly Underestimates the “Cost Burden” that even EDUs that are 100% Renewable Incur Under the Cap-and-Trade Program; A Floor of at Least 20% is More Appropriate

The latest proposal sets a floor of allocating to each EDU a minimum amount of allowances equal to 5% of their forecasted electric demand. This 5% minimum allocation is based on the “assumption that load served by natural gas is assumed to never drop below 5% to account for support for variable renewable resources.”⁴ This appears to correspond to the “duck curve” developed by the California ISO which identifies the need for flexible resources (currently primarily fossil-fueled) that are needed to account for the ramping up of renewable resources in the morning, their ramping-down in the afternoon, as well as their fluctuations in output over the course of the day.

As discussed below, a more appropriate range of a minimum of 20% to 25% should be adopted. This higher value represents the even greater variation between renewable energy during the daytime versus night-time hours. The current 5% allocation actually has the effect of penalizing utilities with high renewable usage by failing to recognize the GHG cost burden these utilities incur in order to balance their supply and demand in real time.

CARB is basing its allowance allocation to EDUs using supply/demand forecasts (S-2 forms) submitted to the California Energy Commission (CEC) by California's electric utilities. These forms are based on an annual summation of supply resources against annual demand.⁵ There is no requirement that a utility's reported resources match its demand in real-time.

As a result, even a utility that reports on its S-2 form that it is 100% renewable could still incur a significant cap-and-trade “cost-burden” to the extent its renewable generation does not match its load profile, particularly between daytime and night-time hours.

³ Assuming a 50% RPS requirement in 2030; 10% of California demand being met with hydroelectric resources; and no remaining use of coal for electric generation, statewide average GHG emissions from the electric sector would be around 0.17 metric tons/MWh.

⁴ CARB Power Point presentation at October 21, 2016 Workshop

⁵ Forms and Instructions for Submitting Electricity Resource Plans (CEC Final Staff Report, CEC-200-2012-007-SF) Prepared in Support of the 2015 *Integrated Energy Policy Report*

A useful analogy is California's net energy metering program for roof-top solar. While a solar customer can claim that he/she is "off-the-grid" and the utility reports that its net energy consumption is zero on an annual basis, in reality the customer is generating 100% of his/her energy during the day, providing the surplus solar generation to the grid, and then receiving energy back from the grid (with the associated GHG-cost burden) during the night.

The same situation occurs with a California utility that is 100% renewable, particularly given the prevalence of wind and solar resources that California's utilities have used to meet California's RPS standards. During the day-time the utility would be meeting its needs from its renewable resources, providing its excess zero-GHG energy to the grid, and using this to offset on an annual basis (as reported in their S-2 forms), energy acquired from the grid during the night to balance its supply and demand in real-time.

The California ISO tracks the hourly generation of energy supply relative to demand in its daily Renewable Energy Watch. As shown in the attached Renewable Energy Watch for October 28, 2016⁶, while almost 100% of the wind/solar generation occurs during the hours of 8 AM through 6 PM, (See chart in upper right corner of p. 1) over ½ (56%) of the system demand occurs between the evening hours of 7 PM till 8 AM when there is little or no wind/solar generation. (See bottom of p. 2). Thus a utility that reports it is 100% renewable based on its wind/solar generation during the day could still end up incurring a 50% cap-and-trade cost burden for the energy it purchases at night to match its supply and demand in real-time. Zero-GHG hydroelectric generation can also vary significantly over both the course of a day as well as seasonally.

Based on the above examples, a cost-burden of up to 50% of annual demand could be justified even for a utility that is reporting that it is 100% renewable on its CEC S-2 forms. Moderating this to some extent is the presence of some zero-GHG resources (such as geothermal and hydro) that are available at night, although not likely in sufficient quantities.⁷ Electric storage is still a nascent technology under development, and also represents an additional "cost burden" that a 100% renewable utility would need to incur.

⁶ This was picked to be contemporaneous with the comment period. During summer periods, when demand is higher, this ratio could be even lower as additional gas-fired generation is brought on line to meet demand. .

⁷ PG&E's Diablo Canyon generation is largely utilized by PG&E, and thus not available to other utilities, and presumably will be retired by 2024/2025.

Instead, the most likely outcome is that electric demand during the night-time hours will be met with fossil-fueled resources and imports. (See bottom of page 1 for the percent of renewables, relative to fossil-fuels and imports, in meeting demand during evening hours). Embedded in the price of these resources that the utility is paying would be the associated “cost burden” of the necessary GHG compliance obligation.

To address these concerns, the SFPUC proposes that the “floor” or minimum allocation of allowances issued to each EDU be set at a minimum of 20%, which is itself likely to be conservative. Absent some recognition for the need for utilities with high renewable usage to balance their supply and demand in real-time over a 24-hour cycle, as currently written CARB’s proposal could actually disadvantage these utilities relative to other utilities that have fossil-fueled resources that can be flexibly dispatched to meet their demand.

Finally, any minimum allocation should remain constant and not be reduced over the 2021-2030 time-period. Once a utility reaches the 100% renewable level, there is no further opportunity for GHG-reductions.

CARB’s Proposal Would Drastically Reduce Post-2020 Funding for the SFPUC’s On-going Programs to Reduce GHG Emissions.

In addition to being available to cover any GHG cost burdens incurred by the SFPUC, the SFPUC has used its allowance allocation to develop additional in-city GHG-free solar resources.

Funding for this program will be significantly reduced post-2020. As the attached chart shows, the SFPUC’s allowance allocation will drop 88% from 2020 to 2021. This is the second largest percentage drop⁸ out of all of California’s electric utilities. This precipitous drop-off will significantly affect the continuation of SFPUC’s efforts to promote new GHG-free resources. A phased-in reduction of allowances, or setting a minimum floor for allowances, would allow this program to better transition to new funding sources.

The POU Should Continue to Receive All Allowances for its Customers

The SFPUC supports continuation of the current process that allocates all allowances directly to the electric utility. For the investor-owned utilities, the California Public Utilities Commission (CPUC) is in the process of developing the appropriate mechanisms to allocate the value of allowances to affected Energy Intensive/Trade Exposed Industries (EITE). POU’s can allocate the allowance value back to EITE industries through using their allowances either to reduce their own compliance costs and/or through their rate design policies.

⁸ Surprise Valley Electric Cooperative is first with a 90% reduction.

However, if CARB chooses this approach the SFPUC proposes where a single government entity (such as a city) operates both the POU and the EITE industry, allowances would continue to be allocated to the POU. This would allow the government entity to exercise its own discretion to maximize the value and use of the allowances.

Conclusion

The SFPUC appreciates the opportunity to comment on CARB's proposal and looks forward to working with CARB staff as it develops the necessary allowance formulas to successfully implement a post-2020 cap-and-trade program.

