AEP White Paper on Greenhouse Gasses and Global Climate Change

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Controversies on Global Climate Change

- The details of Earth's heat balance is intricate and complicated.
- Global impacts to the climate are too big for humans to influence.
- Past temperature increases have at times preceded CO2 increases.
- The State will take care of this with current and future legislation.
- Industries want proof before they are required to make changes in the way they do business.

Why Evaluate Climate Change Impacts in CEQA Documents?

- US EPA's Climate Change Science Program confirmed the major findings of the IPCC.
- On April 2, 2007 the US Supreme Court (*Massachusetts vs. EPA;* Case 05-1120) determined that U.S. EPA has statutory authority and an obligation to regulate GHG emissions in motor vehicles.
- The State of California Implemented Legislations that directly correlates global climate change impacts to state resources.
- Since October 2006, the State AG has sent out dozens of comment letters on EIRs demanding analysis and mitigation for global climate change impacts.
- CEQA projects have been challenged in court for not addressing global climate change impacts.

AB 32 Global Warming Solutions Act of 2006

- Policy language says global warming poses a “serious threat” to the economic and environmental wellbeing of the state
- Requires that stationary source greenhouse gas emissions be reduced to 1990 levels by 2020
- Statewide cap on such emissions to be phased in starting in 2012
- CARB to develop regulations and reporting system to track and monitor emission levels

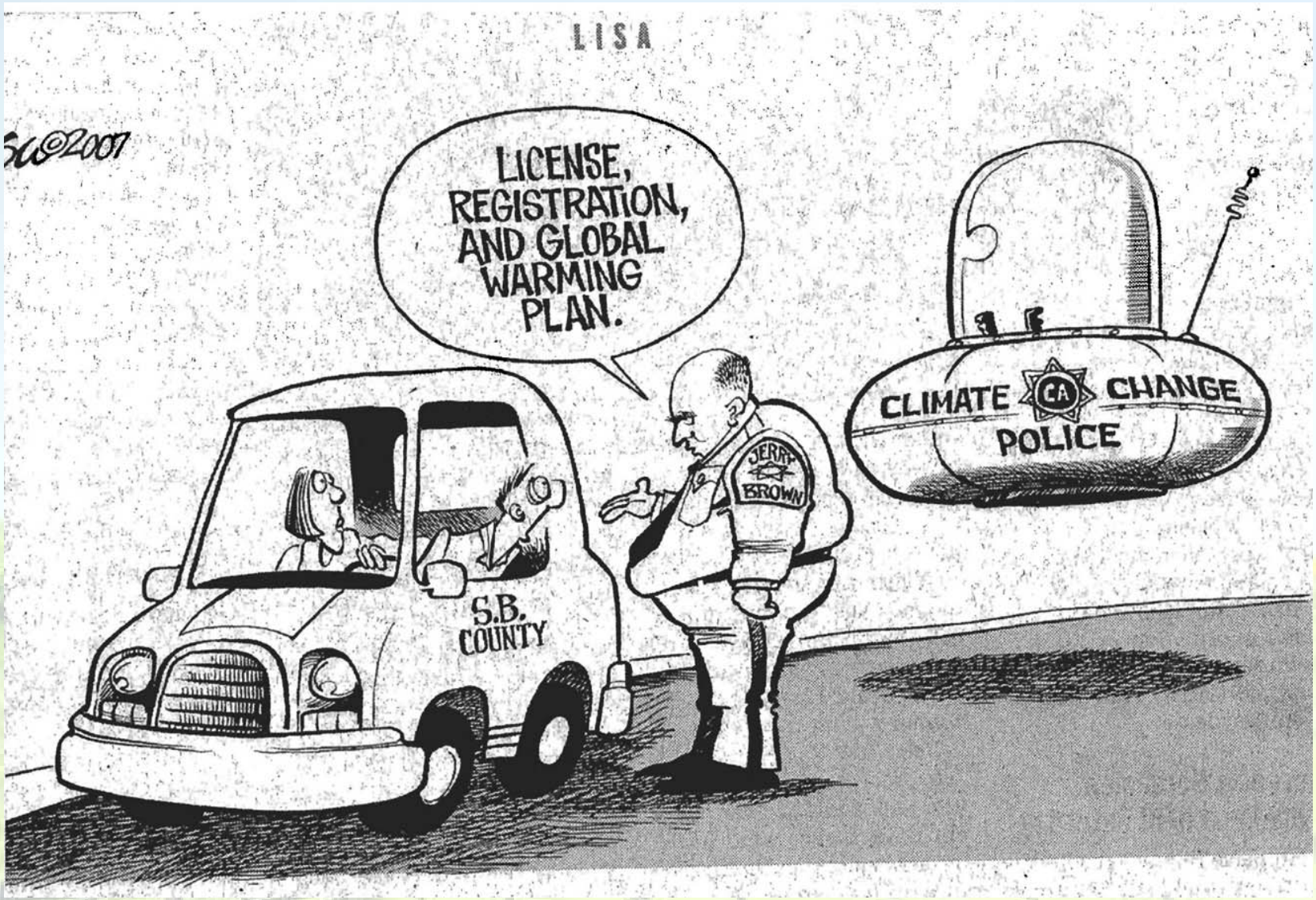
Governor Schwarzenegger's Executive Order S-3-05

