The background of the slide is a dramatic landscape. It features a dark, stormy sky with heavy, dark clouds. A bright light source, possibly the sun or moon, is visible on the horizon, creating a strong lens flare and illuminating the scene. The foreground is a dark blue sea with visible ripples. The overall color palette is dominated by dark blues, greys, and a bright white/yellow light source.

Climate Action Team Public Meeting

December 13, 2005

Overview

- ❑ Background
- ❑ Emission Reduction Strategies
- ❑ Cap and Trade
- ❑ Scenario Analysis
- ❑ Overarching Recommendations
- ❑ Next Steps

Executive Order Established Statewide GHG Targets

By 2010, Reduce to 2000 Emission Levels*

By 2020, Reduce to 1990 Emission Levels**

By 2050, Reduce to 80% Below 1990 Levels

* Equals 59 Million Tons Emission Reductions, 11% Below BAU

** Equals 145 Million Tons Emission Reductions, 25% Below BAU



Climate Action Team

- CalEPA Secretary Chairs the Team
- BT&H, CDFA, Resources, PUC, ARB, CIWMB, and CEC are Represented
- The CAT will:
 - Report to Governor and Legislature in January and Biennially
 - Evaluate Strategies, including cap and trade, to Meet Targets
 - Report on Scenario Analysis

Climate Action Team Report

- ❑ Action Oriented
 - Emission Reduction Strategies
 - Cap and Trade
 - Scenario Analysis
 - Environmental Justice Considerations
- ❑ Economic Analysis is Underway-- Draft Scheduled for Release Later this Month
- ❑ Provides Direction for the Next Two Years

The background image is a dramatic landscape. It features a dark, stormy sky with heavy, dark clouds. A bright light source, possibly the sun or moon, is visible on the horizon, creating a strong lens flare and illuminating the scene. The foreground is a dark, choppy sea. The overall color palette is dominated by dark blues, greys, and a bright white/yellow light source. The text is overlaid on the lower right portion of the image.

Emission Reduction Strategies

Cornerstone Strategies Underway

❑ Motor Vehicle Regulations

- Transportation is the Largest Source of Emissions in the State
- Reduce Emissions by 30 Percent by 2016

❑ Efficiency Measures

- Despite Growing Energy Demands, Cal Per Capita Energy Use Has Remained Flat For 30 Years

❑ Renewable Portfolio Standard

- Gov Schwarzenegger Accelerated RPS To 20% By 2010 And Is Committed To 33% By 2020

CAT Recommended Strategies

- The CAT Recommends a Broad Range of Strategies including:
 - HFC Reductions
 - Forest Management
 - Water Use Efficiency
 - Appliance and Building Efficiency, Including LSEs and Municipal Utilities
 - Smart Land Use
 - Conservation Tillage

Based on Best Available
Information to Date,
Implementation of These
Strategies will Achieve the
Governor's Targets



Cap and Trade

What is Cap and Trade?

- ❑ Market-based Program For Reducing Emissions To A Specific Limit: The Cap
- ❑ Emissions May Be Traded Among Sources: The Trade

Why Consider Cap and Trade?

- ❑ It Is Appropriate For Climate Change Emissions, Which Are Emitted From Diverse Sources And Are Long-lived In The Atmosphere
- ❑ It Motivates Innovation And Investment In Low-emitting Technologies And Practices

Cap and Trade Benefits

- ❑ Emission Reductions Are Achieved At Least Cost
- ❑ The Cap Can Be Lowered Over Time
- ❑ Flexible Regarding How Best To Reduce Emissions
- ❑ Allows For Technological Innovation.
- ❑ Can Be Coordinated With Programs In Other Jurisdictions

