# Climate Change Analysis in EIRs

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EDAW | AECOM

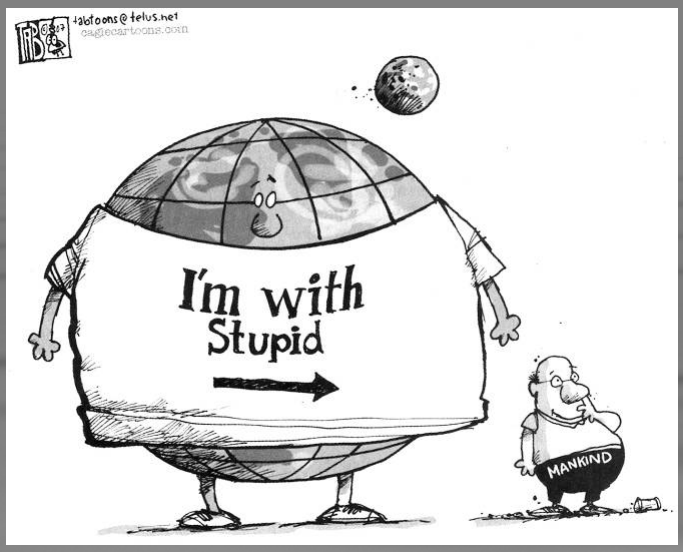
## CEQA Question

Should school districts address global climate change, including greenhouse gases (GHG), in their CEQA documents?

## Background

Climate Change and Environmental Effects

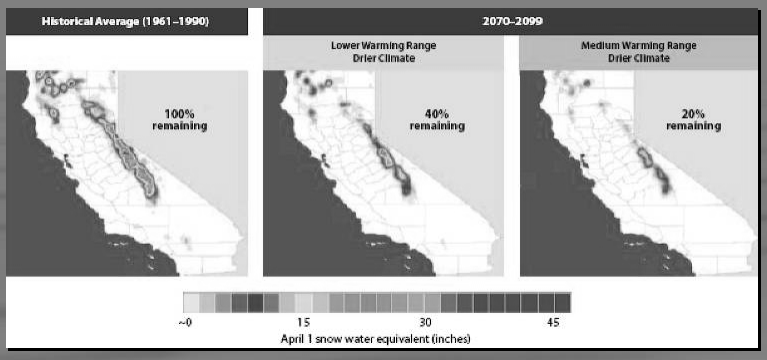
## Views of the Problem



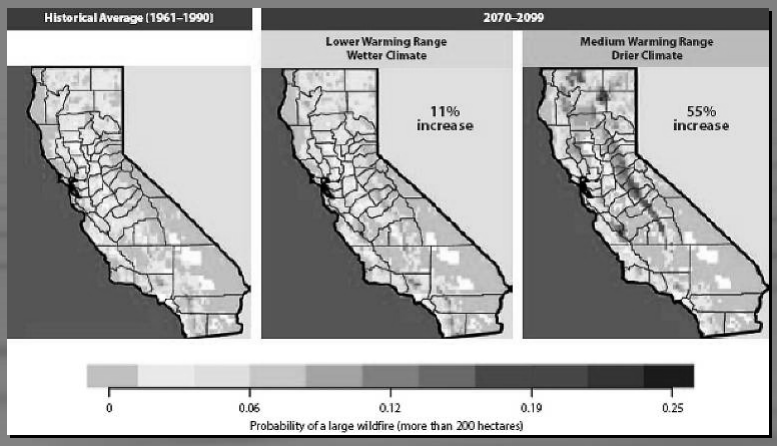

## Predicted Temperature Increases 2070–2099

| | |
|---|---|
| **Low Emissions Range** | ***3.0 – 5.4° F*** |
| **Medium Emissions Range** | ***5.5 – 7.9° F*** |
| **High Emissions Range** | ***8.0 – 10.4°F*** |

# Location of Snowpack Losses




# Areas of Increased Wildfire Risk



## Potential Climate Change Effects

- Reduced snowpack
- Increased flood hazards
- Sea-level rise
- Increased risk of wildfires

Will these affect your school project?