- Established GHG targets for California:
  - By 2010, Reduce to 2000 Emission Levels
  - **By 2020, Reduce to 1990 Emission Levels**
  - By 2050, Reduce to 80 percent Below 1990 Levels
- California Climate Action Team's (CCAT) Report to the Governor
  - Report includes GHG Emission Reduction Strategies to achieve target reductions.

Recent Activities During CEQA Review

- Orange County Transportation Authority, 2006 Long-Range Transportation Plan Draft Program EIR
  - Strong comment letter from the Attorney General cites failure to discuss the plan's impact on climate change
- San Bernardino General Plan Update
  - Attorney General files CEQA challenge for failure to discuss the General Plan's impact on climate change
- California Resources Agency, Salton Sea Ecosystem Management Plan: Draft No Action Alternative Report
  - Letter from Audubon California urges consideration of climate change impacts in the baseline and proposed project alternatives

Entering A New Era of Environmental Planning



AEP's White Paper

- Draft White Paper went out for membership review and comment on March 5, 2007.
- Wide circulation to all members with current emails statewide.
- Revised Draft White Paper provided to membership on April 27, 2007,
- AEP received 200 comment letters on Draft and Revised Draft White Paper to date.
- AEP's Legislative Lobbyist submitted White Paper to OPR and the CARB

AEP's Goals in Developing the White Paper on Global Climate Change Impact Analysis in CEQA Documents

- Alert our members of the changes in state policy and demands of the AG regarding global climate change.
- Inform our members of the environmental impacts associated with global climate change.
- Develop a reasonable way to analyze global climate change impacts in CEQA documents
- Influence OPR and various other State government offices as they develop mandates on how climate change impacts are addressed in CEQA documents.

Alternative Approaches to Analyze GHG Emissions and Global Climate Change Impacts.

Approach 1:	No Analysis.
Approach 2:	Screening Level Analysis.
Approaches 3 and 4:	Qualitative Analyses.
Approaches 5 thru 7:	Quantitative Analyses.
Approach 8:	Tiering

Approach 1: No Analysis

Appropriate approach when the CEQA document has already been circulated, the Lead Agency has made a decision (approve or not approve the project), the Notice of Determination (NOD) has been posted, and the Statute of Limitations (PRC§21167c) exhausted.

Approach 2: Screening Analysis

- Briefly explain Global Climate Change Impacts, GHG emissions, and why the project does not substantially contribute to this impact.
- The Lead Agency needs to select an appropriate screening definition or threshold substantiated by fact, scientific data, or other substantial evidence in the record.
- Projects that meet that screening definition are “screened out” from detailed analysis.
- Examples of Projects that are appropriate for Screening:
  - GHG Emissions Reduction Program for City or County
  - Habitat Restoration Program
  - Projects that are Categorically Exempt under CEQA

Approach 3: Qualitative Analysis without a Significance Determination

- Briefly describe global climate change impacts and GHG emissions generated by the project, but does not make a significance determination
- The Lead Agency must determine that the analysis of the project is overly speculative and there is no empirical evidence available to evaluate the project's contribution to Global Climate Change Impacts in a CEQA document.
- The Lead Agency must provide a factual and reasoned basis in determining that there is no accurate or appropriate methodology for determining significance of the project contribution to this potential impact (*Alliance of Small Emitters/Metals Industry v. South Coast Air Quality Management District* (1997) 60 Cal.App.4th 55, 66; *Anderson First Coalition v. City of Anderson* (2005) 130 Cal.App.4th 1173).

Approach 4: Qualitative Analysis with Significance Determination

- Briefly describe global climate change impacts and GHG emissions generated by the project.
- Determines that the project is less than significant through the use of reasonable and feasible mitigation.
- This approach may be appropriate for small projects or programmatic projects where very little information on GHG emissions is known.
- The Lead Agency must provide a factual and reasoned basis in determining that there is no accurate or appropriate methodology for determining a project's emissions or providing an appropriate significance threshold.