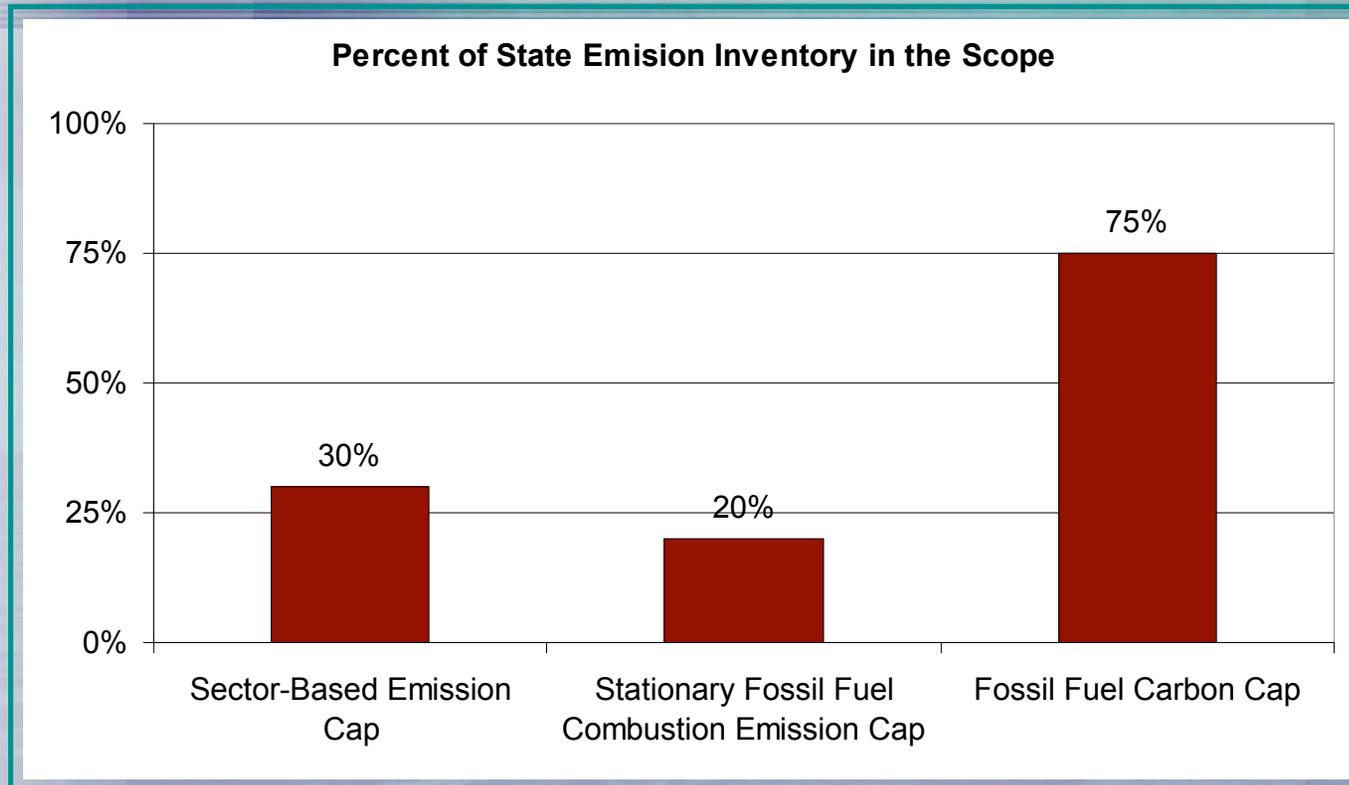
Cap and Trade Challenges

- ❑ Leakage: Unilateral Adoption May Cause Activity To Shift To Neighboring States To Avoid The Cap; Emissions May Decline In California, Only To Increase In Neighboring States
- ❑ Not All Sources Can Be Covered In A Cap And Trade Program
- ❑ Emission Trading May Lead To Environmental Justice Concerns

Cap and Trade Program Design

- ❑ Cap And Trade Subgroup Paper Examines Design Options:
 - Scope: Which Sources To Cover
 - How To Distribute Emission Allowances
 - Whether To Include Emission Offsets
 - Other: Banking; Compliance Tracking; Gases To Cover
- ❑ There Is No Single, Best Solution For Designing An Effective Cap And Trade Program

Cap and Trade Program Scope



Sector-Based Emission Cap includes: electric power; oil refining; oil and gas extraction; landfills; cement manufacture. Excludes Mobile Sources.

Stationary Source Combustion includes major facilities.

Fossil Fuel Carbon Cap includes liquid fuels, natural gas, and coal.

