

Health Impact Assessment of Cap-and-Trade in California

California Department of Public Health

December 1, 2010

Document Overview

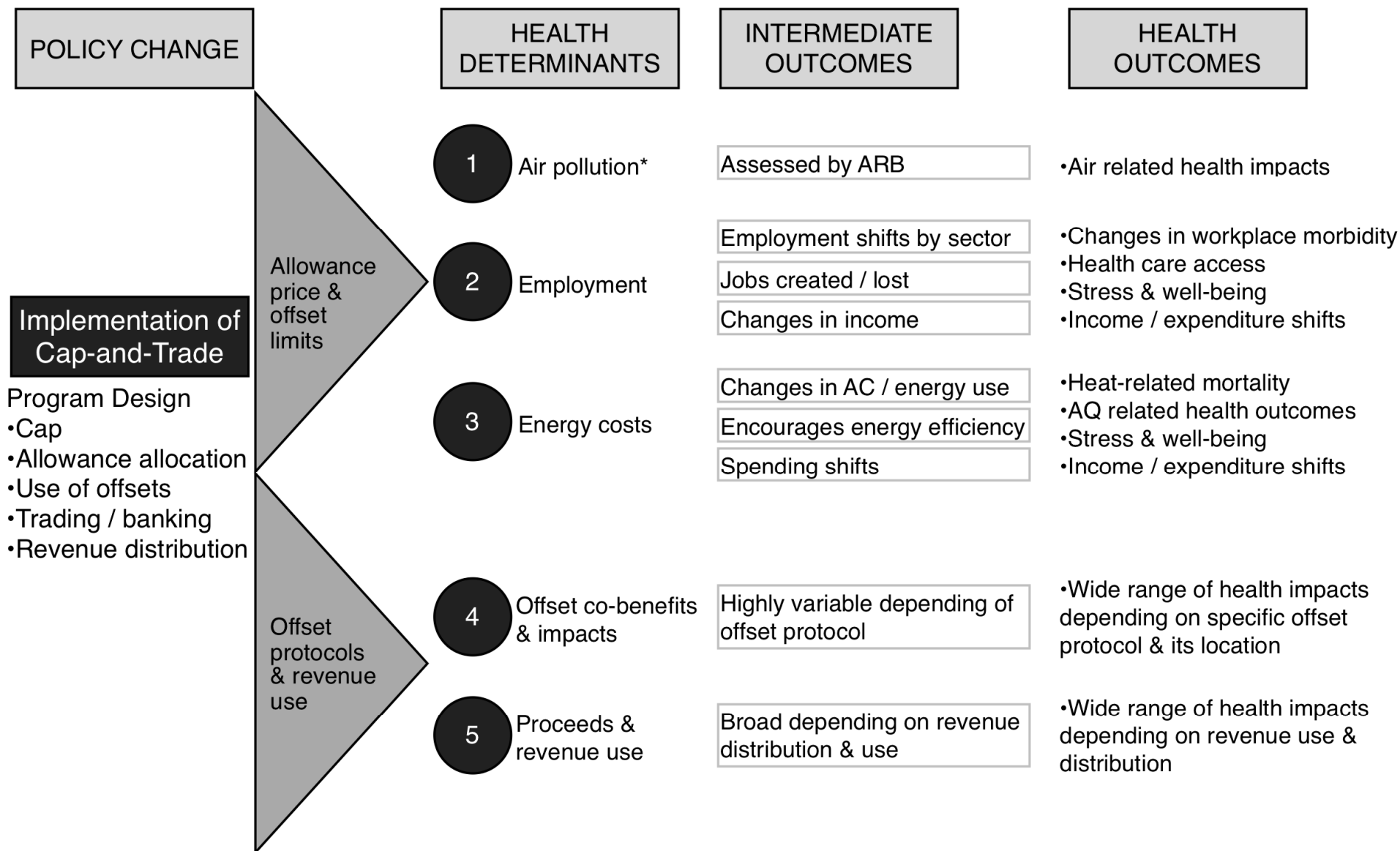
- Chapter 1: introduction to climate change & AB32
- Chapter 2: introduction to HIA and stakeholder process
- Chapter 3: aggregate statewide health impacts
- Chapter 4: potential impacts from offset protocols
- Chapter 5: community vulnerabilities & opportunities
- Chapter 6: recommendations & mitigations