Please feel free to contact us at either (415) 554-1526 or jhendry@sfgwater.org if you need any additional information.

/s/James Hendry

James Hendry
Regulatory & Legislative Affairs
San Francisco Public Utilities Commission

cc: Barbara Hale, AGM-Power, SFPUC
Theresa Cho, Deputy City Attorney, City & County of San Francisco
Lori Mitchell, Manager – Renewables, SFPUC
Mary Jane Coombs, Air Resources Board
Jason Gray, Air Resources Board
Bill Knox, Air Resources Board
Craig Segall, Air Resources Board
Jodean Giese, Air Resources Board

ATTACHMENTS



For Operating Day: **Friday, October 28, 2016**

The Renewables Watch provides important information about actual renewable production within the ISO grid as California moves toward a 33 percent renewable generation portfolio. The information provided is as accurate as can be delivered in a daily format. It is unverified raw data and is not intended to be used as the basis for operational or financial decisions.

Renewables Production

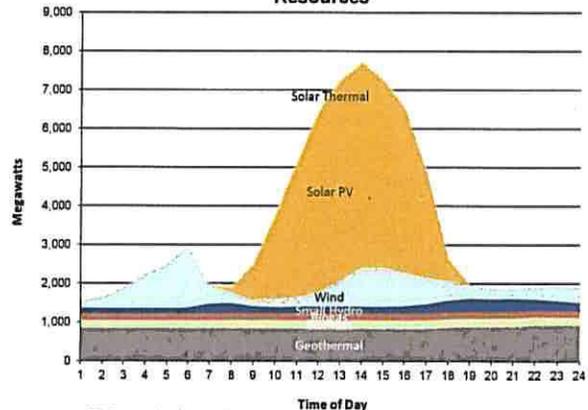
24-Hour Renewables Production

Renewable Resources	Peak Production Time	Peak Production (MW)	Daily Production (MWh)
Solar Thermal	16:36	46	47
Solar	13:01	5,721	34,128
Wind	5:14	2,304	12,616
Small Hydro	18:47	354	5,241
Biogas	0:17	177	4,105
Biomass	16:12	224	5,148
Geothermal	23:49	921	20,631
Total Renewables			81,915

Total 24-Hour System Demand (MWh): **605,426**

This table gives numeric values related to the production from the various types of renewable resources for the reporting day. All values are hourly average unless otherwise stated. Peak Production is an average over one minute. The total renewable production in megawatt-hours is compared to the total energy demand for the ISO system for the day.

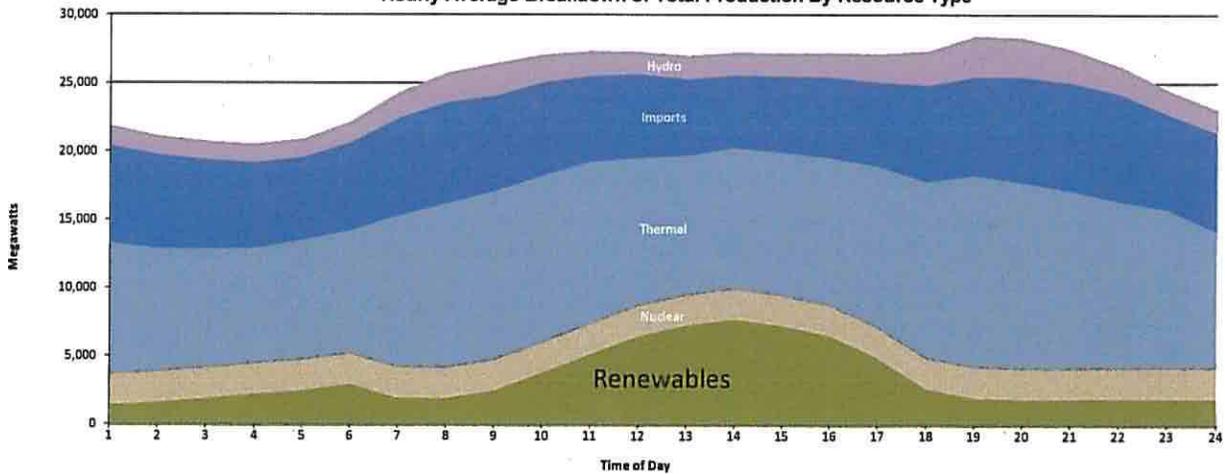
Hourly Average Breakdown of Renewable Resources



This graph shows the production of various types of renewable generation across the day.

System Peak Demand (MW)
*one minute average **28,762**
Time: **18:43**

Hourly Average Breakdown of Total Production By Resource Type



This graph depicts the production of various generating resources across the day.

Previous Renewables Watch reports and data are available at <http://www.caiso.com/green/renewableswatch.html>