Emission Allowances

- Facilities Must Have Sufficient Emission Allowances To Cover Their Emissions
- Initial Distribution Of Allowances:
 - Auction
 - Distribute By Formula

Emission Offsets

- ❑ Motivate Emission Reductions From Sources Outside The Cap
- ❑ Reduce Emission Reduction Costs
- ❑ Must Be:
 - Real And Additional
 - Quantifiable
 - Excess To Any Regulatory Requirement
 - Permanent
 - Enforceable

Going Forward on Cap and Trade

- ❑ Cap And Trade Can Be Integral To California's Strategy For Reducing Emissions
- ❑ A National Approach To Capping Emissions Within An International Framework Would Be Most Effective
- ❑ In The Absence Of National Action, California Can Lead By Example By Developing A Cap And Trade Program As A Model For National Action

Next Steps on Cap and Trade

- Analyze Program Impacts:
 - Emissions
 - Economy, Jobs, Competitiveness, Local Governments
 - Environmental Justice
- Compare To Alternative Policies
- Initiate Facility-level Emission Reporting



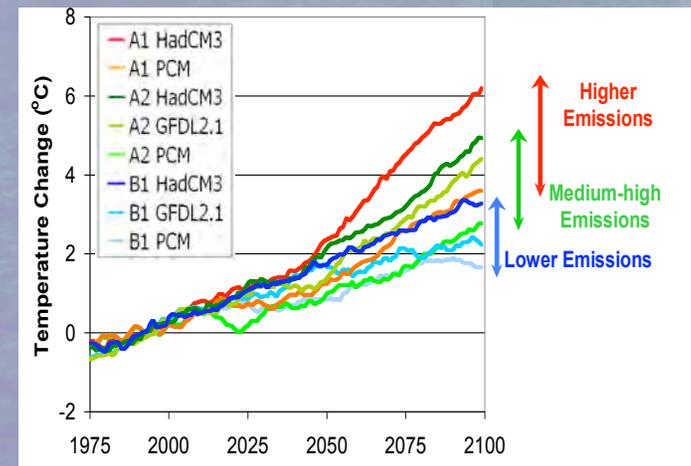
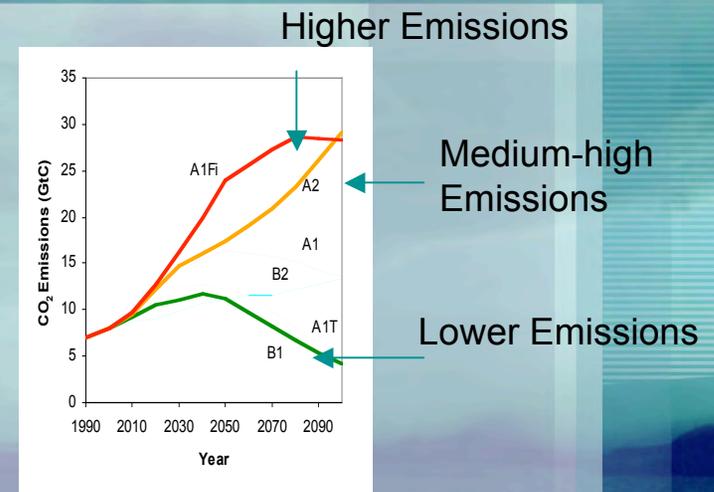
Scenario Analysis

Products

- Possible Scenarios Of Climate Change In California: Summary And Recommendations
 - 18 Core Research Papers Provided The Basic Foundation For This Summary/Integration Paper
 - All The Studies Used A Common Set Of Climate Projections
 - Areas Covered: Public Health, Water Resources, Forestry And Fire, Agriculture, Coastal Resources And Electricity Demand

Scenarios

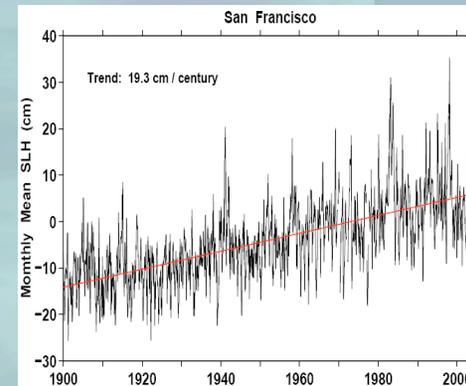
- ❑ Global Emission Scenarios: A1fi, A2, And B1
- ❑ Global Climate Models: GFDL, PCM, And Hadley3
- ❑ Temperature And Precipitation Downscaled To California
- ❑ Use Of An Hydrological Model (VIC) To Produce The Needed Hydrological Products