# Climate Change Policy Background

An Overview

## Executive Orders, Statutes

- California Executive Orders
  - S-03-05
  - S-01-07
- California Statutes
  - AB 1493, Statutes of 2004
  - AB 32, Statutes of 2006
  - SB 97, Statutes of 2007

## Executive Order S-03-05

- Approved June 1, 2005
- Established GHG emissions targets for California:
  - By 2010, Reduce to 2000 Levels
  - By 2020, Reduce to 1990 Levels
  - By 2050, Reduce to 80% below 1990
- Oversight by Secretary of CalEPA with other state departments, Climate Action Team
- Biennial report on progress, impacts of global warming on California, and mitigation and adaptation plans to combat impacts

## AB 32 – Global Warming Solutions Act of 2006

- Required that stationary source GHG 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

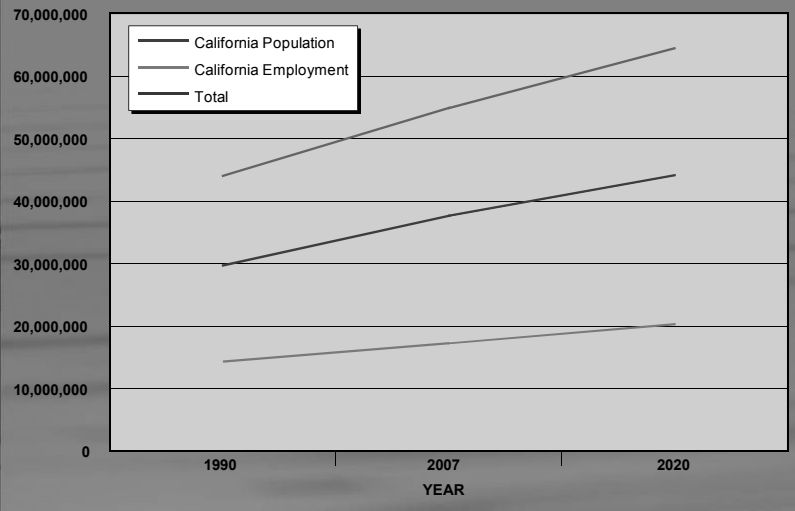
## AB 32 GHG Reduction Targets

| | |
|---|---|
| **1990 $CO_2e$ level** | **436 MM Tonnes** |
| **2004 (latest data):** | **496 MM Tonnes** |
| **2020 trend extended** | **610 MM Tonnes** |
| **2020 – Reduce by** | **174 MM Tonnes** |
| **EO S-03-05 target** | **87 MM Tonnes or 349 of the 436 MM Tonnes at 1990 plus all new emissions to 2050** |

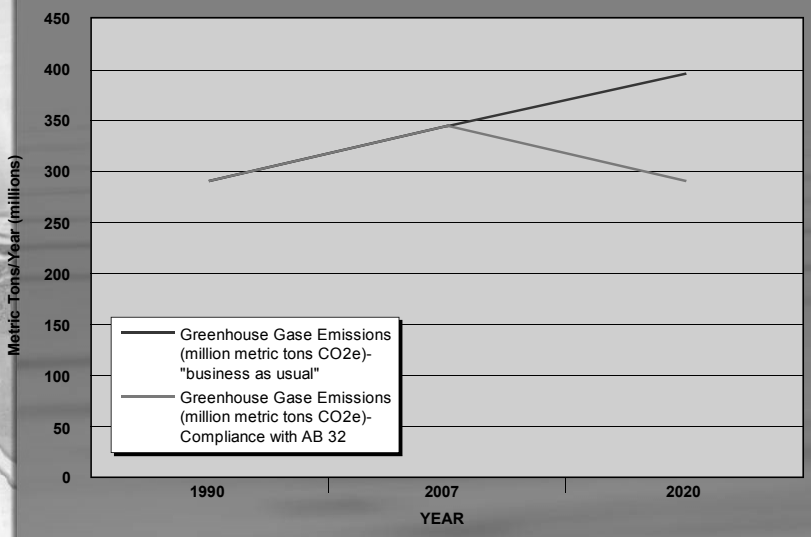
## SB 97 – GHG CEQA Guidelines

- On or before July 1, 2009, the Office of Planning and Research shall prepare, develop, and transmit to the Resources Agency, guidelines for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions as required by this division, including, but not limited to, effects associated with transportation or energy consumption.