Approach 5: Quantitative Analysis without a Significance Determination

- Briefly describe global climate change impacts and GHGs generated by the project.
- Provide an inventory of GHG emissions and energy needs of the project.
- Does not provide a significance determination.
- The Lead Agency must provide a factual and reasoned basis in determining that there is no accurate or appropriate methodology for determining a project's emissions or providing an appropriate significance threshold.

Approach 6: Quantitative Analysis with Net Zero Threshold

- Briefly describe global climate change impacts and GHG emissions generated by the project.
- Provide an inventory of GHG emissions generated by the project.
- Provide an inventory of energy needs of the project.
- Provide onsite and offsite mitigation that may include buying emissions credits to reduce GHG emissions to net zero.

Approach 7: Quantitative Analysis Using CCAT Reduction Strategies in Determining Significance

- Briefly describe global climate change impacts and GHGs generated by the project.
- Provide an inventory of GHG emissions generated by the project.
- Provide an inventory of energy needs of the project.
- Analyze project compliance with the State GHG reduction strategies.
- Compliance with all the relevant State GHG reduction strategies should be considered less than significant.

Quantifying and Analyzing GHGs

- Greenhouse Gases have varying global warming potential.
- Need to evaluate the global warming potential of Project generated GHG Emissions.
- Global warming potential scale developed for each GHG based upon amount of energy the molecule is able to reflect and the atmospheric lifetime of that molecule
- The global warming potential of Carbon Dioxide is used as the base unit in the scale.

Greenhouse Gases

Greenhouse gases have varying global warming potential (GWP).

GAS	Atmospheric Lifetime (yrs)	Global Warming Potential (100 year time horizon)
Carbon Dioxide	**50-200**	**1**
Methane	**12 ± 3**	**21**
Nitrous Oxide	**120**	**310**
HFC-23	**264**	**11,700**
HFC-134a	**14.6**	**1,300**
HFC-152a	**1.5**	**140**
PFC: Tetrafluoromethane CF4)	**50,000**	**6,500**
PFC: Hexafluoroethane(C2F6)	**10,000**	**9,200**
Sulfur Hexafluoride (SF6)	**3,200**	**23,900**

Quantifying GHG Emissions

- Need to use Global Warming Potential (also known as Carbon Dioxide Equivalents) in quantifying GHG emissions.
- Using Global Warming Potential allows analysis to focus on GHGs that will contribute the greatest contribution to the impact.
- Using Global Warming Potential allows analysis to focus on the best mitigation strategy.

Establishing a Climate Change Impact Analysis Threshold in CEQA Using Approach 7

- Two Types of Thresholds can be used in a CEQA Analysis:
  - Quantitative Threshold Using the GHG Emission Reduction Targets Found in Executive Order S-3-05.
  - Qualitative Threshold Using the GHG Emission Reduction Strategies Found in the CCAT Report.
- Different Types of Projects lend themselves to the Two types of Thresholds:
  - Quantitative threshold best used for General Plan Updates.
  - Qualitative threshold best used for development projects.

Determining Significance Using the Quantitative Threshold

- Provide 1990 and existing inventory of GHGs and energy consumption for the project area.
- Estimate future GHGs and energy consumption for year 2020 in the project area using CARB and EPA emission factors in conjunction with population projections and land uses.
- CEQA Appendix F useful in quantifying energy consumption.
- Compare future GHG emission estimates with 1990 emissions.
- Use the State emission reduction measures as additional mitigation strategies to use in meeting the 1990 threshold.

Qualitative Threshold

- Identify the types of GHG emissions and energy needs for the project.
- May use CEQA Appendix F in quantifying energy needs.
- Compare project features with the State GHG emission reduction strategies.
- Compliance with all of the State's GHG emission reduction strategies relevant to the project would constitute a less than significant finding.
- Develop reasonable mitigation into the project to meet all of the relevant GHG emission reduction strategies.

Qualitative Climate Change Impact Threshold

Determine consistency with the GHG Emission Reduction Strategies:

CARB Reduction Strategy	Description of Strategy
Vehicle Climate Change Standards	Reduce GHG emissions emitted by passenger vehicles and LD trucks.
Diesel Anti-Idling	Limits diesel-fueled commercial motor vehicle idling to 5 min. or less
Hydrofluorocarbon Reduction	Low GWP refrigerants used in new vehicles/commercial refrigeration.
TRU Emission Reduction	Electrification of trailer/Container areas at Ports and Warehouses
Manure Management	Reduce VOCs from confined animal facilities through control options.
Biodiesel Blends	CARB target of 1 to 4 percent biodiesel displacement of diesel fuel.
Ethanol	Increased use of ethanol fuel.
HD Truck Emission Reductions	Reduce GHG emissions in HD trucks and provide education to drivers.
Venting/Leaks in Oil/Gas Systems	Reduce venting and leaks in oil/gas systems thru BMPs
Hydrogen Highway	Promote the use of hydrogen fueled vehicles
50% Statewide Recycling Goal	Reduces methane at landfills and other GHG emissions associated with energy intensive extraction and production.
Methane Capture	Capture and use methane in electric generation or other uses.
Zero Waste - High Recycling	Additional recycling beyond the State's 50% recycling goal.