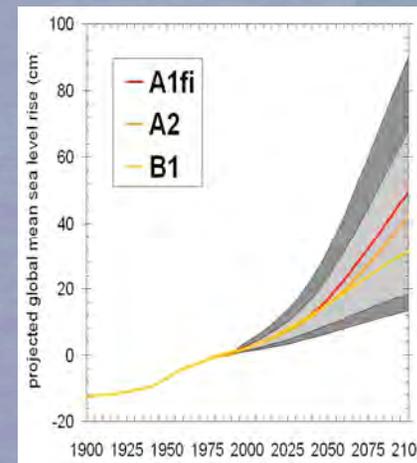
Projected Annual Mean Temperatures In California

Coastal Sea Level

- Projections For The 2070-2099 Period
 - 5 To 24 Inches (B1)
 - 7 To 30 Inches (A2)
 - 8 To 35 Inches (A1fi)



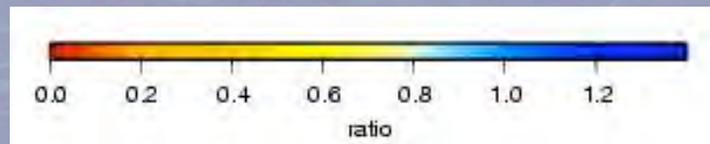
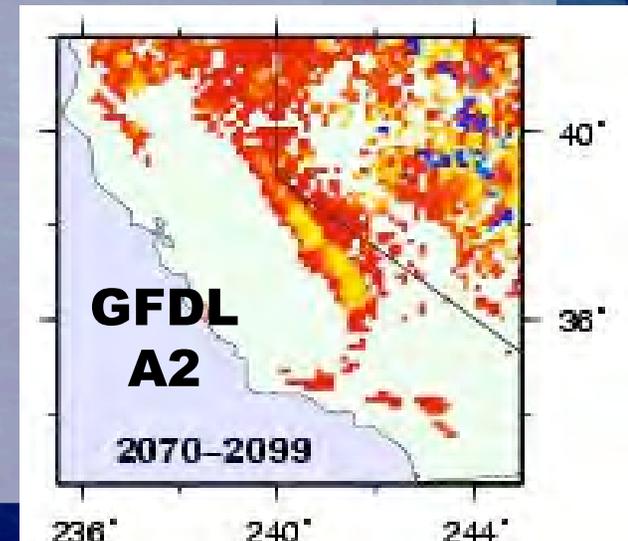
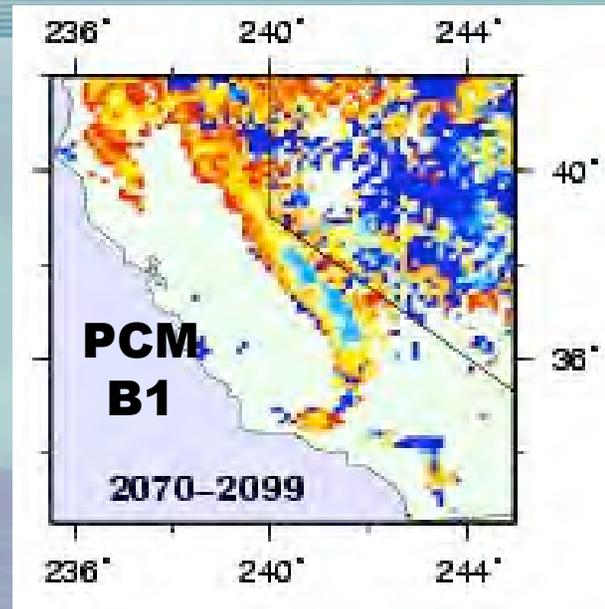
Observed Changes



