Phase II Health Impact Assessment of Cap-and-Trade in California

California Department of Public Health

Public Heath Working Group

September 13, 2010

Purpose of Presentation

- Briefly review HIA as a policy tool
- Offer preview of Phase II HIA methods
- Discussion to inform final draft

Overview

- Review of health impact assessment (HIA)
- Cap and Trade HIA Process
- Phase 2 Health Pathways
- Determining Health Effects – Methodology
- Illustrate approach to assessment
- Next steps

Introduction to HIA

IAIA and WHO Definition

"combination of procedures that systematically judges the potential, and sometimes unintended, effects of a policy, plan, program, or project on the health of a population and the distribution of these effects"

Health Impact Assessment

•Provides a framework for health considerations of a decision;

•Offers decision makers information to help understand potential health effects;

•Is prospective in nature; and

•Varies based on time, resources, and the assessment in question.

Introduction to HIA

HIA Process

1. Screening: will the analysis be valuable and feasible?

2. Scoping: determining the health issues for analysis, temporal & spatial boundaries, and research methods.

3. Assessment: using various quantitative and/or qualitative methods to assess the potential health impacts and identifying appropriate design alternatives or mitigations.

4. Reporting: synthesizing findings and communicating results.

5. Monitoring: tracking the decision and its impact on health.

HIA of Cap-and-Trade

Screening:

September 2009—use HIA to inform C&T framework Fall 2010

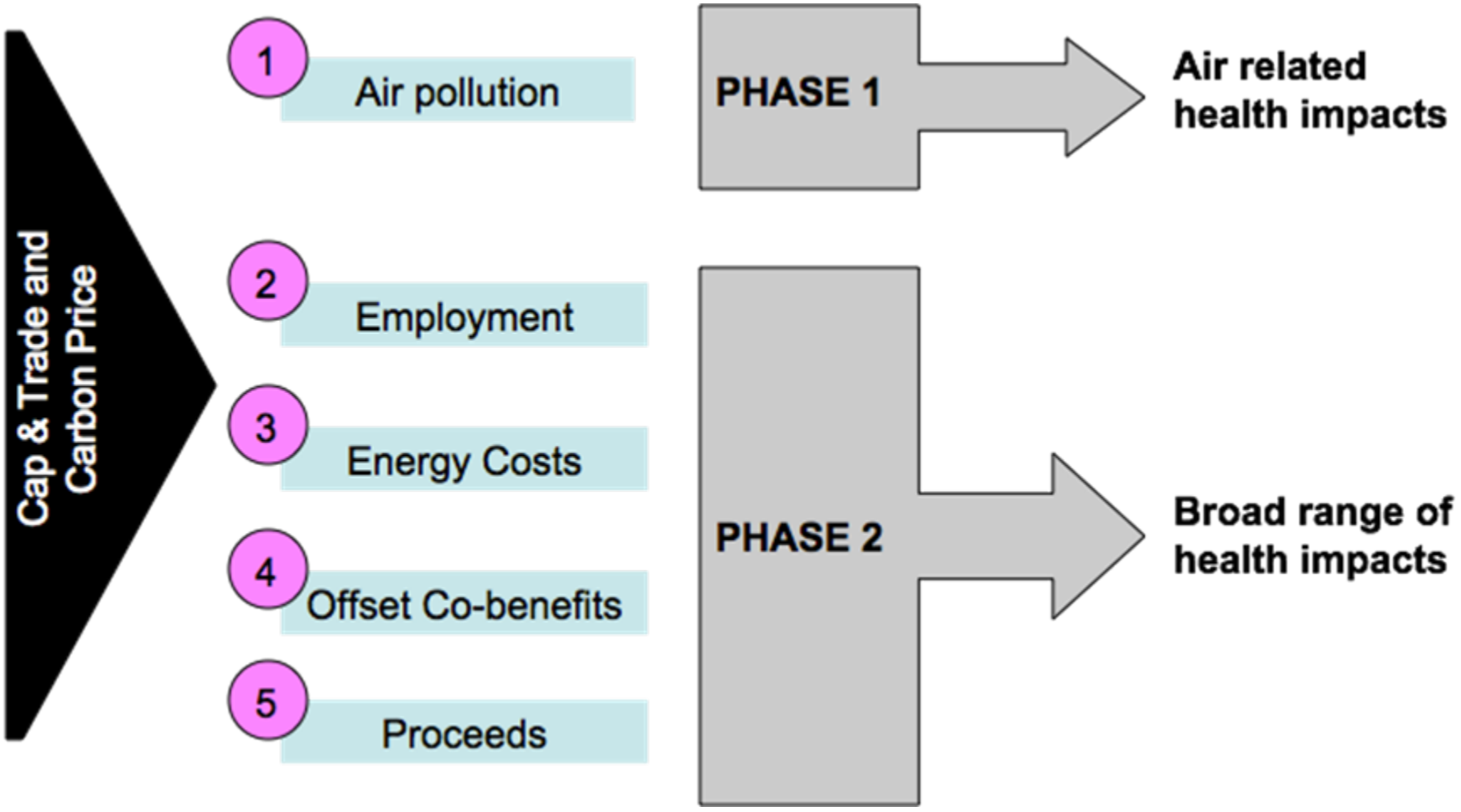
Scoping:

CAT PHWG used as forum to discuss potential health pathways

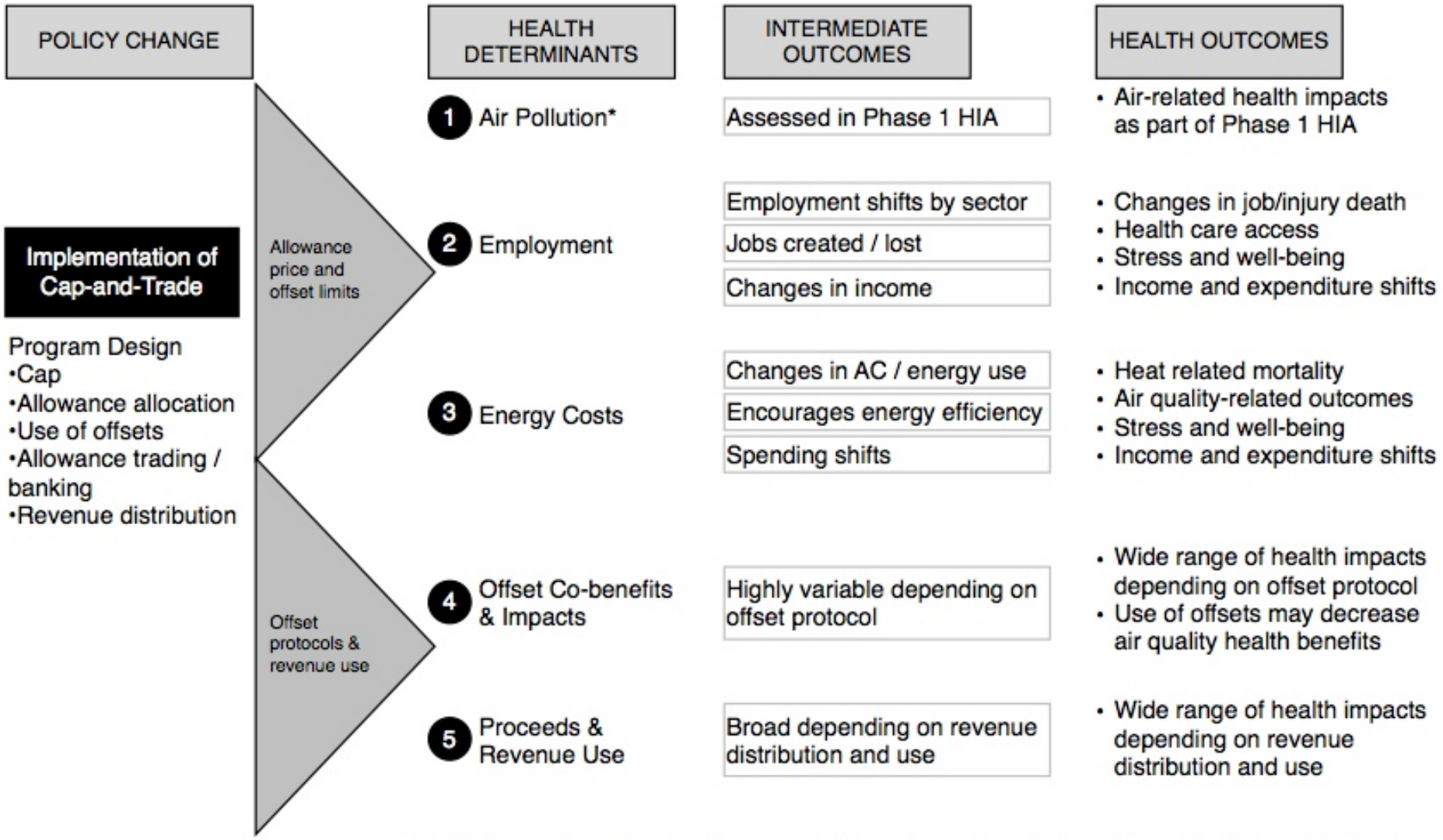
- Health determinants
- "Policy levers"
- Geographic and temporal scope of assessment

