3.7 Greenhouse Gas Emissions

Table 3.7-1 Greenhouse Gas Emissions Checklist

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b. Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☒

3.7.1 Setting

Greenhouse gases (GHGs) are gases that have been shown to trap heat in the atmosphere. Because of this characteristic, and because GHGs can remain in the atmosphere for decades or longer, GHGs are thought to have an effect on climate change (CARB 2009). The Intergovernmental Panel on Climate Change (IPCC) has found that there is a correlation between increased atmospheric levels of carbon dioxide (CO_2) and rising global temperatures (Figure 3.7-1).

The term "climate change" refers to any significant change in measures of climate (temperature, precipitation, or wind) that lasts for an extended period (decades or longer). Climate change may be affected by a number of factors including natural cycles, such as changes in the sun's intensity; natural processes within the climate system, such as changes in ocean circulation; and human activities that change the atmosphere's composition (such as the release of carbon dioxide through burning fossil fuels) or land surface (such as deforestation or urbanization) (USEPA 2010).

GHGs identified by the State in California Assembly Bill 32 (AB 32) include: CO_2, methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6).

Global warming potential is a measure of how much a given amount of GHGs is estimated to contribute to climate change and is devised to determine potential warming effects of different gases. Global warming potential is a relative scale that compares the GHG to that of CO_2. For a given GHG, the CO_2 equivalency (CO_2e) is a quantity that describes the amount of CO_2 that would have the same global warming potential, when measured over a specified timescale (generally, 100 years). The global warming potential of CH_4 over 100 years, for example, is 21. This means that the emission of 1 million metric tons of CH_4 would be equivalent to the emission of 21 million metric tons of CO_2.

The effects of climate change on the project area and region are difficult to predict with accuracy, but could result in intensely hot summers, electricity shortages, increased fire risk, socioeconomic impacts, and impacts to agriculture, public health, ecologically sensitive habitat, plant and wildlife resources, and water resources.

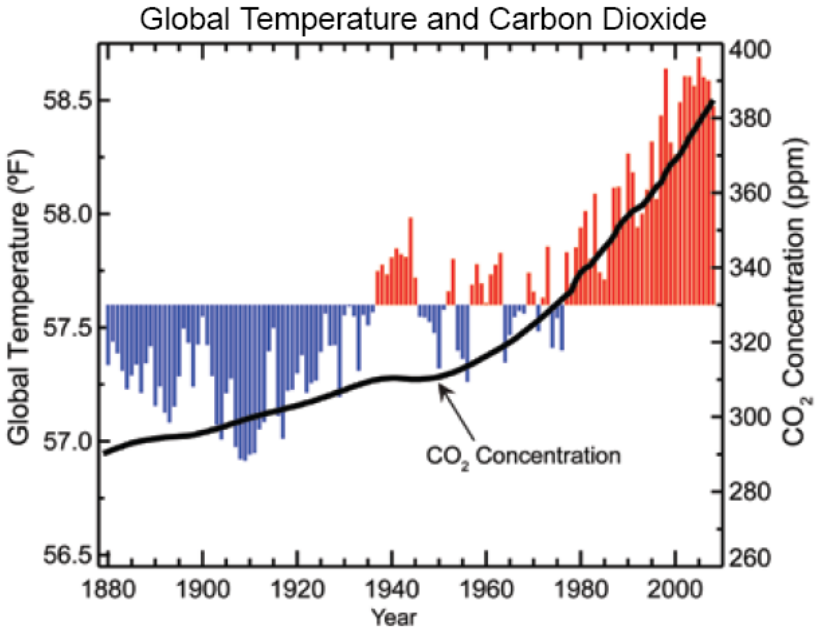

Figure 3.7-1 Relationship Between Global Temperature and Carbon Dioxide

Source: USGCRP 2009

Applicable Regulations, Plans, and Standards

California is a substantial contributor to global GHG emissions: it is the second largest contributor in the U.S. and the sixteenth largest in the world (CEC 2006). As a result of climate change, California is expected to experience poorer air quality, a sharp rise in extreme heat, a less reliable water supply, more dangerous wildfires, and increased risks to agriculture in the future. Statewide, annual temperatures are expected to increase by as much as 10 degrees Fahrenheit by 2100 (CEC 2006).

Regulations addressing the assessment and mitigation of climate change have been established on the federal and state levels. Neither Butte County Air Quality Management District (BCAQMD) nor Feather River Air Quality Management District (FRAQMD), however, have established guidelines or CEQA significance thresholds for GHG assessment.