Projections of global mean sea level rise

Water Resources

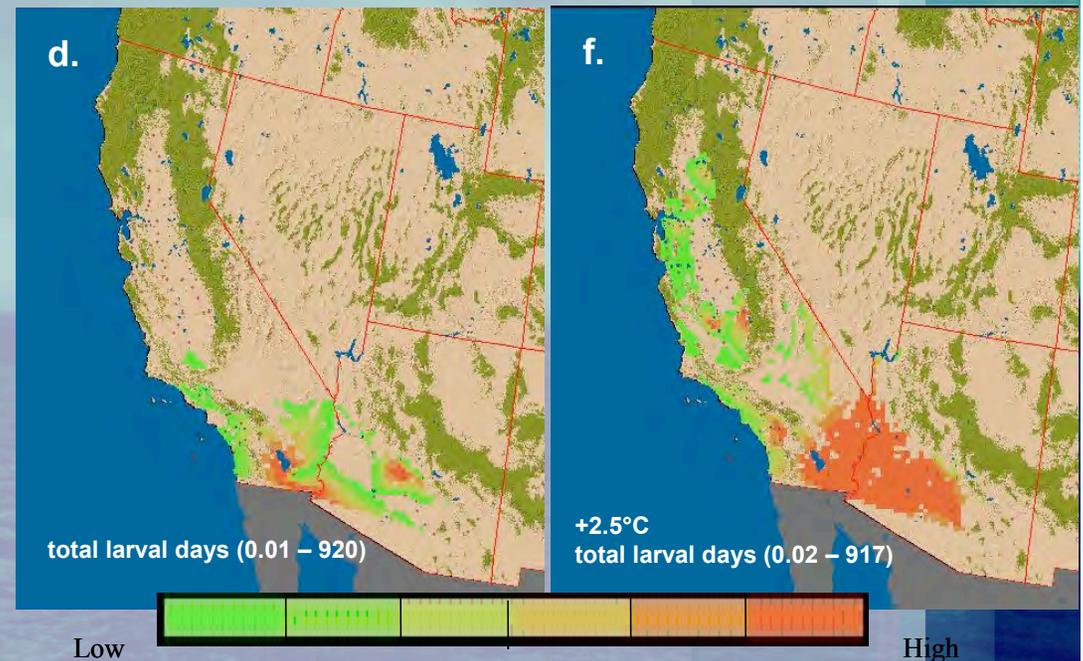
- ❑ Declining Snow Pack Will Aggravate The Already Overstretched Water Resources In The State
- ❑ Potential Up To 90 Percent Reductions Of April 1st Snow Levels



Draft for Review

Agriculture

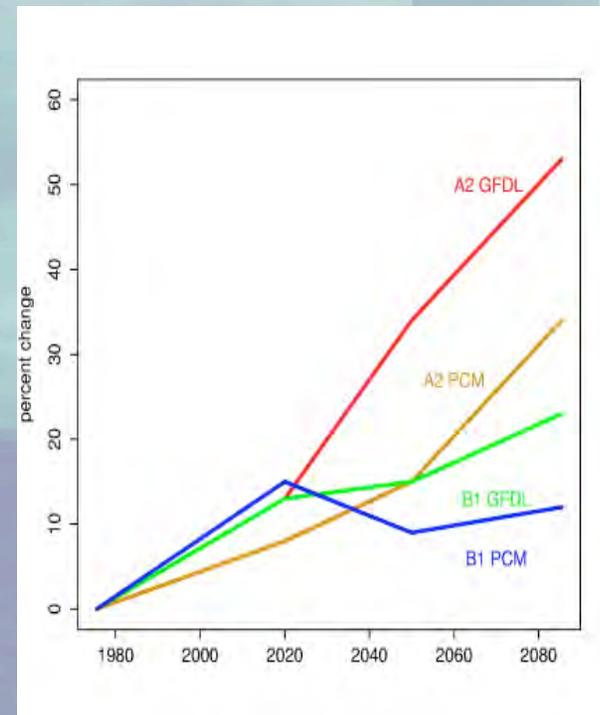
- ❑ Many Species Of Fruit Tress May Not Grown In The State Due The Lack Of Needed Winter Chill Hours
- ❑ Some Pests Such As The Cotton/Pink Bollworm (Pbw) Will Increase Their Ranges



The effect of total seasonal pest PBW larval densities (larval days) under current weather (d) and with 2.5 degrees C (f) increase in daily temperature