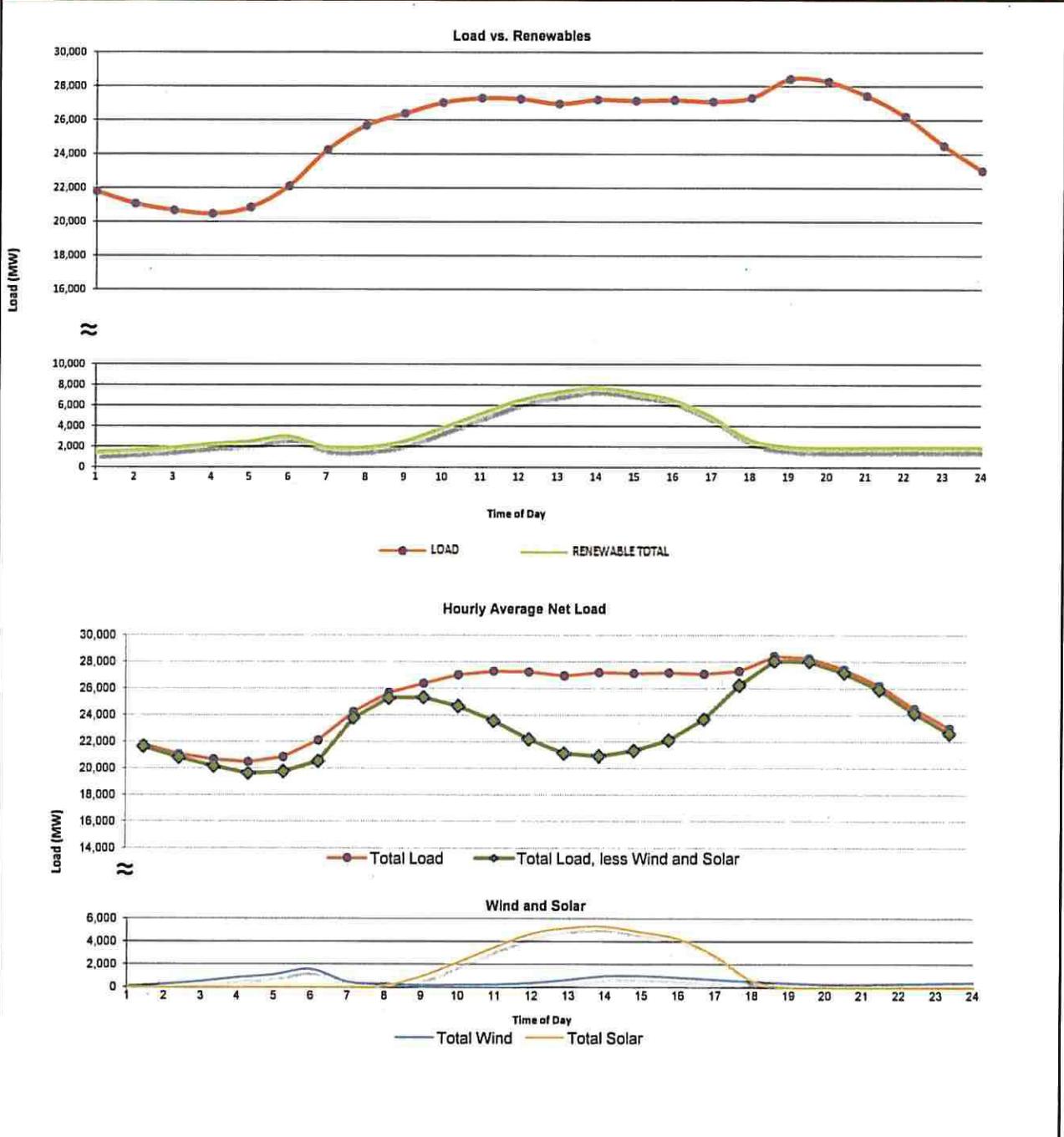
This table gives numeric values related to the production from the various types of renewable resources for the reporting day. All values are hourly average unless otherwise stated. Peak Production is an average over one minute. The total renewable production in megawatt-hours is compared to the total energy demand for the ISO system for the day. Solar PV and Solar thermal generators that are directly connected to the power grid. "Solar PV" is defined as solar generating units that utilize solar panels containing a photovoltaic material. "Solar Thermal" is defined as solar generating units that convert sunlight into heat and utilize fossil fuel or storage for production which may occur after sunset.



For Operating Day:

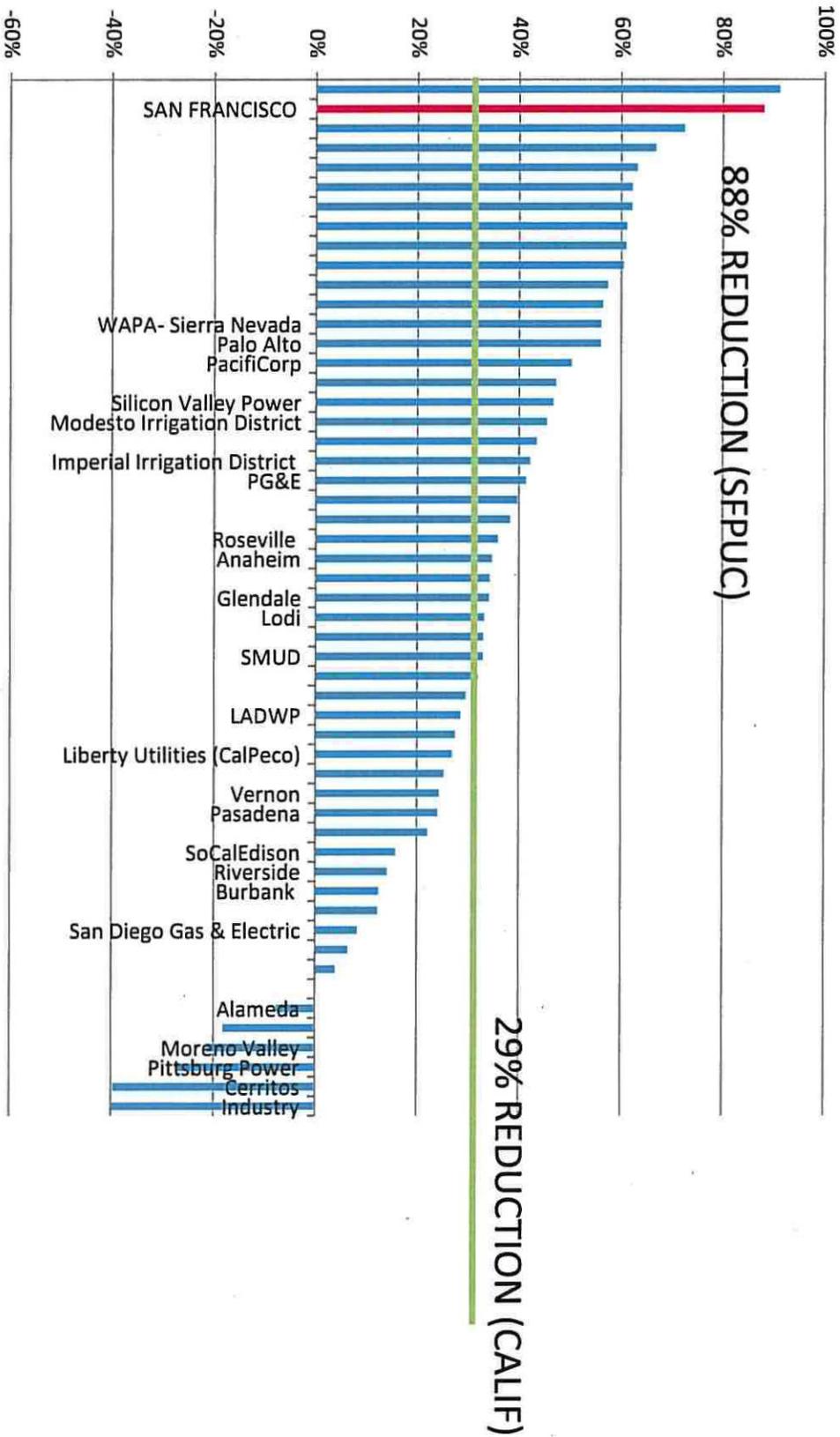
The first graph provided on this page shows how much energy renewable resources are contributing to the grid, and when those resources are producing their daily maximum and how that production correlates to the maximum energy demand.

Comparison to Load



The information contained in this report is preliminary and subject to change without notice. No inference, decision or conclusion should be made based on the information in this report or any series of these reports. All values are hourly average unless otherwise stated. Questions about this report should be directed to Jessica Garidel at jgaridel@caiso.com.