HIA of Cap-and-Trade

Final Scope: based on stakeholder feedback, consideration of data, and available resources within CDPH & ARB



Phase II HIA: Health Pathways



** Health Determinant #1 and subsequent health pathways form the foundation of the Phase 1 HIA led by ARB. Health Determinants #2-5 and subsequent pathways form the basis of the CDPH-led Phase 2 HIA.*

Phase II HIA: Health Effects

Health Effects

- Direction of impact
- Magnitude of impact

Considerations

- Transition from risk exposure to disease is complex, multifactorial, and may take many years: both exposures and health outcomes should be treated as “health effects”

- Economic determinants assessed at the State level, but effects likely to vary by subpopulation (based on geography, income, etc)

- Individual health outcomes can be highly significant, even when population-wide risk and health effect is small; effects on individuals, subpopulations, & the entire population should be considered

- Modeling and data limitations may require more qualitative than quantitative conclusions; establish qualitative levels of health effects

Phase II HIA: Health Effects

Negligible

- No impact on community function
- No long-term consequence on health or well-being
- Minor mitigations may narrow health risk or improve health benefits

Minor Effect

- Community health affected, but not disrupted for prolonged periods
- Incidents infrequent and negative impacts avoided with mitigation
- Mitigation recommended; health effects reversible

Moderate Effect

- Adverse effects for brief periods of time; but do not contribute to death or long-term disability
- More frequent than “minor” effects, but still relatively infrequent
- Mitigation recommended; health effects reversible

Major Effect

- Health effects unavoidable and would contribute to disability or death
- Mitigations recommended, but not expected to eliminate health effect

Phase II HIA: Methodology

Approach to assessment:

Part 1: Assessment of statewide economic health determinants
- Based on ARB's *Economic Analysis*
- Employment, income, & energy costs

Part 2: Scoping of four offset protocols
- High-level overview; scoping potential health pathways
- Assess relative health effects

Part 3: Assessment of community vulnerabilities
- Community-level impacts difficult to predict
- Assess existing disparities to understand vulnerabilities
- Inform revenue use and protect community's from unknown health effects

Phase II HIA: Methodology

General Methodology

1. Assess policy's impact on health determinants

2. Review government and peer-reviewed literature & data to understand health effects of any change in health determinants

3. Examine the extent of health effects, when possible, by:
- Geography
- Income
- Race
- Gender
- Age

4. Determine relative health effect based on best evidence available; identify unknown or speculative effects

Phase II HIA: Methodology

Part 1: Statewide Economic Health Determinants

Business as Usual	Case 1	Case 2
No cap-&-trade	Cap-&-trade •100% auction •49% emissions reductions can be offsets •Unlimited banking/trading	Cap-&-trade •100% auction •No offsets •Unlimited banking/trading
Efficiency measures those adopted at Federal level (Pavley I; 2007 EISA; etc)	More stringent energy efficiency measures as included in Scoping Plan are achieved at 100%	More stringent energy efficiency measures as included in Scoping Plan are achieved at 100%