Forest and Natural Landscapes

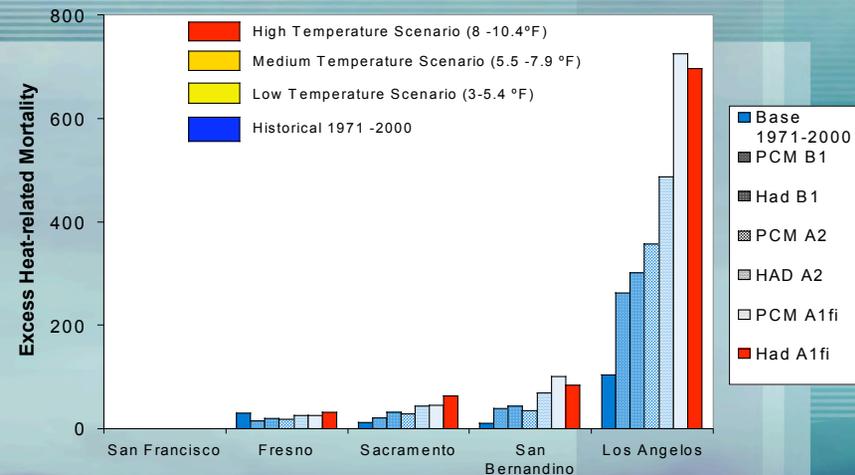
- ❑ Changes In Vegetation Patterns Will Occur
- ❑ The Alpine And Subalpine Ecosystems Are Most Susceptible
- ❑ Increases In The Number Of Large Fires Almost By 35% By Mid-century And 55% By The End Of This Century Under The A2 Scenario
- ❑ Fire Impacts Are Less Severe Under The B1 Scenario (Lower Global Emissions)



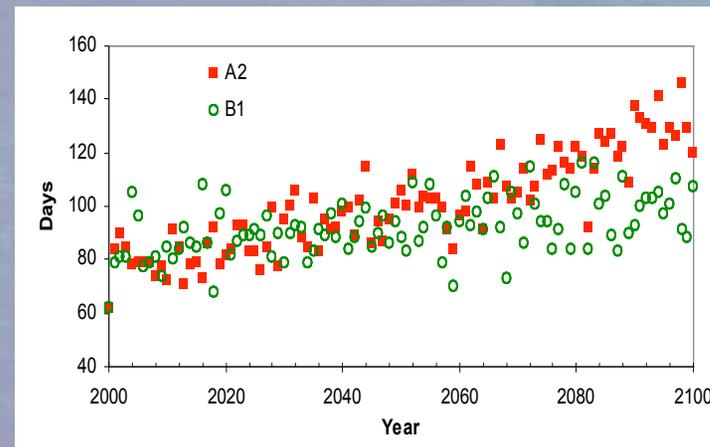
Percent change in the expected minimum Number of large fires per year in California

Public Health

- ❑ Increased Of Heat-related Mortality
- ❑ It Will Be More Difficult To Comply With Ambient Air Quality Standards For Ozone



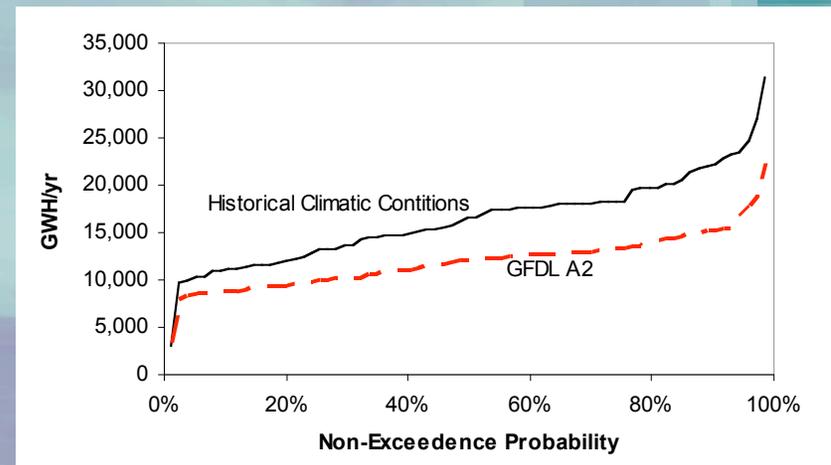
Projected annual heat-related mortality for 2070-2099 and historic mortality for 1971-2000



Projected days with meteorology conducive to exceedances Of the 1-hour state ambient air quality standard for ozone

Electricity

- ❑ Annual Hydropower Generation Will Decrease If Climate Change Reduces Precipitation Levels
- ❑ Electricity Demand Will Increase With Temperature From 3 To 20 % By The End Of This Century