Federal

In 2009, the United States Environmental Protection Agency (USEPA) issued the Final Mandatory Reporting of Greenhouse Gases Rule, which requires reporting of GHG emissions from large sources and suppliers in the U.S. The intent is to collect accurate and timely emissions data to inform future policy decisions. Under the rule, suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit the specified amount (or more) per year of GHGs are required to submit annual reports to USEPA. The gases covered by the proposed rule are CO_2, CH_4, N_2O, HFCs, PFCs, SF_6, and other fluorinated gases. The rule became effective December 2009. Facilities are required to collect emissions data as of January 1, 2010. The first emissions reports are due to be submitted by March 31, 2011.

State

Executive Order S-3-05 and Assembly Bill 32

California Governor Arnold Schwarzenegger issued Executive Order S-3-05 in 2005, establishing statewide GHG emission reduction targets of 2000 levels by 2010, 1990 levels by 2020, and 80 percent below 1990 levels by 2050. In 2006, Governor Schwarzenegger signed the Global Warming Solutions Act, Assembly Bill (AB) 32, with the requirement of reducing the State's GHG emissions to 1990 levels by 2020. With the passage of AB 32, the California Legislature officially recognized the State's vulnerability to the effects of global warming. The AB 32 program is the first statewide program in the country to mandate an economy-wide emissions cap that includes enforceable penalties.

Senate Bill 97

The California Senate passed Senate Bill 97 in 2007, requiring the Governor's Office of Planning and Research to prepare, develop, and transmit guidelines for the feasible mitigation of GHG emissions or their effects, including, but not limited to, effects associated with transportation or energy consumption.

California Air Resources Board, Climate Action Team, and Climate Change Scoping Plan

In 2007, based on its 1990 to 2004 inventories of GHG emissions in California, California Air Resources Board (CARB) staff approved a total of 427 million metric tons of CO_2e as the statewide GHG 1990 emissions level and 2020 emissions limit. This limit is an aggregated statewide limit, rather than sector- or facility-specific. Taking into account expected growth in population and energy use, the emissions reduction target is estimated to be equivalent to approximately 30 percent below business emissions as usual by the year 2020.

The Climate Change Scoping Plan (Scoping Plan), approved by CARB in 2008 to fulfill Section 38561 of AB 32, is the State's roadmap to reaching GHG reduction goals. The plan, developed by CARB in conjunction with the California Climate Action Team,[1] outlines a number of key strategies to reduce GHG emissions. The measures in the Scoping Plan will take effect in 2012. Discrete early action measures include a low carbon fuel standard, landfill CH_4 capture, reductions from mobile air conditioning, semiconductor reductions, SF_6 reductions, and a heavy-duty vehicles measure.

CEQA Guideline Amendments

In December 2009, the California Natural Resources Agency adopted CEQA Guidelines Amendments with new language for addressing the quantification and mitigation of GHG emissions. The Amendments became effective March 18, 2010. Updates to the Amendments include:

- Section 15064: Requires a lead agency make a "good-faith effort, based on scientific and factual data, to describe, calculate, or estimate the amount of GHG emissions resulting from a project." The agency may use a quantitative or qualitative analysis.
- Section 15126.4: Mitigation measures may include measures in an existing plan or mitigation program; implementation of project features; off-site measures, including offsets; or GHG sequestration. Mitigation in a plan may include project-specific mitigation.
- Appendix G: Two checklist items under a new Greenhouse Gas Emissions category were added to the checklist in Appendix G of the CEQA Guidelines (OPR 2009).

[1] The California Climate Action Team was formed in 2004 to assist CARB with the Climate Change Scoping Plan. It is comprised of 14 agencies and 11 subgroups.

Local

In evaluating GHG impacts associated with development projects, the BCAQMD and CCAPCD follow the guidance and recommendations from the California Air Pollution Control Officers Association (CAPCOA 2008). Although the CAPCOA document has not been officially endorsed by the State, it is often used by air districts as a resource for how to treat GHG-related impacts in EIRs because there is, to date, no generally accepted approach. BCAQMD and FRAQMD have not established guidelines or significance thresholds for GHG assessment and, instead, rely on the CAPCOA document for guidance regarding appropriate analytical methodologies and mitigation.

Applicant Proposed Measures

The applicant has incorporated the following applicant proposed measures (APMs) into the project to minimize or avoid impacts on cultural resources. See Chapter 1.0 for a complete list of APMs that the applicant has incorporated into the project to avoid or minimize impacts on all resources.