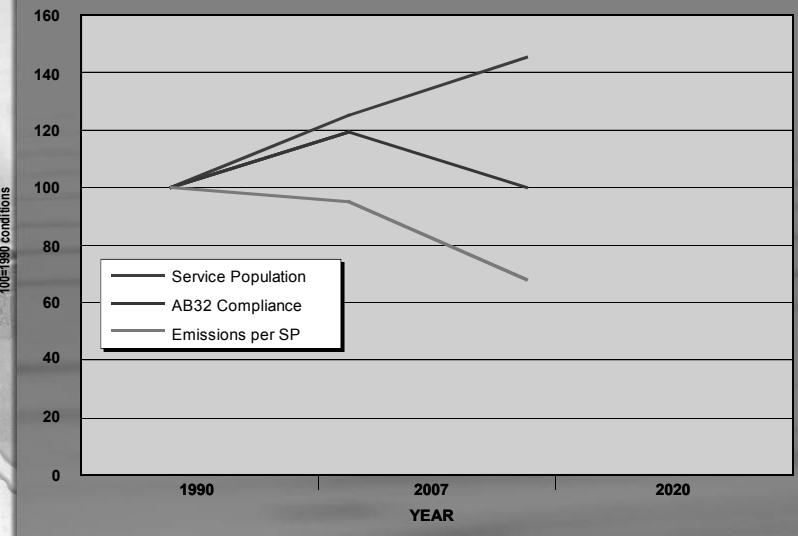
## Combined Population and Employment



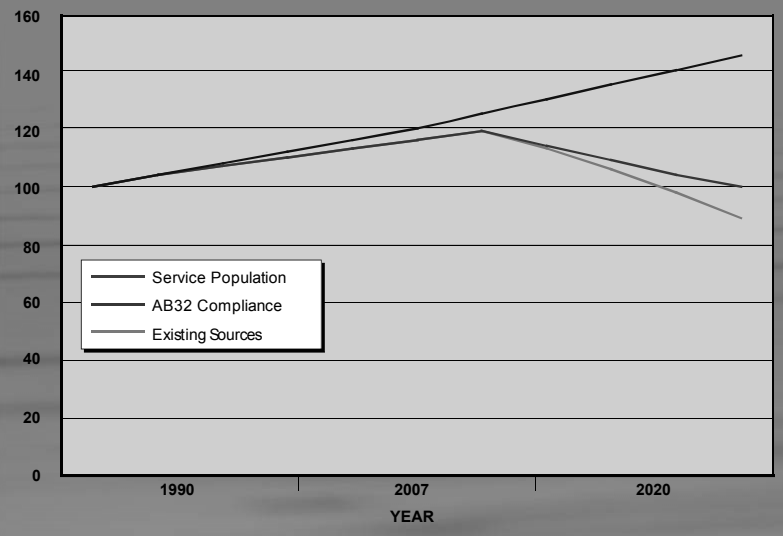
# Greenhouse Gas Emissions Trajectory




# Normalizing the Numbers



## How Are We Going to Make This Work?




# CEQA Approach to Climate Change

Guidance for CEQA Documents

## CEQA Guidance (for now…)

- No "official guidance" exists to date from CEQA statute or guidelines
- Informal guidance from these sources:
  - Practitioner and Interest Group Guidance Papers
  - California Attorney General's initiative

## Association of Environmental Professionals Paper

**Alternative Approaches to Analyzing Greenhouse Gas Emissions and Global Climate Change in CEQA Documents**

**Final - June 29, 2007**

**Association of Environmental Professionals**

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**Executive Summary**

Global climate change (GCC) is a change in the average weather of the earth that can be measured by wind patterns, storms, precipitation, and temperature. This paper is not a scientific analysis of the existence or potential causes of GCC. Further, this paper does not address National Environmental Policy Act (NEPA) requirements. Instead, the intent of this paper is to provide practical, interim information to California Environmental Quality Act (CEQA) practitioners to help Lead Agencies determine how to address GCC in CEQA documents prior to the development and adoption of guidance by appropriate government agencies.

A typical individual project does not generate enough greenhouse gas emissions to influence GCC significantly on its own; the issue of GCC is by definition a cumulative environmental impact. Therefore, if the Lead Agency chooses to address GCC effects in a CEQA document, it should be discussed in the context of a cumulative impact. A complicating factor, however, is that there are currently no published CEQA thresholds or approved methods for determining whether a project's potential contribution to a cumulative GCC impact is considerable.