REDUCTION IN GHG ALLOWANCES FROM 2020 TO 2021 (BY PERCENTAGE)





December 9, 2016

Richard Corey
Executive Officer
California Air Resources Board
1001 I Street
Sacramento, CA 95812-2828

RE: California Joint Utility Group Comments on Proposed Electric Distribution Utility Allowance Allocation

Dear Mr. Corey,

Introduction

The California Joint Utility Group (“JUG”)¹ respectfully submits this letter, on behalf of customer interests, to the California Air Resources Board (“ARB”) regarding staff’s methods for post-2020 allowance allocation to electric distribution utilities (EDUs) as presented at the workshop on October 21, 2016. The JUG appreciates staff’s availability for continued dialogue on the proposed changes to the Cap-and-Trade Program post-2020, and views the proposals in this letter as a step in that iterative process.

The JUG proposal suggests improvements, on behalf of customer interests, to four main areas of the current ARB staff EDU allowance allocation structure. The aim of these recommendations is to minimize potential cost impacts to ratepayers that could result from insufficient allowance allocation. Adopting the changes proposed in this letter will help ensure that the cost of the State’s climate policies will not unduly impact California households, and will further enable EDUs to continue investing in cleaner electricity resources, providing critical support to help the State meet its ambitious climate goals.

The key areas of concern are:

1. **Ensuring Consistency through Technical Improvements** – Consistency across programs is critical for market stability. In support of this, the JUG suggests the Renewables Portfolio Standard (RPS) component of the allowance allocation computation should be applied to retail sales and not load including losses, consistent with the way compliance is calculated for the RPS Program. Additionally, ARB should base their allocation calculation on demand forecasts that do not include additional achievable energy efficiency (AAEE). Finally, emission factors for greenhouse gases should be updated in line with the latest International Panel on Climate Change (IPCC) recommendations.

¹ Southern California Edison, Pacific Gas & Electric Company, San Diego Gas and Electric, Southern California Gas Company, Los Angeles Department of Water and Power, Sacramento Municipal Utility District, Southern California Public Power Authority, Northern California Power Agency, Pacificorp, Turlock Irrigation District, Modesto Irrigation District.

2. **Rapid Rate of Allocation Decline** – The current proposal entails a precipitous 9-12 percent or so annual reduction in allocations between 2021 and 2030 due to reliance on both a cap adjustment factor (CAF) *and* a ramp up to a 50 percent RPS. This is approximately double the overall adjustment in the Cap over the period. The JUG recommends that the standard CAF be reevaluated for the electricity sector and the movement to a 50 percent RPS be removed from the allocation methodology.
3. **Mitigating the Allocation “Program Transition Cliff” in 2021** – The proposed EDU allocation methodology results in a reduction in allocation between 2020 and 2021 that is greater than 50 percent for many EDUs. The JUG believes this is inconsistent with the allocation principles of covering the customer cost burden, and a desire to avoid abrupt increases in utility rates due to carbon pricing.
4. **Electrification of Transportation and other End Uses**– Utility customers should not shoulder additional compliance costs due to the implementation of electrification measures, which will necessarily increase electric generation but achieve net emission reductions from a societal perspective. Without a clear mechanism that awards credit for electrification initiatives, ARB would effectively impose additional costs to the EDUs for reductions achieved through electrification and remove the incentive for EDUs to invest in electric vehicle infrastructure. JUG recommends that ARB continue work to develop allowance allocation rules and other regulatory mechanisms that encourage vehicle electrification by EDUs in keeping with the spirit of SB350.

Without these changes, the JUG is concerned that the proposed allowance allocations will not serve the ARB’s intent of mitigating the approximate cost burden levied upon utility customers. Because customer rates are impacted not only by Cap-and-Trade but also by complementary measures such as the 50 percent RPS, doubling of energy efficiency and energy storage mandates, the JUG contends that sufficient allowance allocation on behalf of our customers is critical to managing the broader cost burden of the state’s climate programs. While the JUG recognizes that the Electric Sector is in a unique position to be able to contribute substantial reductions, California ratepayers should not have to bear significant cost burdens associated with the investments required to become California’s low carbon sector leader.

Detailed Recommendations and Rationale

Ensuring Data Accuracy and Program Consistency through Technical Improvements – The JUG suggests three key changes to bring the allocation methodology in line with the RPS Program and remove inclusion of AAEE, as these savings are uncertain and have historically proven to differ significantly from actual achieved energy efficiency. Ensuring data accuracy and program consistency is necessary for effective EDU investment decisions, planning, and program management.

First, when considering how much renewable generation supports load, ARB should apply the annual RPS percentage in a resource portfolio to retail sales, not total load with losses. This is consistent with the RPS Program itself, which clearly considers a percentage of retail sales, not load with losses, when determining compliance.

Second, ARB should base allocations on demand forecasts that do not include any AAEE. Forecast AAEE amounts are highly uncertain, and historical experience shows actual savings are commonly significantly lower than forecast savings. Additionally, expected AAEE data is not available for all utilities, potentially leading to the inequitable treatment of EDUs. The JUG also notes that removing

AAEE is consistent with the current EDU allocation methodology, which does not decline allocations at all with respect to energy efficiency estimates.²

Including AAEE in the allocation methodology would effectively reduce allocations to EDUs for continued investment in energy efficiency, the first resource in the State's loading order, reducing the incentive for EDUs to pursue these investments. Finally, including AAEE in the EDU allocation methodology is equivalent in concept to updating the benchmarks for utilities every year, something ARB staff is not proposing for other allocated sectors such as industrial customers.

The JUG also notes that the allocation methodology should rely on the most up-to-date emissions factors as consistent with the recently updated IPCC global warming potentials. Using the new emission factors for allocation will match what will be used for compliance obligations.

Rapid Rate of Allocation Decline – Both Method 1 and Method 2 proposed by staff include a very sharp annual decline in allowances to EDUs, on the order of 9-12 percent per year, 100 percent or more higher than the decline would be if allocations just followed the cap. This occurs due to reliance on *both* the cap adjustment factor (CAF) and the linear ramp of RPS attainment from 2021-2030 up to 50 percent. The JUG recommends that ARB reevaluate the CAF for the electricity sector and remove the linear ramp up to 50 percent RPS in the allocation.

An allocation methodology and cap decline factor unique to the electricity sector is proposed in order to recognize the additional compliance burden placed on EDUs as a result of increased electrification in the transportation sector. In addition, further reducing EDU allocation because of our required investment in renewable resources is inappropriate given the expected customer cost burden from these resources and the associated infrastructure necessary to reliably deliver renewable electricity to our customers.