Projected Impacts by 2100: Summary

Emissions Scenarios (End of century Atmospheric CO ₂ Concentration)		Statewide Temperature Rise (°C) 2070-2099
<p>Higher Emissions A1fi (970 ppm)</p>	<ul style="list-style-type: none"> 90% loss in Sierra snow pack 55-75 cm (22-30 inches) of Sea level rise 3-4 times as many heatwave days in major urban centers² 4-10 times as many heat-related deaths projected for some urban centers³ 2.5 times the number critically dry years⁴ 20 % increase in electricity demand Increase in Forest yields not evaluated for this scenario⁵ Increase in Fire risk not evaluated for this scenario⁵ Increase in days meteorologically conducive to ozone formation⁵ 	<p>4.4 – 5.8 °C (8-10.4 °F)</p>
<p>Medium-High Emissions A2 (830 ppm)</p>	<ul style="list-style-type: none"> 70- 80 % loss in Sierra snow pack 35-55 cm (14-22 inches) of Sea level rise 1-2 times as many heatwave days in major urban centers² 2.5-5.5 times as many heat-related deaths projected for some urban centers³ 2-2.5 times the number critically dry years⁴ 75-85% increase in days meteorologically conducive to ozone⁶ 11% increase in electricity demand 30% decrease in forest yields (Pine) 55% increase in the expected risk of large fires 	<p>3.1 -4.4 °C (5.5-7.9 °F)</p>
<p>Lower Emissions B1 (550 ppm)</p>	<ul style="list-style-type: none"> 30-60 % loss in Sierra snow pack 15-35 cm (6-14 inches) of Sea level rise 2-2.5 times as many heatwave days in major urban centers² 2-4 times as many heat-related deaths projected for some urban centers³ Upto 1-1.5 times the number critically dry years⁴ 25-35% increase in days meteorologically conducive to ozone formation⁶ 3- 6 % increase in electricity demand 7-14% decrease in forest yields (Pine) 10-35% increase in the risk of large fires 	<p>1.7 -3.0 °C (3.0-5.4 °F)</p>

Key Findings

- ❑ Climate Change Will Affect Every Sector Of The Economy
- ❑ Climate Change Will Have Compounding Impacts - For Instance, Sea Level Rise Will Exacerbate Existing Problems With The SF Bay Delta Levee System
- ❑ Extreme Events Will Increase: Heat Waves, Wildfires, Flooding, And Conditions Conducive To Air Pollution Formation
- ❑ Even Under The Lower Emission Scenarios Some Impacts Are Inevitable
- ❑ Lower Climate Change Emissions Decreases The Probability Of More Dramatic Climatic Changes
- ❑ Continuing Interdisciplinary Research Is Needed To Better Understand The Vulnerability Of California's Health, Economy, And Environment



Overarching Recommendations

Mandatory Emission Reporting

- ❑ Essential for Accounting and Tracking of Emission Reductions
- ❑ Track Progress Toward Meeting Governor's Targets
- ❑ Lay Foundation for Cap and Trade Program

Transportation Public Goods Charge

- ❑ Transportation is the Largest Source of Emissions in CA
- ❑ 2005 IEPR Includes a Public Goods Charge “to establish a secure long-term source of funding for a broad transportation program.”
- ❑ Petroleum Uniquely Excluded at Present
- ❑ Funding Needed for Transportation Strategies
- ❑ Benefit to Public from Reduced Dependence on Petroleum and Economic and Environmental Consequences of Petroleum Dependence

Coordinated Investment Strategy

- ❑ State Investment Programs Reflect The Commitment And Recognize The Benefits Of A Low-carbon Footprint
- ❑ Provide Incentives For Industry To Develop Emission Reduction Technologies
- ❑ University Efforts To Train The Technicians Of The Future Would Also Be Encouraged
- ❑ Support The Growth Of California Businesses

Early Action Credit To California Businesses

- ❑ A Number Of California Businesses Are Supportive Of The Governor's Targets
- ❑ These Companies Have Registered Emissions & Reductions With California Climate Action Registry
- ❑ Ensure That Proactive Companies Are Not Penalized
- ❑ California's Companies Must Be Able To Participate In Joint Actions Leading To A National And International Cooperative Effort

Next Steps

- ❑ Public Comment On Draft Report Due By January 10, 2006
- ❑ Economic Analysis Released Late December
- ❑ Two Additional Public Meetings In January
 - Dates To Be Released By Friday December 16
 - One Will Be Held In Southern CA