

Climate Change Draft Scoping Plan:

A Framework for Change

Presentation to the AB 32
Environmental Justice Advisory Committee

July 30, 2008
California Air Resources Board

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The Time for Action Is Now

- Climate change is one of the most serious environmental issues facing the world
- Governor and Legislature have set bold goals for California
- Draft Scoping Plan provides a comprehensive recommendation addressing all significant sources of greenhouse gas emissions

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Today's Presentation

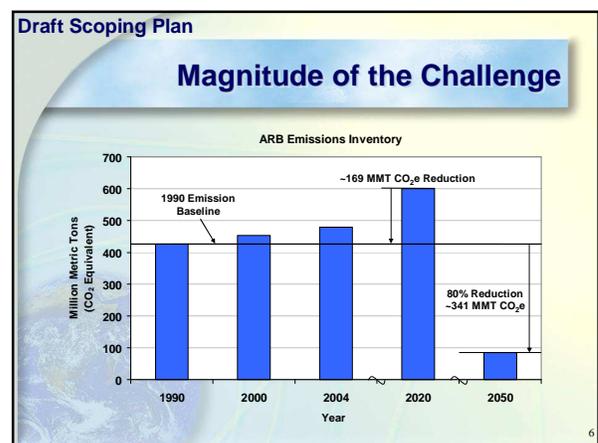
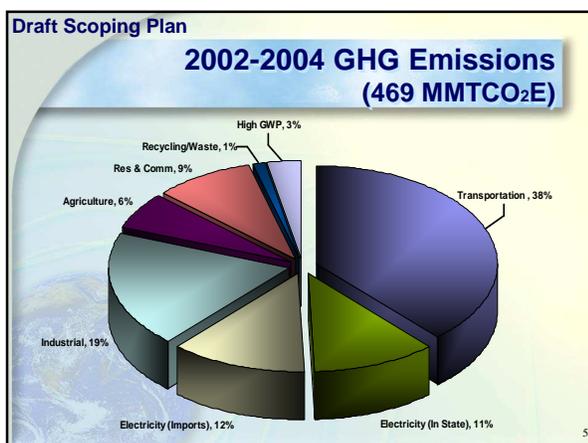
- Draft Scoping Plan Overview
- Preliminary Recommendations
- Additional Measures Under Consideration
- Scoping Plan Evaluations
- A Vision for the Future
- Next Steps

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Draft Scoping Plan

- By 2020, reduce greenhouse gas emissions statewide to 1990 levels
- California's GHG strategies will also:
 - Protect and improve public health
 - Promote the development of clean energy
 - Foster opportunities for economic growth
 - Provide a model for regional, federal, and international programs
 - Put State on a path to 2050 goal

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Draft Scoping Plan

Draft Scoping Plan Development

- Contributions from Climate Action Team Subgroups
- Input from EJAC, ETAAC, and MAC
- Formal workshops & stakeholder work group meetings
- Public solicitation
- Extensive outreach at meetings, conferences and other events

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Draft Scoping Plan

Status

- *Draft Scoping Plan* released on June 26
 - Soliciting stakeholder comments to help shape Proposed Scoping Plan
 - Request comments on *Draft Plan* by August 1, 2008
- Appendices released on July 22
 - Request comments on Appendices by August 11, 2008
- Evaluation Supplement to be released later this summer with results of economic, environmental and public health evaluations
 - Additional workshop and comment period for supplement

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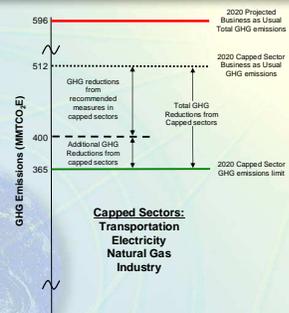
Preliminary Recommendation

- Mix of strategies that combine market mechanisms, regulations, voluntary measures, and fees
- Key elements:
 - Energy efficiency programs
 - Renewables Portfolio Standard
 - California cap and trade program linked to WCI
 - Existing laws and policies
 - Targeted fees to fund implementation