Additionally, the assumption that each EDU's compliance burden will be reduced by the ramp up to 50% RPS by 2030 is inappropriate when determining allowance allocations, due to the inconsistent accounting of RPS eligible electricity between the RPS Program and the Cap-and-Trade program. First, not all RPS eligible electricity will directly reduce an EDU's carbon obligation under the Cap-and-Trade program. The RPS program allows up to 10 percent of the RPS target to be satisfied using unbundled renewable energy credits (RECs), which represent renewable electricity produced but not delivered to California, so this procurement will not reduce the EDU's carbon obligation under the Cap-and-Trade program. Second, it is unclear at present to what degree the RPS Adjustment can be claimed by the EDUs to reduce their compliance obligation for the 15%-25% of the RPS that can be met with Portfolio Content Category 2 resources and many grandfathered resources. Third, RPS eligible electricity that is directly delivered to a California Balancing Authority area may not reduce an EDU's carbon obligation if the electricity is not delivered all the way to the EDU's service territory. Finally, some significant amount of RPS-driven overgeneration is very likely in this 2020 – 2030 time period and, when this occurs, there will be little or no GHG emissions reductions. Given these facts, the increase in RPS procurement from 33% to 50% is unlikely to reduce an EDU's carbon obligation under the Cap-and-Trade program by the full amount suggested by going from 33% to 50%. Therefore, the JUG proposes to hold the RPS percentage flat at 33% for purposes of determining the EDU's allowance allocation.

² In the current methodology, the overall electric sector allocation is set in the Cap-and-Trade Regulations, and is simply the starting number of 97.7 million metric tons times the declining cap factor through 2020. Committed energy efficiency, but not additional achievable, is considered when dividing this total up amongst utilities, but inclusion in this manner does not reduce overall EDU allocations over time.

Mitigating the Starting Allocation “Program Transition Cliff” in 2021 – The proposed allocation methodology results in a significant decrease in allocation between 2020 and 2021 – greater than 50 percent for many EDUs. This deep and abrupt reduction in allocation is inconsistent with ARB’s stated policies of customer protection and avoidance of abrupt increases in customer costs related to carbon pricing and related complementary measures. The JUG is considering a number of solutions to remedy this issue with the current cost-burden methodology, and expects to bring a consensus solution forward at the next opportunity to meet with ARB to discuss allowance allocation.

Electrification of Transportation and other End Uses – In order to meet the State’s emission reduction goals in 2030 and 2050, electrification needs to be cost effective and remain a low cost alternative fuel for transportation and other end uses. In addition, electrification of the transportation and other sectors of California will yield substantial net reductions in criteria pollutants that will be needed for attaining ambient air quality standards for ozone and particulate matter under the federal Clean Air Act. This is clearly identified in the text of SB350, and the JUG believe more needs to be done to ensure that utilities and other interested parties are encouraged to pursue electrification opportunities where they are appropriate.

Under the proposed ARB allocation methodology, there likely will be insufficient coverage of emission cost burden, leading to significant electricity rate increases, particularly in a tightening market where allowance prices approach or reach APCR levels. This runs the risk of having a preemptive chilling effect on the needed electrification initiatives of public and private sector entities. Without a clear signal that EDU emissions from electrification will be appropriately covered by allowances or a similar policy, the JUG believes it will be much more difficult for California to achieve its 2030 emission reduction target. It is important that ARB develop an effective regulatory framework for encouraging the electrification of the transportation and other sectors of the California economy. Key components of this framework will include recognition that most forms of electrification will not naturally be accompanied by sub-metering programs, and requiring such sub-meters acts as a barrier to implementation. The JUG recommends that ARB keep the “big picture” perspective in mind as it develops the post-2020 allowance allocation rules for the electricity sector in regards to carbon-reducing electrification activities.

Conclusion

Member companies of the Joint Utility Group appreciate the continued dialogue with ARB staff and management on these important issues. JUG members urge ARB staff to include the proposed changes to the EDU allowance allocation methodology. Thank you for your time and for your careful consideration of these issues.

CC:

Steve Cliff
Edie Chang
Rajinder Sahota
Mary Jane Coombs
Jason Gray
Bill Knox
Michael Gibbs

**Cap-and-Trade Regulation
Industry Assistance Factor Calculation
Addendum to October 21, 2016 Informal Staff Proposal**

Together, Assembly Bill 32 (AB 32), Senate Bill 32, and Assembly Bill 197 set an ambitious goal for reducing greenhouse emissions to 40 percent below 1990 levels by 2030 and provide guidance for how those reductions are achieved. To meet these objectives, the State is developing a 2030 Target Scoping Plan to chart the path to achieve the 2030 limit. Comments received on the 2030 Target Scoping Plan and Cap-and-Trade Regulation (Regulation) rulemaking materials will be considered as staff prepares a final Regulation for Board consideration in 2017.

In 2011 and 2012, Board Resolutions 11-32 and 12-33 directed Air Resources Board (ARB) staff to investigate potential improvements to industrial allowance allocation to better meet the AB 32 objective to “minimize emissions leakage to the extent feasible.” In response, ARB commissioned three emissions leakage potential studies to inform the development of assistance factors (AF) for Cap-and-Trade Program allowance allocation to manufacturing sectors. Based on these leakage studies, ARB staff proposed in Appendix E¹ of the 2016 Initial Statement of Reasons to the proposed amendments to the Regulation a methodology by which emissions leakage would be assessed and AFs would be developed for the fourth compliance period and beyond. A paper entitled “October 21, 2016 Industrial Assistance Factor Calculation: Informal Staff Proposal” (October 21 informal staff proposal)² was published on October 21, 2016, listing post-2020 AFs for the sectors that were analyzed in the commissioned studies.

Staff planned to use public data to calculate post-2020 AFs for sectors not included in the leakage studies. These sectors include all mining sectors (i.e., NAICS codes listed in table 8-1 of the Regulation³ that start with “2”); wet corn milling (NAICS 311221); cyclic crude, intermediate, and gum and wood chemical manufacturing (NAICS 325194); other motor vehicle parts manufacturing (NAICS 336390); and support activities for air transportation (NAICS 4881). Before publishing the October 21 informal staff proposal, however, staff identified an inconsistency in the data planned for use—specifically, the 2007 domestic exports from the U.S. Census Bureau’s USA Trade Online database⁴ exceeded the 2007 U.S. Economic Census⁵ domestic shipments (inclusive of domestic exports and shipments for domestic consumption) for the rare earth mining sector (NAICS 212299). Staff has identified and resolved the cause of the inconsistency, which was the use of an incorrect column of the 2007 Economic Census for domestic shipments in non-studied sectors with NAICS codes starting with “2,” and is now releasing AFs calculated using public U.S. Census and trade data, as originally planned. This addendum to the informal staff proposal includes these AFs and

¹ <https://www.arb.ca.gov/regact/2016/capandtrade16/appe.pdf>

² <https://www.arb.ca.gov/cc/capandtrade/meetings/20161021/ct-af-proposal-102116.pdf>. A prior version of the proposal was posted on October 14, 2016. The October 21 proposal includes updated (and accurate) versions of Tables 3–6.