Introduction

- Climate change is a public health threat: need for mitigation & adaptation strategies
- Discussion of health equity and the protection of vulnerable communities
- AB32 drives ARB to maximize co-benefits & ensure activities do not disproportionately impact low-income communities
- Use HIA to highlight potential health risks and maximize health benefits associated with cap-and-trade

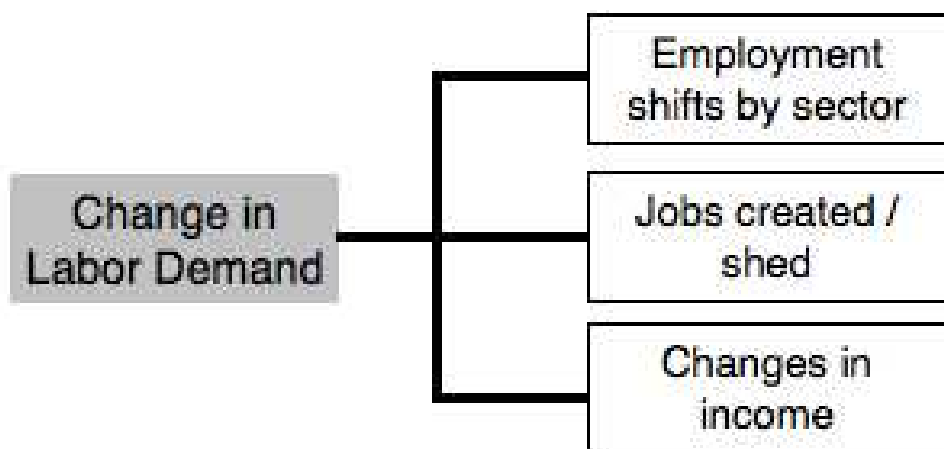
HIA Process

- Screening: decision within the PHWG in Fall of 2009 to perform this HIA
- Scoping: public meetings to discuss health pathways of greatest interest for HIA
- Assessment: CDPH assessed potential health effects using data from ARB's *Updated Economic Analysis of the Scoping Plan* from April 2010
- Recommendations: core findings and subsequent mitigation strategies
- Reporting: PHWG meetings and final report



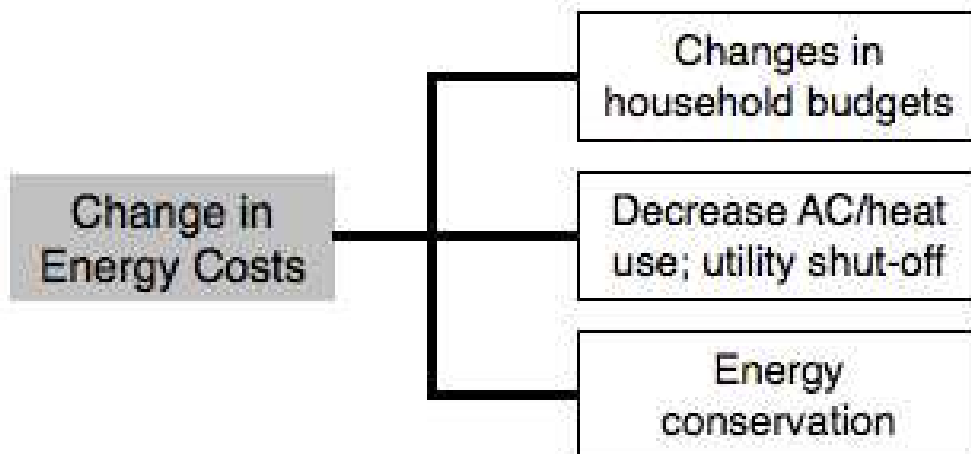
* Health determinant #1 and subsequent health pathways are the foundation of the health assessment led by ARB. Health Determinants #2-5 are the basis of the Phase 2 HIA

