Implementation Update: 2017 Scoping Plan

FEBRUARY 21, 2019
California GHG Emissions Reduction Targets

- **Emissions to be reduced by 2020**: 431 MMTCO₂e
- **Additional reductions by 2030**: 2030 Target 260 MMTCO₂e
- **Additional reductions by 2050**: 2050 Goal 86 MMTCO₂e

*2016 emissions below 2020 target*
California’s GHG Emissions

Transportation: 39%
Industrial: 21%
Electricity Generation In-State: 10%
Electricity Generation Imports: 6%
Commercial and Residential: 9%
Agriculture: 8%
Recycling and Waste: 2%
High GWP: 5%

2016 Total CA Emissions: 429.4 MMTCO$_2$e

Source: CARB, 2018 Edition
California GHG Inventory
Progress on Reducing GHG Emissions

Source: CARB, 2018

MMT = Million Metric Tons
Scoping Plan Measures to Achieve 2030 Target

- Reflected best available data at the time
- Policy and regulatory changes since Scoping Plan adoption
- Short-lived climate pollutant strategy second largest measure
  - Sources not covered by Cap-and-Trade

Source: CARB, California’s 2017 Climate Change Scoping Plan
Metrics for Tracking Progress

- Annual Emissions Reporting
  - Greenhouse gas data
  - Enhanced criteria and toxics data

- Trends Data
  - State GDP and population
  - Energy and fuel use
  - Renewable electricity generation
  - Low carbon fuel volumes
  - Technology deployment
  - New source-based emission analysis
  - Vehicle miles traveled

- Climate Change Investments Reports
Summary of Board Actions in 2018

- Set GHG Planning Targets
  - Electricity sector and retail electricity providers
  - Sustainable Communities Strategies

- Strengthen/Extend Existing Regulations
  - Vehicle Standards
  - Low Carbon Fuels
  - Cap-and-Trade Program

- Adopt New Requirements
  - Short-Lived Climate Pollutants from refrigeration/foam end uses
Climate Investments

- $1.4 billion appropriated in fiscal year 2018-2019
- $8.4 billion appropriated since 2014
- > 50% of investments to date benefit disadvantaged communities
Transportation Focus in 2018

- Implementation of 2017 Scoping Plan will reduce on-road fuel demand 45% by 2030
  - Transportation sector GHG emissions increased 2% from 2015-2016

- Board direction to investigate additional cost-effective technologically feasible GHG reduction measures
  - Interagency Workshop on Opportunities for Additional GHG Reductions from Petroleum Transportation Fuels

- Governor direction to explore new regulatory actions to accelerate ZEVs
Transportation: Additional Actions Needed

- Need Vehicle Miles Traveled (VMT) reductions to achieve the 2030 GHG emission reduction target
  - VMT reduction of 7% below projected 2030 levels, 15% below projected 2050 levels
  - SB375 regional targets do not achieve the VMT level called for in the Scoping Plan
- Sustainable Development
  - Reduce VMT
  - Protect Natural and Working Lands
  - Develop Affordable Housing
- AB 32: Achieve reductions in this sector to compensate for potential federal waiver revocation
SLCP Strategy: 2-Yr Collaboration with Dairy Working Group

Subgroups’ Membership
- Dairy Industry
- Utilities
- Project Developers
- Environmental Justice (EJ) Organizations
- Conservation Groups
- Financial Consultants
- NGOs
- Academia
- Local, State, and Federal Agencies

Fostering Markets for Non-Digester Projects
Fostering Markets for Digester Projects
Research Needs, Including Enteric Fermentation

Workgroup Kick-Off Meeting May 2017
Workgroup Update Meeting January 2018
Workgroup Final Meeting December 2018

Subgroup Meetings

2017
2018
SLCP Strategy: Significant Public and Private Funding of Dairy Projects

- **CDFA Dairy Digester Research and Development Program** (2015-2018)
  - 64 Projects Funded
  - $114M Awarded
  - $204M Matched
  - 37 MMTCO₂ₑ* Reduced (10 years)

- **CDFA Alternative Manure Management Program** (2016-2018)
  - 57 Projects Funded
  - $31M Awarded
  - $5M Matched
  - 2 MMTCO₂ₑ* Reduced (5 years)

- **CPUC Dairy Pilot Pipeline Injection Projects** (2018)
  - 6 Projects Selected
  - $319M Investment

*20-yr GWP (AR4)*

Not shown above: additional $99M was allocated for DDRDP and AMMP in FY 2018/2019
SLCP Strategy: Dairy-Related Next Steps

- 2020 analysis (SB 1383)
- Implementation of Subgroup recommendations
- Explore improvements to competitiveness of in-State renewable natural gas
- Continue research into dairy and livestock emissions reductions
2018 Climate Change Reports

IPCC Special Report - Global Warming of 1.5°C

- Climate change impacts already evident
- Risks to public health, environment, and economic growth increase with warming
- Adaptation and mitigation reduce risks of climate change
- Efforts to limit climate change need to be upscaled and accelerated
- Vulnerable populations impacted disproportionately
Framing the Path Forward

IPCC Report – Carbon neutrality by 2045 may hold global warming to 1.5°C

Some regions are net emitters; others are sinks

Sources = Sinks

Reduce fossil energy and NWL emissions; evaluate potential sinks
Portfolio Approach and Ambition

**IPCC**

- Carbon pricing, complemented with other policies, can increase ambition cost-effectively

- Innovation policies and international cooperation can contribute to the development, commercialization, and widespread adoption of new and possibly disruptive technologies and practices

- Education, information, and community approaches, when combined with other policies, are more effective in accelerating wide-scale behavior changes

**California**

- Since the 2008 Scoping Plan, California has implemented a portfolio of incentives, prescriptive regulations, and carbon pricing
International Carbon Neutrality Efforts

- European Union
  - strategic long-term vision climate-neutral economy by 2050
  - aggregate goal over a region of 28 member states

- Sweden
  - goal of net zero emissions of greenhouse gases by 2045, negative thereafter
  - 85 percent reductions achieved in-jurisdiction, balance remaining 15 percent with investments abroad

- Costa Rica
  - aims to achieve carbon neutrality by 2021
California Carbon Neutrality (CO$_2$e)

**Today**
- AB 32 GHG Inventory
- Conversion
  - Natural & Working Lands Inventory

Both categories emit GHGs

**Mid-century**
- Minimize emissions
- Transition from source to sink
  - No net GHG emissions
Carbon Neutrality: Key Questions for California

- Pathways to minimize emissions in fossil energy and industrial sectors by mid-century?
- Long-term potential of a resilient NWL to store and sequester carbon and timing to transition from emissions source to sink?
- Options for additional mechanical sequestration technologies?
- Optimal mix of carbon pricing with complementary policies?
- Tools to assess economic and environmental outcomes of achieving carbon neutrality under different scenarios at multiple levels (e.g., state economy, jobs, households and small businesses)?
- How to maximize co-benefits for vulnerable communities?
2019 Engagement

- Carbon Neutrality Webinar and Bioresources Economy Summit
- Workshops to explore topic areas on achieving carbon neutrality
  - Energy demand and supply
  - Transformation across economic sectors (i.e. transportation, industrial)
  - Options and support for sequestration activities
- Continued collaboration
  - State and local agencies
  - Academics and researchers
  - International partners
Thank You