³ https://www.arb.ca.gov/cc/capandtrade/capandtrade/unofficial_ct_030116.pdf

⁴ <https://usatrade.census.gov/>

⁵ <https://www.census.gov/econ/census/>

publishes the details supporting their calculation for stakeholder review and feedback to inform the formal 15-day regulatory amendments. Staff requests feedback on this proposed methodology for the aforementioned sectors by 5 pm on Wednesday, November 23, 2016. A website for comments will be available the week of November 14, 2016 and linked to from <https://www.arb.ca.gov/cc/capandtrade/meetings/meetings.htm>.

Potential Emissions Leakage for Sectors Not Evaluated by the Studies

Overview

The leakage studies referenced in the October 21 informal staff proposal analyzed potential industrial emissions leakage risk for most manufacturing sectors covered by the Cap-and-Trade Program (i.e., most sectors assigned a NAICS code starting with 3). Non-manufacturing sectors with NAICS codes starting with 1, 2, and 4 were not analyzed by these studies. Because raw international market transfer (IMT), value added domestic drop (DD), and output DD values for these non-studied sectors are unavailable, emissions leakage potentials for these sectors were estimated by matching each non-studied sector based on its energy intensity and trade exposure using the processes described below.

International AF Component for Non-Studied Sectors

For the international AF component (IMT) of a non-studied sector, publicly available six-digit NAICS value added data from the 2007 and 2012 U.S. Census and USA Trade Online import and export data⁶ are combined to calculate an average energy intensity and trade exposure). The energy intensity and trade exposure are then used to calculate an IMT value using equation 4 of the October 21, 2016 informal staff proposal. Table 1 lists the energy intensities, trade exposure values, and IMTs for the non-studied sectors that were determined using this method. The calculated IMT values are set equal to the international AF component for these sectors.

Domestic AF Component for Non-Studied Sectors

The domestic study analyzed the responsiveness in output and value added to changes in electricity and natural gas prices. This responsiveness was used to measure the effect of a carbon signal on domestic leakage. Responsiveness is driven in part by the fraction of total costs coming from energy consumption; this fraction is called “energy intensity.” The greater the sector-specific energy intensity, the greater the sector-specific cost impact of a carbon signal.

⁶ USA Trade Online: total NAICS six-digit level exports and CIF imports values. CIF (cost, insurance, freight) imports is the “landed value of the merchandise at the first port of arrival in the United States. It is computed by adding import charges to the Customs value and therefore excludes U.S. import duties.” (USA Trade Online glossary of terms, available through log-in at <https://usatrade.census.gov/>)

Two domestic drop measures used for determining the domestic AF component for studied sectors use a regression approach of the study's domestic drop measurements on energy intensity. The methodologies of these regressions and their subsequent domestic drop calculations can be found in the October 21 informal staff proposal.

The publicly available 2007 and 2012 U.S. Census data reports electricity costs and the combined sum of costs from other fuels (e.g., natural gas, coal and coke). By not breaking out natural gas costs from other fuels, the energy intensity reported in the domestic study (natural gas and electricity fuels only) cannot be directly compared to the energy intensity reported in the U.S. Economic Census (with other fuels). Energy intensity, if compared directly, would be higher for non-studied sectors than sectors covered by the domestic study, simply through the inclusion of alternate fuel consumption (e.g., coal consumption). Therefore, to ensure comparability, the U.S. Census data for both the studied and non-studied sectors is used for the measurement of energy intensity in the following formulas. These formulas develop two estimates of domestic drops (domestic value added drop and domestic output drop) for the studied and non-studied sectors based on energy cost intensities that are directly comparable. Domestic value added drops for the non-studied sectors determined in this manner are presented in Table 2. The domestic output drops for the non-studied sectors can be found in Table 3.⁷

Domestic value added drop and U.S. Census energy intensity are correlated for the manufacturing sector using a pooled linear regression (OLS):

$$DVA_{i,manufacturing,0} = B_0 + B_1 \times \ln(\text{U.S. Census energy intensity}_i) + \text{error}_i \quad (\text{Equ. 1})$$

Where:

" $DVA_{i,manufacturing,0}$ " is the domestic value added drop for manufacturing sector "i" with zero assistance factor from the domestic study, which can be found in Table 3 of the October 21, 2016 informal staff proposal, and

"U.S. Census energy intensity" is the energy intensity for the manufacturing sector determined from the U.S. Census data.

Each non-studied sector's regressed domestic value added drop with a zero assistance factor is then calculated by the following equation:

$$DVA_{j,regressed,0} = \text{est}B_0 + \text{est}B_1 \times \ln(\text{U.S. Census energy intensity}_j) \quad (\text{Equ. 2})$$

⁷ Wet corn milling (NAICS Code 311221) was not covered by the domestic study, so estimates of wet corn milling domestic drop used the same process as non-manufacturing sectors.

Where:

“ $DVA_{j,regressed,0}$ ” is the regression domestic value added drop for non-studied sector “j” with a zero assistance factor, which is presented as the third column (0AF column) in Table 2, and

“ $estB_k$ ” is the OLS estimate of the coefficient B_k resulting from equation 1.

The regressed domestic value added drop with increasing assistance factors for each non-studied sector “j” is calculated by the following equation:

$$DVA_{j,regressed,X} = DVA_{j,regressed,0} \times (1 - X) \quad (\text{Equ. 3})$$

Where:

“ $DVA_{j,regressed,X}$ ” is the regression domestic value added drop for non-studied sector “j” with an assistance factor equal to X, where X is one of the various AF values reported in the columns of Table 2.

The relationship between domestic output drop and U.S. Census energy intensity for non-studied sectors is determined in the same manner as for domestic value added drop, by using a pooled linear regression (OLS):

$$\text{Output Drop}_{i,manufacturing,0} = B_0 + B_1 \times \ln(\text{U.S. Census energy intensity}_i) + \text{error}_i \quad (\text{Equ. 4})$$

Where:

“ $\text{Output Drop}_{i,manufacturing,0}$ ” is the domestic output drop for manufacturing sector “i” with zero assistance factor from the domestic study, which can be found in Table 4 of the October 21, 2016 informal staff proposal, and

“U.S. Census energy intensity” is the energy intensity for the manufacturing sector determined from the U.S. Census data.

Each non-studied sector’s regressed domestic output drop with a zero assistance factor is then calculated by the following equation:

$$\text{Output Drop}_{j,regressed,0} = estB_0 + estB_1 \times \ln(\text{U.S. Census energy intensity}_j) \quad (\text{Equ. 5})$$

Where:

“ $\text{Output Drop}_{j,regressed,0}$ ” is the regression domestic output drop for non-studied sector “j” with zero assistance factor, which is presented in Table 3, and

“estB_k” is the OLS estimate of the coefficient B_k resulting from equation 4.

