

GLOBAL CLIMATE CHANGE AND GREENHOUSE GAS

Background

On May 29, 2008 the California Transportation Commission added an Addendum to the 2007 Regional Transportation Plan Guidelines addressing Climate Change and Greenhouse Gas Emissions during the RTP Process. Although the guidance is not required or identified in current statute, and therefore not required by state or federal law, BCAG nonetheless is adhering to the guidance contained in the addendum. The purpose of this chapter in the RTP is to provide background information on Greenhouse Gas and Climate.

On February 15, 2008 BCAG received a letter from the Office of the Attorney General highlighting the need to curb greenhouse gas emissions to 1990 levels by 2020 and to 80 percent below 1990 levels by 2050. Creating a low carbon future is a priority with the Office of the Attorney General. In response to the new attention placed on the RTP, BCAG has prepared a full Program Environmental Impact Report to address CEQA requirements. The EIR for the RTP is included as Appendix 2.

Greenhouse Gas & Climate Change

Atmospheric greenhouse gases (GHGs) and clouds within the Earth's atmosphere influence the Earth's temperature by absorbing most of the infrared radiation rising from the Earth's sun-warmed surface that would otherwise escape into space. This process is commonly known as the Greenhouse Effect. GHGs and clouds, in turn, radiate some heat back to the Earth's surface and some out to space. The resulting balance between incoming solar radiation and outgoing radiation from both the Earth's surface and atmosphere keeps the planet habitable.

However, anthropogenic emissions of GHGs into the atmosphere enhance the Greenhouse Effect by absorbing additional radiation that would otherwise escape to space, thereby trapping more radiation in the atmosphere and causing temperatures to increase. The human-produced GHGs responsible for increasing the Greenhouse Effect and their relative contribution to global warming (based on their relative ability to trap heat in the atmosphere) are carbon dioxide (CO₂) (53 percent); methane (CH₄) (17 percent); near-surface ozone (O₃) (13 percent); nitrous oxide (N₂O) (12 percent); and chlorofluorocarbons (CFCs) (5 percent). All other GHGs are referenced in terms of a CO₂ equivalent.

The most common anthropogenic GHG is CO₂, which constitutes approximately 84 percent of all GHG emissions in California (California Energy Commission, 2006). Worldwide, California ranks as the 12th to 16th largest emitter of CO₂ (the most prevalent GHG) and is responsible for approximately 2 percent of the

world's CO₂ emissions (California Energy Commission 2006). The increasing emissions of these GHGs—primarily associated with the burning of fossil fuels (during motorized transport, electricity generation, consumption of natural gas, industrial activity, manufacturing, etc.) and deforestation, as well as agricultural activity and the decomposition of solid waste, have led to a trend of anthropogenic warming of the Earth's average temperature, which is causing changes in the Earth's climate. This increasing temperature phenomenon is known as global warming and the climatic effect is known as climate change or global climate change.

Climate change is a global problem and GHGs are global pollutants, unlike criteria air pollutants such as those for carbon monoxide and ozone which are pollutants of regional and local concern.

The State Legislature adopted the public policy position that global warming is “a serious threat to the economic well-being, public health, natural resources, and the environment of California” (Health and Safety Code § 38501). Further, the State Legislature has determined that “the potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snow pack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious disease, asthma, and other human health related problems, and that “global warming will have detrimental effects on some of California's largest industries, including agriculture, wine, tourism, skiing, recreational and commercial fishing, and forestry (and)...will also increase the strain on electricity supplies necessary to meet the demand for summer air-conditioning in the hottest parts of the State” (Health and Safety Code § 38501).

The California Environmental Protection Agency (CalEPA) prepared a briefing package for Assembly Bill 1493 (AB 1493) entitled “Global Warming and Greenhouse Emissions from Motor Vehicles”. Page 14 of this document stated that, “Transportation is California's largest source of Carbon Dioxide”.

Governor Schwarzenegger has issued two Executive Orders regarding this issue: S-3-05 (June 1, 2005) that calls for a coordinated approach to address the detrimental air quality effects of GHG and S-20-06 (October 18, 2006) that requires state agencies to continue their cooperation to reduce GHG and to have the Climate Action Team develop a plan by June 1, 2008 to outline a number of actions to reduce GHG.

California Greenhouse Gas Emission Legislation

- One of the most important legislative actions to address GHG was AB 32 (Nunez, 2005) known as the California Global Warming Solutions Act of 2006. AB 32 required the California Air Resources Board (ARB) to set

statewide GHG emission reduction targets by adding Health and Safety Code Division 25.5, Section 38500 et seq.

- Under California's Clean Air Act (Section 39000 et seq California Health and Safety Code) the ARB sets and updates air quality standards.
- Senate Bill (SB) 1771 (Sher, 2000) amended Health and Safety Code Section 42800 and Public Resources Code Section 25730 to require consultation with Caltrans regarding the recording and promotion of voluntary GHG emissions reductions through the California Climate Action Registry.
- AB 1493 (Pavely, 2002) added Sections 42823 and 43018.5 to the Health and Safety Code. These sections required the ARB to develop regulations designed to reduce GHGs emitted by passenger vehicles.
- AB 1007 (Pavely, 2005) added Health and Safety Code Sections 43865-43867 that mandated the California Energy Commission in partnership with relevant state agencies to develop a plan to evaluate the environmental and health impacts of alternative fuel use including vehicle operations. Since 2000, the Legislature has approved several bills to ensure the reduction of GHG emissions from mobile sources.
- SB 97(Dutton, 2007) charged the Governor's Office of Planning and Research (OPR) with the responsibility of preparing guidelines to mitigate GHG emissions identified through the California Environmental Quality Act (CEQA) document review process including the effects associated with transportation or energy consumption. Every RTP is subject to CEQA.

BCAG Response to GHG Guidance and the RTP Process

The CTC's Guidance makes recommendations to reduce greenhouse gasses with specific target dates. BCAG's 2008 RTP addresses and works toward these goals as evidence in the completed Environmental Impact Report as required by CEQA. In addition, by the following actions and projects discussed in the Plan:

1. Initiated advance planning and coordination with planning and resource agencies via the "Regional Blueprint" process (Chapter 3).
2. Comprehensive Regional Traffic Model Update with "4d" capabilities. (Chapter 3, page 3-15). Extensive model documentation is available at BCAG's web page at: <http://www.bcag.org/Planning/2008-RTP/index.html>.
3. New performance measures have been included in traffic model and for transit (Chapter 3, Table 3-4, page 3-36).
4. Planned transit invested with CMAQ funds (Chapter 7, Table 7-4, page 7-24)
5. Continued planned investment in ITS technologies for transit (Chapter 9)
6. Planned CMAQ funds for non-motorized transportation increased park and ride lots and bike projects (Chapter 7, page 7-22 & Chapter 8, page 8-7)
7. Developed a comprehensive bus stop improvement plan (Chapter 7, page 7-21).
8. Developed comprehensive Chico Area Bike Map (Chapter 8, page 8-17).

9. Developed Coordinated Public Transit-Human Services Transportation Plan (Chapter 7, Page 7-12).