This paper provides a summary of background information on GCC, the current regulatory environment surrounding greenhouse gas (GHG) emissions, and the various approaches that a Lead Agency may select in a CEQA document to address the potential impacts of GCC and a project's cumulative contribution to GHG. There are many potentially valid approaches, some of which may not be addressed in this paper; for this reason, this document does not recommend a single approach, but rather describes several alternative methodologies and factors that a Lead Agency can consider in selecting the most appropriate methodology for a particular project.

[1] Preparation of this paper was partially funded by Michael Brandman Associates

## AEP Paper

- Describes a range of GHG assessment approaches:
  - No analysis
  - Screening of small projects
  - Qualitative without significance decision
  - Qualitative with significance determination
  - Quantitative without significance decision
  - Quantitative with zero net increase threshold
  - Quantitative relative to reduction strategies
- Recognizes need to evaluate adaptation effects of climate change

## Attorney General's Initiative

- Several letters
- A lawsuit
- Two settlements

## Take Home Messages: AG's Opinions

- Even small incremental emissions can be cumulatively considerable
- Must assess significance and recommend feasible mitigation/alternatives
- Absence of State thresholds is not an excuse to avoid determining significance
- Highest priority is securing feasible mitigation and/or alternatives to reduce carbon emissions

## What Does This Mean to Schools?

Are schools treated differently?

## Do Schools Generate Greenhouse Gases?

Sources of GHGs:

- Construction equipment
- Building energy use
  - Heating and cooling
  - Lighting
- Student and staff transportation

How much of this is “new”…do schools ‘generate’ students?


## Do Schools Generate Greenhouse Gases?

Sources of GHGs:

- Construction equipment
- Building energy use
  - Heating and cooling
  - Lighting
- Student and staff transportation


Ability to determine full range of what is “new $CO_2$ equivalent” is elusive

## Recommendations

- Quantify all construction and operation emissions
- Describe local circumstances
  1. Does school increase or decrease transportation emissions?
  2. Does school replace energy inefficient facilities?
  3. Is school located in planned community? (tiering from prior EIR)
- Determine if impact is “cumulatively considerable”

## Tools for Quantifying Impacts*

- Construction- and Operation-Related Mobile Source
  - URBEMIS 2007, Version 9.2.2
- On and Off Road Motor Vehicles
  - EMFAC 2007
  - CCAR, Version 2.2
- Area and Stationary Source
  - URBEMIS 2007, Version 9.2.2
  - CCAR, Version 2.2
  - CARB, Proposed Regulation Order
- Indirect Source
  - CCAR, Version 2.2
  - CARB, Proposed Regulation Order

*** Typical models used by air quality analysts**

## How much $CO_2$(equivalent) is significant?

- No single project is significant
- Concern is cumulative. Is contribution "considerable"?
- No specific guidance

## Possible approaches

- Use numeric threshold
  - No net increase: 0 (mitigation/offset driven)
  - 100 metric tonnes=6 d.u., 4,000 sf office, or 1,000 sf retail
  - 1,000 metric tonnes=60 d.u., 40,000 sf office, or 10,000 sf retail
  - 10,000 metric tonnes=600 d.u., 400,000 sf office, or 100,000 sf retail
- Use "efficiency" threshold
  - Does design include extraordinary energy efficiency?
  - Are vehicle miles traveled reduced?
- No magic approach

## Effective Mitigation

- **Locate near Neighborhood Being Served**
- **Bicycle/Pedestrian/Transit Measures**
  - Bike parking/paths/lanes
  - Trip end facilities
  - Barrier minimization
  - Bus shelters for nearby transit
- **Parking Measures**
  - Tree cover
  - Minimum/reduced spaces
  - Preferential parking
- **Design Measures**
  - Orientation/proximity to nearby uses
  - LEED certification
- **Energy Efficiency/Building Component**
  - Building orientation
  - On-site renewable energy system (solar)
  - Low-water use
  - Exceed Title 24
  - Low colored paving

## Need to consider Climate Change Effects: Adaptive Management

- Sea level rise?
- Increased flood potential?
- Wildfire exposure?
- Sufficient future water?

## What the future holds

- Guidance
  - CARB
  - SB 97-Office of Planning & Research
  - Legislation?
- The real issue: what are we doing to reduce our effect on climate change?