Aggregate Statewide Impacts



Health Impacts

- Changes in workplace injury / illness
- Change in uninsured rates
- Impacts on stress & well-being
- Changes in household income



Health Impacts

- Spending shifts on basic household needs, such as transportation, shelter, and nutritious foods
- Heat & cold-related morbidity/mortality
- Improvements in air quality

Aggregate Statewide Impacts

Business as Usual	Case 1	Case 2
<p>No cap-&-trade program and Scoping Plan is not implemented</p>	<p>Cap-&-trade</p> <ul style="list-style-type: none"> •100% auction •49% emissions reductions can be offsets •Unlimited banking/trading <p>Complementary measures as included in Scoping Plan are achieved at 100%</p>	<p>Cap-&-trade</p> <ul style="list-style-type: none"> •100% auction •<u>No</u> offsets •Unlimited banking/trading <p>Complementary measures as included in Scoping Plan are achieved at 100%</p>

**Economic impacts of Case 1 & Case 2 are then compared the BAU scenario to judge potential health effects (data from ARB's "*Updated Economic Analysis of the Scoping Plan*")

Employment & Health

- Health effects related to insurance, workplace morbidity/mortality, household stress and income
- Differential unemployment risks:
 - Low-educational attainment
 - Person of color
 - Youth aged 16-24 years
- Employment a strong health determinant, though many people's health is seemingly resilient while unemployed

Employment & Health: Findings

Case 1

- Minimal change in job growth
- Some job shifts between sectors
- Potential for temporary employment disruptions
- Very small decrease in statewide job morbidity as jobs shift sectors

Case 2

- Reduced job growth compared to BAU (200k fewer jobs)
- Larger decreases in job morbidity, but largely due to job growth reductions

Summary

- Minor health effects are expected from job transitions
- Negative health effects can be readily mitigated with worker transition assistance
- Case 1 likely has fewer negative health effects related to labor shifts

Residential Fuel Costs & Health

- Utility cost concerns force many low-income families to cut back on basic household needs, such as:
 - Nutritious foods
 - Shelter
 - Education
 - Transportation

- Utility costs can impact AC use: a basic adaptation tool in heat waves, especially for vulnerable populations

- Increased utility costs can spur energy efficiency, reducing CO₂ emissions & improving air quality

Residential Fuel Costs & Health: Findings

- Low-income households spend disproportionate amount of income on utility costs

Residential fuel costs by income quintile

Income quintile	Proportion of income	Proportion of all expenditures
Lowest	13%	6%
2 nd Quintile	6%	6%
3 rd Quintile	4%	5%
4 th Quintile	3%	4%
Highest	2%	3%

Residential Fuel Costs & Health: Findings

- Low-income households have the least ability to adapt to rising costs with investments in home energy efficiency
- Positive health effects expected from household investments in energy efficiency: maintain price incentives for households that can adapt to rising costs
- Need to narrowly mitigate increases in home fuel costs: promote energy efficiency investments and energy cost subsidies in low-income households

Offset Protocols

Scoping of potential health effects of 4 specific protocols

- Urban Forest compliance offset protocol
- Forest compliance offset protocol
- Ozone Depleting Substances compliance offset protocol
- Livestock Manure Digester compliance offset protocol

Diverse range of potential health effects

Common potential health effects include:

- Air quality
- Job creation
- Water quality
- Cardiovascular health (AQ & physical activity associated with green space)

Offset Protocols: Findings

Urban Forest Protocol

Impact*	Health effect
Positive AQ impact	CVD & respiratory illness
Reduction in heat islands	Heat stroke; heat exhaustion; dehydration
Noise reduction	Hypertension, CVD, sleep disturbance
Greenspace	Access to physical activity
Improved water quality	Ecological & health benefits

*Impacts can be either positive and negative.