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Preliminary Recommendation

Structure of the Draft Plan



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Preliminary Recommendation

Recommended Measures

Table 2: Recommended Greenhouse Gas Reduction Measures

| Recommended Reduction Strategies | Sector | 2020 Reductions (MMTCo ₂ e) |
|---|--|--|
| The Role of State Government | Various | 1-2 ¹² |
| California Cap-and-Trade Program Linked to WCI: Emissions cap of 365 MMTCo ₂ e covering electricity, transportation, residential/commercial and industrial sources by 2020. Shaded reductions contribute to achieving the cap. | | |
| California Light-Duty Vehicle GHG Standards | Transportation | 31.7 |
| Energy Efficiency | Electricity & Commercial and Residential | 26.4 |
| Renewables Portfolio Standard (33% by 2020) | Electricity | 21.2 |
| Low Carbon Fuel Standards | Transportation | 16.5 |
| High Global Warming Potential Gas Measures | High GWP | 16.2 |
| Sustainable Forests | Forests | 5 |
| Water Sector Measures | Water | 4.8 ¹⁰ |
| Vehicle Efficiency Measures | Transportation | 4.8 |
| Clocks Movement | Transportation | 3.7 |
| Heavy/Medium Duty Vehicles | Transportation | 2.5 |
| Million Solar Roofs (Existing Program Target) | Electricity | 2.1 |
| Local Government Actions and Regional GHG Targets | Land Use and Local Government | 2 |
| High Speed Rail | Transportation | 1 |
| Landfill Methane Control | Recycling & Waste | 1 |
| Methane Capture at Large Dairies | Agriculture | 1 ¹¹ |
| Energy Efficiency and Co-Benefits Audits for Large Industrial Sources | Industrial | TBD |
| Additional Emissions Reduction from Capped Sectors | | 35.2 |
| Total Reductions | | 169 |

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Preliminary Recommendation

State Government

- State must set an example
- Reduce “carbon footprint” by 30% from expected 2020 levels
 - State Green Buildings Initiative
 - State motor vehicle fleet clean up
 - Procurement practices
 - Commute alternatives for State employees
- Evaluate “carbon shadow”
 - Climate change impact of government policies and decisions

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Preliminary Recommendation

California Cap and Trade Linked to Regional Market

- California cap and trade program that links with other WCI Partner programs to create a regional market system
- Ensure California's program meets all applicable AB 32 requirements
- Capped sectors:
 - Electricity
 - Industrial sources
 - Transportation fuels (by 2020)
 - Commercial and residential NG (by 2020)

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Preliminary Recommendation

California Cap and Trade Linked to Regional Market

- Enforceable cap over GHG emissions from sources beginning in 2012
- Cap declines over time to meet 2020 targets; can be adjusted for 2050 target
- State distributes "allowances" equal to total emissions in the cap
- Limited use of offsets
- Strong enforcement and monitoring
- Must include safeguards for regional and local co-pollutants

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Preliminary Recommendation

Transportation

Cars, Trucks, Goods Movement and Fuel

- Light-duty vehicle greenhouse gas reductions (Pavley I and Pavley II)
- Low carbon fuel standard
- Efficiency measures for cars
- Aerodynamic design improvements for trucks
- Hybridization for urban and short-haul trucks
- Improved efficiency for heavy duty trucks
- Implement adopted goods movement strategies and improve efficiency
- High speed rail

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Preliminary Recommendation

Energy

Electricity and Commercial/Residential

- Increase utility-based energy efficiency programs
- More stringent building and appliance standards
- Million Solar Roofs Program
- Residential solar water heaters
- Encourage combined heat & power
- Achieve 33 percent RPS for all utilities

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Preliminary Recommendation

Local Government Actions and Regional GHG Targets

- Develop regional targets in collaborative process
 - Comprehensive process
 - Consider other policy goals
 - Incorporate performance indicators
 - Provide State resources
- Encourage local climate action plans and local targets

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Preliminary Recommendation

Industrial Sources

- Require efficiency and co-benefit audit of largest industrial sources
 - Evaluate potential to reduce GHG, criteria pollutants, and air toxics
- Audit results used to identify cost-effective GHG reductions that also reduce criteria or toxic pollutants
 - Co-benefits to nearby residents

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Preliminary Recommendation

Measures from Uncapped Sectors

High GWP Gases

- Used in refrigerators, air conditioners, fire suppression and insulating foam
 - More potent greenhouse gases
- Possible approaches:
 - Fees to discourage leakage or disposal
 - Standards to prevent leakage
 - Recovery and proper destruction of high GWP “banks”

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Preliminary Recommendation

Measures From Uncapped Sectors

- Recycling and Waste
 - Reduce landfill methane; increased diversion, recycling and composting
- Forests
 - Preserve forest sequestration
- Water
 - Continue efficiency programs
- Agriculture
 - Encourage investment in digesters; evaluate mandatory program in 2013

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Other Measures Under Evaluation

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Under Evaluation

Sector-Based Measures

- Transportation
 - Market-based strategies
- Electricity/Energy
 - More aggressive efficiency programs
 - Reduce coal-fired electricity
- Industry
 - Refineries
 - Cement
 - Glass manufacture
 - Boilers and stationary engines

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Under Evaluation

Offsets

- Surplus reductions from unregulated or uncapped sources
- Rigorous criteria necessary to maintain environmental integrity
- Voluntary offsets
 - Growing market for offsetting emissions
- Compliance offsets
 - Could be used in cap and trade, regulatory measures or carbon fee approach
- ARB must adopt methodologies and enforcement regulation for use in AB 32

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Under Evaluation

Carbon Fee

- Use carbon pricing to achieve reductions
 - Applied to CO₂ equivalent emissions upstream
- Price would be determined through economic models
- Provides less certainty of meeting 2020 goal