The regressed domestic output drop with increasing assistance factors for each non-studied sector “j” is calculated by the following equation:

$$\text{Output Drop}_{j,\text{regressed},X} = \text{Output Drop}_{j,\text{regressed},0} \times (1 - X) \quad (\text{Equ. 6})$$

Where:

“Output Drop_{j,regressed,X}” is the regression domestic output drop for non-studied sector “j” with an assistance factor equal to X, where X is one of the various AF values reported as the third column (OAF column) in the columns of Table 3.

Table 2 and 3, as well as the -10.245 percent DD cutoff value (7 percent DD using 2022 auction reserve price applied to the tables at the higher 2030 auction reserve price), are applied to develop two domestic AF component estimates for each non-studied sector. For each sector, the final domestic AF component was assigned to be the average of the two determined domestic AF components. This can be found in Table 4.

Potential Emissions Leakage for Sectors with Non-Purchased Fuels and/or Process Emissions Not Evaluated by the Studies

The oil and gas extraction (NAICS code 211111) and natural gas processing (NAICS code 211112) sectors have emissions from activities not directly associated with the burning of purchased fuels (e.g., non-purchased fuels). The U.S. Census energy intensities for these sectors were adjusted upward to account for these emissions in the same way that energy intensities were adjusted for other sectors with non-purchased fuel and/or process emissions:

$$\text{Revised energy intensity} = \text{Census energy intensity} / F \quad (\text{Equ. 7})$$

Where:

“Census energy intensity” is the energy intensity for these sectors calculated by the U.S. Census; and

“F” is the fraction of total emissions from the consumption of purchased fuels divided by covered emissions based on MRR data.

The determination of IMTs and DDs for these sectors otherwise followed the methodology of non-studied sectors without process emissions and/or emissions associated with non-purchased fuels. Adjusting for these emissions slightly increased the calculated IMT and DDs for these sectors. Table 5 provides the fraction of total emissions from consumption of purchased fuel for these sectors. The portion of emissions not from the consumption of purchased fuel is classified as process emissions in this determination.

Domestic Assistance Factor Component for Non-Studied Sectors

Table 4 lists the two domestic AF components determined by each of the two regression DD approaches for non-studied sectors, and the table also identifies the average of these two domestic AF components, which is the one used in equation 8 to determine the total AF found in Table 6 (i.e., the post-2020 AFs).

$$\text{Total AF} = \text{Domestic AF Component} + \text{International AF Component} \quad (\text{Equ. 8})$$

Where:

“Domestic AF Component” is the portion of the post-2020 AF used to minimize domestic leakage; and

“International AF Component” is the portion of the post-2020 AF used to minimize international leakage.

Future Non-Studied Sectors

Should a covered entity start to operate in an industrial sector that is not currently assigned an AF, staff proposes assigning an assistance factor to the new sector using the methodology developed for the non-studied sectors.

Table 1. Non-studied sector IMT characteristics.

NAICS Code	NAICS Sector Definition	Trade Exposure	Energy Intensity	International Assistance Factor Component
211111	Crude Petroleum and Natural Gas Extraction	0.56	0.05	0.41
211112	Natural Gas Liquid Extraction	0.20	0.03	0.16
212299	All Other Metal Ore Mining	0.83	0.10	0.55
212391	Potash, Soda, and Borate Mineral Mining	0.01	0.17	0.03
212399	All Other Nonmetallic Mineral Mining	0.71	0.12	0.50
311221	Wet Corn Milling	0.23	0.10	0.19
325194	Cyclic Crude, Intermediate, and Gum and Wood Chemical Manufacturing	0.44	0.05	0.33
336390	Other Motor Vehicle Parts Manufacturing	0.54	0.01	0.40
4881	Support Activities for Air Transportation	0.00	0.03	0.02

Table 2. Regressed domestic value added DD for each non-studied sector at assistance factors from zero to 90 percent (percentages).

NAICS Code	NAICS Sector Definition	0AF	10AF	20AF	30AF	40AF	50AF	60AF	70AF	80AF	90AF
211111	Crude Petroleum and Natural Gas Extraction	-13.5	-12.1	-10.8	-9.4	-8.1	-6.7	-5.4	-4.0	-2.7	-1.3
211112	Natural Gas Liquid Extraction	-10.9	-9.8	-8.7	-7.6	-6.6	-5.5	-4.4	-3.3	-2.2	-1.1
212299	All Other Metal Ore Mining	-16.6	-14.9	-13.3	-11.6	-10.0	-8.3	-6.6	-5.0	-3.3	-1.7
212391	Potash, Soda, and Borate Mineral Mining	-18.8	-16.9	-15.0	-13.2	-11.3	-9.4	-7.5	-5.6	-3.8	-1.9
212399	All Other Nonmetallic Mineral Mining	-17.3	-15.6	-13.9	-12.1	-10.4	-8.7	-6.9	-5.2	-3.5	-1.7
311221	Wet Corn Milling	-16.6	-14.9	-13.2	-11.6	-9.9	-8.3	-6.6	-5.0	-3.3	-1.7
325194	Cyclic Crude, Intermediate, and Gum and Wood Chemical Manufacturing	-13.3	-12.0	-10.7	-9.3	-8.0	-6.7	-5.3	-4.0	-2.7	-1.3
336390	Other Motor Vehicle Parts Manufacturing	-6.4	-5.7	-5.1	-4.5	-3.8	-3.2	-2.5	-1.9	-1.3	-0.6
4881	Support Activities for Air Transportation	-11.2	-10.1	-9.0	-7.9	-6.7	-5.6	-4.5	-3.4	-2.2	-1.1

Table 3. Regressed public output DD for each non-studied sector at assistance factors from zero to 90 percent (percentages).

NAICS Code	NAICS Sector Definition	0AF	10AF	20AF	30AF	40AF	50AF	60AF	70AF	80AF	90AF
211111	Crude Petroleum and Natural Gas Extraction	-14.2	-12.8	-11.3	-9.9	-8.5	-7.1	-5.7	-4.3	-2.8	-1.4
211112	Natural Gas Liquid Extraction	-11.8	-10.6	-9.4	-8.2	-7.1	-5.9	-4.7	-3.5	-2.4	-1.2
212299	All Other Metal Ore Mining	-17.1	-15.4	-13.7	-12.0	-10.3	-8.6	-6.8	-5.1	-3.4	-1.7
212391	Potash, Soda, and Borate Mineral Mining	-19.2	-17.3	-15.4	-13.4	-11.5	-9.6	-7.7	-5.8	-3.8	-1.9
212399	All Other Nonmetallic Mineral Mining	-17.8	-16.0	-14.2	-12.5	-10.7	-8.9	-7.1	-5.3	-3.6	-1.8
311221	Wet Corn Milling	-17.1	-15.4	-13.7	-12.0	-10.2	-8.5	-6.8	-5.1	-3.4	-1.7
325194	Cyclic Crude, Intermediate, and Gum and Wood Chemical Manufacturing	-14.1	-12.6	-11.2	-9.8	-8.4	-7.0	-5.6	-4.2	-2.8	-1.4
336390	Other Motor Vehicle Parts Manufacturing	-7.5	-6.7	-6.0	-5.2	-4.5	-3.7	-3.0	-2.2	-1.5	-0.7
4881	Support Activities for Air Transportation	-12.0	-10.8	-9.6	-8.4	-7.2	-6.0	-4.8	-3.6	-2.4	-1.2

Table 4. Non-studied sector domestic assistance factor component from two regression DD approaches and assigned domestic assistance factor component.