Offset Protocols: Findings

	Impact	Health effect
Forest Protocol	Positive AQ impact	CVD & respiratory illness
	Decreased landslide risk	Injury
	Decreased erosion	Positive water quality benefits
ODS Protocol	Decreased UV exposure	Reduction in malignant melanomas; eye damage
	Facility construction	Variable & unknown at this time
Manure Digester	Changes in AQ	Overall, likely positive
	Improvements in water quality	Decrease in water-borne illness

Offset Protocols: Summary Findings

Overall, potential health effects for all offset protocols are expected to be net beneficial

Most near-term health effects will accrue locally (where the offset project is located): keeping positive offset projects in State will have health co-benefits in California

Promoting the most positive projects—such as urban forest projects—in vulnerable communities maximizes health co-benefits

Community Vulnerabilities & Opportunities

- Cannot predict community level health impacts with certainty
- Secondary approach to look at existing vulnerabilities in selected highly impacted communities
- Assess existing vulnerabilities to:
 - Inform mitigation strategies
 - Inform community investments to improve community's adaptive capacities to environmental stressors and climate change

Community Vulnerabilities & Opportunities

3 Case Studies

- 1)Wilmington Community: local data from LA County Department of Public Health
- 2)City of Richmond: local data from Contra Costa Health Services
- 3)San Joaquin Valley (8 County area): data from CDPH and other health data resources

Community Case Studies: Findings

- Cannot predict community level health impacts with certainty
 - Local health data very limited
 - Difficulties in predicting local social/economic impacts
- Existing vulnerabilities are diverse
 - Air pollution
 - Crime
 - Access to neighborhood resources (parks, nutritious food, etc)
 - Cardiovascular health; diabetes; low-birth weight
 - Agricultural pollutants
- Existing health disparities consistent across geographies
 - Race
 - Income
 - Educational attainment

Community Case Studies: Findings

- Surveillance systems to assess local level impacts
 - Minimizes uncertainty
 - Integrate with other environmental & health surveillance programs
 - Ensure data is comprehensive, timely, and easily accessible

- Community investments likely the greatest source of positive health effects
 - Direct towards most vulnerable communities
 - Flexibility to fulfill diverse health needs

Community Case Studies: Findings

Community Health Investments

- Identify vulnerable/disadvantaged communities
- Community Health Assessments
 - Data & community engagement process
- Community health improvement grants
- Models:
 - Tobacco Control Program
 - HCR Community Transformation Grants

Summary Mitigations & Recommendations

- Negligible to minor health effects anticipated
 - Small effects from worker transitions
 - Negative impacts of residential energy costs disproportionately impact low-income communities
- Use of offsets benefit economic health determinants
- Offsets may reduce benefits of on-site emission reductions
- Offset projects in-State yield greatest health co-benefits for CA
- Community investments of allowance revenue likely the greatest source of positive health effects

Summary Mitigations & Recommendations

- Mitigation strategies:

- Investment in worker transition programs (targeting impacted industries and vulnerable communities)
- Home energy efficiency investments and direct subsidies as needed for low-income households
- Target positive offset projects—such as urban forests—to California communities with an existing need
- Target community investments to vulnerable communities

Document Overview

- Chapter 1: introduction to climate change & AB32
- Chapter 2: introduction to HIA and stakeholder process
- Chapter 3: aggregate statewide impacts
- Chapter 4: impacts from offset protocols
- Chapter 5: community vulnerabilities & opportunities
- Chapter 6: recommendations & mitigations

CONTACT

max.richardson@cdph.ca.gov