Phase II HIA: Methodology

Part 1: Employment and Health

Health Rationale

- Changes in workplace morbidity/mortality
- Changes in uninsured rate
- Individual and household impacts on stress & well-being
- Changes in household income & expenditure shifts (nutritious foods, shelter, etc)

Data Sources

- ARB's "Updated Economic Analysis"
- U.S. Department of Labor, Bureau of Labor Statistics
- California Health Interview Survey

Phase II HIA: Methodology

Part 1: Income and Health

Health Rationale

- Income highly correlated with most health outcomes
- Youth and elderly most vulnerable to negative health effects associated with income
- Income inequality closely linked to poor health
- Poverty reduces access to healthcare & nutritious foods and is closely linked to stress

Data Sources

- ARB's "Updated Economic Analysis"
- World Health Organization

Phase II HIA: Methodology

Part 1: Energy Costs and Health

Health Rationale

- Household spending shifts could impact basic needs such as transportation, shelter, and nutrition
- Unnecessary energy thrift could impact heat morbidity/mortality
- Energy conservation can positively impact air quality

Data Sources

- ARB's "Updated Economic Analysis"
- Bureau of Labor Statistics, Consumer Expenditure Survey
- Energy Information Administration

Phase II HIA: Methodology

Part 2: Scoping of Offset Protocols

- Rapid scoping of 4 offset protocols under review this Fall:
  - Ozone Depleting Substances (ODS)
  - Manure Management Digesters (MMD)
  - Urban Forestry
  - Forestry
- Regulatory context from Climate Action Reserve (CAR)
- Health pathways based on relevant data from EPA, other government sources, and peer-reviewed literature

Phase II HIA: Methodology

Part 2: Scoping of Offset Protocols

Cross-cutting issues

- All offset projects are potential job generators for California if located in California
- Offset projects can positively contribute to GHG reductions
- Use of offsets may limit positive air quality co-benefits associated with cap-&-trade if located outside of California

Offset projects have local physical and social impacts

- Targeting health-promoting offset projects in communities with health disparities can leverage positive health effects
- Projects should not exacerbate inequities or increase environmental stressors

Phase II HIA: Methodology

Part 2: Health Effects of Offset Protocols

Protocol	Possible health effects
Ozone Depleting Substances	• Reduced rates of diseases related to ultraviolet light exposure: melanoma, eye damage, immune function • Possible reduction in vitamin D exposure
Methane Digesters	• Decreased odor-related annoyance • Improved local air quality • Reduced water contamination • Possible increase in NOx exposure
Urban Forestry	• Improved air quality and reduced rates of respiratory illness and CVD • Temperature moderation • Noise reduction • Visual amenity • Decreased risk of landslides • Possible increase in risk of injury and respiratory illness due to fire
Forestry	• Improved air quality and reduced rates of respiratory illness & CVD • Decreased risk of landslides and resulting human injury • Possible increase in risk of injury and respiratory illness due to fire

Phase II HIA: Methodology

Part 3: Community Level Analysis

Rationale

- Health effects will not accrue equally across California; uncertainty surrounding community impacts

- Assessment of communities heavily impacted by stationary sources of pollution

- Assessment of existing needs used to inform revenue use to improve community's adaptive capacities

Phase II HIA: Example

Part 3: Community Level Analysis

Wilmington-Harbor City-San Pedro (WHCSP) in LA County & City of Richmond in Contra Costa County

Common Concerns

- Air pollution
- High rates of heart disease and stroke
- Poverty
- Low-educational attainment
- Disproportionate share of environmental hazards

Phase II HIA: Methodology

Part 3: Community Analysis Overview

Vulnerable communities in California face overlapping social, environmental, & economic health risks that contribute to poor health.

Local health effects will vary; cannot predict with certainty.

Community investments can proactively protect from potential negative effects while improving health.

Allowance revenues could be used to address health risks and poor health outcomes to:

- Alleviate existing health disparities;
- Bolster community resiliency & adaptive capacities; and
- Improve surveillance of environmental exposures & health outcomes.

Next Steps

Complete analysis/assessment in several weeks

Internal peer review

Would like to hear comments now to incorporate as we finalize analysis and draft report

Additional comment period following release

Send any comments to Max Richardson:
max.richardson@cdph.ca.gov