NAICS Code	NAICS Sector Definition	Non-Manufacturing Output Regression Domestic AF Component	Non-Manufacturing Value Added Regression Domestic AF Component	Assigned Domestic Assistance Factor Component
211111	Crude Petroleum and Natural Gas Extraction	0.3	0.3	0.3
211112	Natural Gas Liquid Extraction	0.2	0.1	0.15
212299	All Other Metal Ore Mining	0.5	0.4	0.45
212391	Potash, Soda, and Borate Mineral Mining	0.5	0.5	0.5
212399	All Other Nonmetallic Mineral Mining	0.5	0.5	0.5
311221	Wet Corn Milling	0.5	0.4	0.45
325194	Cyclic Crude, Intermediate, and Gum and Wood Chemical Manufacturing	0.3	0.3	0.3
336390	Other Motor Vehicle Parts Manufacturing	0	0	0
4881	Support Activities for Air Transportation	0.2	0.1	0.15

Table 5. Fraction of total emissions from consumption of purchased fuels for non-studied sectors with non-purchased emissions.

NAICS Code	NAICS Sector Definition	Fraction of Total Emissions from Consumption of Purchased Fuels
211111	Crude Petroleum and Natural Gas Extraction	66%
211112	Natural Gas Liquid Extraction	31%

Table 6. Compliance period 3 assistance factors, domestic assistance factor component, international assistance factor component, and post-2020 assistance factors for non-studied sectors.

NAICS	Activity Name	Compliance Period 3 AF	Domestic AF Component	International AF Component	Post-2020 AF
211111	Crude Petroleum and Natural Gas Extraction	1	0.3	0.41	0.71
211112	Natural Gas Liquid Extraction	1	0.15	0.16	0.31
212299	All Other Metal Ore Mining	1	0.45	0.55	1.00
212391	Potash, Soda, and Borate Mineral Mining	1	0.5	0.03	0.53
212399	All Other Nonmetallic Mineral Mining	1	0.5	0.50	1.00
311221	Wet Corn Milling	1	0.45	0.19	0.64
325194	Cyclic Crude, Intermediate, and Gum and Wood Chemical Manufacturing	1	0.3	0.33	0.63
336390	Other Motor Vehicle Parts Manufacturing	0.5 ⁸	0	0.40	0.40
4881	Support Activities for Air Transportation	0.5	0.15	0.02	0.17

⁸ If new section 95891(a)(1) of the proposed Regulation (<https://www.arb.ca.gov/regact/2016/capandtrade16/appa.pdf>) is approved by the Board.



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**California Independent Petroleum Association Comments
on the Cap-and-Trade Regulation Industry Assistance Factor
November 10, 2016, Informal Staff Proposal Addendum**

November 23, 2016

California Air Resources Board
1001 I Street
Sacramento, CA 95814

Via electronic submittal to: https://www.arb.ca.gov/lispub/comm2/bcsubform.php?listname=assistancefactors-ws&comm_period=1

The California Independent Petroleum Association (CIPA) has been actively participating in the current Cap and Trade Rulemaking effort. CIPA members have attended multiple workshops, including the one on October 21, 2016, we subsequently submitted comments on the topic of Industrial Assistance Factors and also met with staff on this issue. The following comments are focused on the Addendum to the Informal Staff Proposal for Non-Studied sectors, which include Oil and Gas Extraction. CIPA remains concerned about both the process and proposal surrounding the determination of Industrial Assistance Factors.

The opportunity to digest and subsequently submit comments to the California Air Resources Board (ARB) for its consideration has effectively been limited to less than 15-days¹. This is not sufficient time to adequately review such detailed, data-driven and lengthy calculations, especially since the reference links provided as citations for fundamental data are not specific enough to quickly verify the information without compiling additional data and conducting separate calculations.²

The mission of CIPA is to promote greater understanding and awareness of the unique nature of California's independent oil and natural gas producer and the market place in which he or she operates; highlight the economic contributions made by California independents to local, state and national economies; foster the efficient utilization of California's petroleum resources; promote a balanced approach to resource development and environmental protection and improve business conditions for members of our industry. In-state petroleum production can play a role in helping the state meet its dual goals of a strong statewide economy while reducing GHG emissions in California.

¹ Addendum released in the afternoon of November 10th with comments due November 23rd at 5pm.

² <https://usatrade.census.gov/> and <https://www.census.gov/econ/census/>

Retaining the industry current Assistance Factor level is the best way to combat the threat of GHG emissions leakage from our industry. Crude oil is an international commodity and any reduction in the Assistance Factor (AF) from its current level will create added pressure for potential leakage of GHG emissions to other regions not similarly regulated.

CIPA has concerns about the Energy Intensity Factor used by ARB in the calculation for California oil and gas operations. It seems to only reflect non-thermal production. One of CIPA's member's calculated energy intensities for 10 oil fields. Eight of these oil fields employ steam injection used for enhanced oil recovery (EOR). Two of these oil fields employ primary oil production methods. Energy intensities were calculated for each field for the years 2015 and 2016 to date. Over the two year period the oilfield using EOR had energy intensities 4-5x of that listed in Table 1 of the Addendum.

Due to the high energy intensity related to California EOR oil production, and the fact that EOR oil production is primarily used in California, if U.S. national averages for energy intensity were used, California's producers are being significantly disadvantaged in the calculation of Assistance Factors. Additionally, ARB has already recognized that Thermal EOR Crude Oil Extraction as a different leakage risk activity from Non-Thermal Crude Oil Extraction³, but only one factor is proposed in the Addendum.

CIPA requests ARB reengage with industry and reevaluate the appropriateness of energy intensities used in the Addendum and ensure the energy intensity is reflective of actual California oil and gas production.

CIPA also supports our previous comments on this issue.⁴ As this is an important matter to CIPA members, we are committed to working with ARB on this critical design feature of the Cap and Trade program and look forward to upcoming discussions. Thank you for your attention. Any questions or follow-up comments can be directed to rock@cipa.org.

Sincerely,



Rock Zierman
CEO

317978358.1

³ https://arb.ca.gov/cc/capandtrade/capandtrade/unofficial_ct_030116.pdf [Table 8-1]

⁴ <https://www.arb.ca.gov/lists/com-attach/32-ct-amendments-ws-VDcBbljUWNWDwVm.pdf>