Qualitative Climate Change Impact Threshold

Determine consistency with the GHG Emission Reduction Strategies:

Energy Commission (CEC)	**Description of Strategy**
Building Energy Efficiency	Increase energy efficiency beyond current Title 24 Standards
Appliance Energy Efficiency	Use energy efficient appliances
State and Consumer Services Agency	Green buildings and LEED Certification
Business Transportation and Housing	**Description of Strategy**
Transportation Energy Efficiency	Cleaner transportation Systems and management
Smart Land Use/Intelligent Trans Sys(ITS)	Mixed Use, Jobs/housing proximity, ITS management
Public Utilities Commission (PUC)	**Description of Strategy**
Renewable Energy	33 percent renewables in the State's resource mix by 2020.
Solar Initiative	Million solar roofs (or 3,000 MW) by 2017 on homes/businesses,
Investor-Owned Utility	Electricity sector carbon policy for investor owned utility.

When and where is an analysis needed?

- Consider nature and duration of project
- Address climate change when it has the potential for significant impact
- EIR sections can and should address issue
  - Project Description
  - Environmental Setting
  - Thresholds of Significance
  - Environmental Impacts (Air Quality)
  - Mitigation Measures
  - Cumulative Impacts
  - Alternatives

Project Description (CCR §15124)

- Description of project characteristics is required (CCR §15124 (c)). If applicable:
  - describe project energy use and sources
  - identify stationary sources of greenhouse gas emissions
  - estimate level of mobile source emissions or increase in vehicle miles traveled (VMT)
  - disclose anticipated project life or duration

Environmental Setting (CCR §15125)

- Description of physical environmental conditions should characterize the issue of climate change as we understand it
- Baseline for environmental analysis, particularly for long-term plans and programs (water supply, flood control, transportation) should consider influences of climate change
- Regional setting could include description of mobile and stationary sources of greenhouse gases or regional inventory, if available

Environmental Impacts (CCR §15126)

- Projects can both affect, and be affected by climate change—if appropriate, both should be addressed
- EIRs must address significant environment effects, including direct and indirect, short-and long-term, all phases
- Significant effects that cannot be avoided
- Irreversible environmental changes

Climate Change Impact Issues

- Changing rainfall and snow pack issues
- Changing hydrology in rivers and Delta
- Changing flood hydrograph
- Increasing sea level
- Changing habitat and species distribution, including elevation

Mitigation Measures (CCR §15126.4)

Potential measures could include:

- Increased public transportation
- Funding for alternative fuels
- Electric vehicle charging stations
- Purchase of carbon offsets
- Funding for applicable grant programs

Offsite Mitigation

Carbon trading Fees:

Offsite Mitigation Cost

Home Occupancy		Vehicle Use	
Emissions (pounds)	**Cost ($)**	**Emissions (pounds)**	**Cost ($)**
7,000	35	6,000	30
12,000	60	8,000	40
20,000	100	12,000	50
28,000	140	20,000	80
Source: TerraPass (www.terrapass.com)			

Cumulative Impacts (CCR §15130)

- Logical place for analysis of project contribution of greenhouse gases
- Incremental impact may be individually limited but cumulatively considerable, especially if the cumulative condition is already significant
- Two interesting statements from CBE case:
  - "Guiding criterion is whether any additional effect" should be considerable
  - "One [additional] molecule rule is not the law"

Alternatives (CCR §15126.6)

- Alternatives to minimize contribution to global warming
  - Alternative sites closer to transit
  - Pedestrian-friendly designs
- Alternatives to minimize impacts *of* climate change
  - Construction above revised floodplain elevation
  - Alternative water supply scenarios
  - Increased setbacks from coastline

For More Information

- Intergovernmental Panel on Climate Change (IPCC) : www.ipcc.ch/
- U.S. EPA Office of Atmospheric Programs : www.epa.gov/climatechange/
- Cal EPA Climate Action Team: www.climatechange.ca.gov/
- California Air Resources Board (CARB) : www.arb.ca.gov/cc
- Governor's Executive Orders on Climate Change: www.dot.ca.gov/hq/energy/
- The Governor's Office of Planning and Research (OPR) : www.opr.ca.gov

Questions?