APM AIR-3: Minimize greenhouse gas emissions during construction

3.7.1 Environmental Impacts and Mitigation Measures

a. Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment, based on any applicable threshold of significance?

LESS THAN SIGNIFICANT IMPACT. At this time, there are no mandatory GHG regulations or finalized agency threshold of significance that apply to the proposed project. In the absence of an accepted or adopted significance threshold, and in order to conservatively assess impacts from GHG emissions, a quantitative significance criterion of 10,000 metric tons (MT) of CO_2e per year is used for this analysis. This value corresponds to the interim threshold adopted by the South Coast Air Quality Management District (SCAQMD) in response to the adoption of AB 32. Using this level for the proposed project is consistent with the nature of impacts associated with GHG emissions, which do not produce a direct localized effect, but take place on a statewide and global scale.

During project construction, GHGs would be emitted from employee vehicles, light-duty vehicles (crew trucks, line trucks, and water trucks), helicopters, and off-road equipment (bulldozers, graders, and backhoes). GHG emissions were estimated for each construction phase using the URBEMIS 2007 emissions model and published emission factors. Based on the construction techniques used, the estimated GHG emissions from project construction are estimated at approximately 3,000 MT of CO_2e (Appendix A). Amortized over a 30-year period, these GHG emissions are estimated at approximately 100 MT of CO_2e per year. Thus, GHG emissions generated from project construction would be less than significance criteria of 10,000 MT of CO_2e per year and, thus are considered less than significant.

For operation of the transmission line following construction activities, no additional maintenance is required beyond the existing ongoing maintenance. Therefore, no long-term GHG emissions increase would result from construction or operation of the project. Even though GHG emissions from project construction would have a less than significant impact, APM AIR-3 would help to reduce GHG emissions during construction.

b. Would the project conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?

NO IMPACT. The scoping plan approved by the CARB Board in December 2008 provides the outline for actions to reduce California's GHG emissions (CARB 2008). The scoping plan requires CARB and other state agencies to adopt regulations and other initiatives to reduce GHGs. At this time, there are no mandatory GHG regulations or finalized agency guidelines that would apply to the project.

CARB, under the California Global Warming Solutions Act of 2006, has the primary responsibility for reducing greenhouse gas emissions. A substantial portion of the GHG emission reductions proposed in the 2006 Climate Action Team Report to reach 1990 emission levels by 2020 are strategies to be taken by agencies other than CARB (CalEPA 2006). CARB has set forth a list of early action measures to be adopted and implemented by January 1, 2010. The *Proposed Early Actions to Mitigate Climate Change in California* document is a status report on early actions being taken by the participating departments and agencies (CARB 2007).

In the absence of established State regulations addressing mitigation of impacts related to GHG emissions, the California Governor's Office of Planning and Research (OPR) has issued guidance to encourage agencies to develop a regional approach (OPR 2009). The project route is located within Butte, Sutter, and Yuba counties. BCAQMD has air quality jurisdiction over Butte County and FRAQMD has air quality jurisdiction over Sutter and Yuba counties. Neither BCAQMD nor FRAQMD have issued guidance for GHG reporting or set thresholds for the analysis of GHG emissions under CEQA. Therefore, there would be no impact under this criterion.

References

California Air Resources Board (CARB). 2007. Proposed Early Actions to Mitigate Climate Change in California. April 20.

_____. 2008. Climate Change Scoping Plan: A Framework for Change. December.

_____. 2009. Climate Change Backgrounder: The Greenhouse Effect and California (fact sheet). Assembly Bill 1493.

California Air Pollution Control Officers Association (CAPCOA). 2008. CEQA and Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act (white paper).

California Energy Commission (CEC). 2006. Inventory Greenhouse Gas Emissions and Sinks: 1990 to 2004. Staff Final Report (CEC-600-2006-013-SF). December.

California Environmental Protection Agency (CalEPA). 2006. Climate Action Team Report to Governor Schwarzenegger and the Legislature. March.

Office of Planning and Research (OPR), California Governor's. 2009. CEQA Guidelines Sections Proposed to be Added or Amended. April 13.

URBan EMISsions Model (URBEMIS). 2007. Software Version 9.2.0.

United States Environmental Protection Agency (USEPA). 2010. Basic Information: Climate Change or Global Warming? http://www.epa.gov/climatechange/basicinfo.html. February 10.

United States Global Change Research Program (USGCRP). 2009. Global Climate Change Impacts in the United States. Cambridge University Press: New York. pp. 13 to 26.