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Potential Use of Revenues

- California Carbon Trust
 - Use of revenues for the public good
- Other potential uses:
 - Support AB 32 reduction goal
 - Achieve environmental co-benefits
 - Local government incentives & consumer rebates
 - Climate change adaptation
 - Community benefits
 - Consumer rebates
 - RD&D funding
 - Worker transition assistance

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Draft Scoping Plan Evaluations

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Potential Economic Impacts

Preliminary Evaluation

- Overall savings from implementation of Draft Scoping Plan expected to exceed costs
 - Many measures increase energy efficiency
- Efficiency measures likely to mitigate moderate increases in energy prices
 - e.g., Pavley regulation will save car buyer an average of \$30/month
- Additional analyses in progress

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Additional Economic Analysis

- Conducting macro-economic modeling using E-DRAM and BEAR
 - California models used to evaluate changes in output, employment, income, prices, and consumer spending
- Working with Energy 2020
 - North American model of economy, energy, and emissions
 - Continuing to work to calibrate Energy 2020 to CA emissions inventory and forecasts

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Additional Economic Analysis

- Evaluation supplement will include economic analysis of several scenarios for achieving AB 32 goals:
 - Preliminary recommended measures
 - Use of additional regulation and programs
 - Use of carbon fee
- Effects on small businesses are also being evaluated

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Environmental/ Public Health Analysis

- Examine in the context of ARB's traditional public health programs
 - Criteria pollutants (ozone, particulate matter)
 - Toxic Air Contaminants (diesel PM)
- Expect statewide reductions in fossil fuel use and improved combustion efficiency

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Evaluations

Public Health Benefits Preliminary Estimates for 2020

| Health Endpoint | Estimated Benefit* |
|---|--------------------|
| Avoided premature deaths | 340 |
| Avoided hospitalizations due to respiratory causes | 71 |
| Avoided hospitalizations due to cardiovascular causes | 130 |
| Avoided asthma-related & other lower respiratory symptoms | 9,400 |
| Avoided acute bronchitis | 780 |
| Avoided work loss days | 57,000 |
| Avoided minor restricted activity days | 330,000 |
| Total Economic valuation: \$1.5 billion to \$2.4 billion | |

*Based on preliminary estimates of reduced fuel use from measures

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Evaluations

Additional Environmental/ Public Health Analysis

- Assessment of environmental impact of proposed measures
 - Air, water, land, waste disposal and hazardous waste, biological resources
- Public health impacts based on environmental assessment
- Focused look at specific types of sources
 - Refineries and power plants
- Community-level emission analysis

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Evaluations

Societal Impacts

- Evaluation required when regulations are adopted
 - Intend to evaluate preliminary recommendation
- Consider factors such as:
 - Energy diversity, mobility, regressivity and job creation
- Will also consider ways to direct public and private investment toward most disadvantaged communities

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Evaluations

Evaluation Supplement

- Evaluation supplement will be available in summer 2008
 - Results of economic modeling
 - Results of environmental/ public health analysis
- Workshop will be held on the supplement after its release
- Written comments will also be welcome

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Evaluations

Green Technology

- Position California as a leader in the emerging clean tech global marketplace
- State has long history of successful innovation that has been key economic driver
- California green technology businesses grew by over 80% between 1990 & 2006
- Over \$1 billion in cleantech venture capital investment in California in 2006

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Evaluations

Efforts Still Underway

- Economic modeling
- Small business impacts
- Environmental analysis
- Localized impact analysis
- Public health evaluation
- Societal impacts

Evaluation Supplement and Workshop in Summer 2008

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Moving Toward 2050

A Clean Energy Future

- Governor's Executive Order (S-03-05)
 - 80% reduction of GHG by 2050
- Scoping Plan beyond 2020:
 - Clean and secure energy sources
 - Sustainable, safe, and clean communities

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Coordination with Other Efforts

- WCI can result in lower cost reductions
 - California high standards can influence other sources and states in the region
- California and regional leadership can pave the way nationally
 - Need to preserve states as laboratories of innovation
- International participation is crucial for global success
 - International Carbon Action Partnership

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Draft Scoping Plan: Next Steps

- Summer:
 - Workshops and community meetings
 - Supplemental evaluation
 - Begin development of fee regulation to support AB 32 implementation
- October:
 - Proposed Scoping Plan release with 45-day environmental review
- November:
 - Board consideration of the Proposed Scoping Plan

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Scoping Plan Implementation

- Two years to adopt AB 32 measures
 - Regulatory development will follow normal public process
 - Extensive stakeholder outreach and involvement
- Implementation and enforcement critical
- ARB must monitor implementation
- Required to re-visit Scoping Plan in 5 years

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A Shared Challenge

- Californians responding to challenge of reducing greenhouse gases
- AB 32 implementation will depend on government, business, and individuals working together
- We must spark the imagination of the next generation to make California a cleaner and healthier place to live

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