4.8 Greenhouse Gas Emissions

This section describes the greenhouse gas (GHG) regulations that are applicable to electrical transmission projects and evaluates the potential impacts from construction and operation of the IC Project and its Alternatives.

4.8.1 Environmental Setting

The IC Project Alignment is located within the Great Basin Valleys Air Basin and Mojave Desert Air Basin, which are under the jurisdictions of the Great Basin Unified Air Pollution Control District (GBUAPCD), the Eastern Kern Air Pollution Control District (EKAPCD), and the Mojave Desert Air Quality Management District (MDAQMD).

GHGs refer to gases that trap heat in the atmosphere, causing a greenhouse effect. GHGs include, but are not limited to, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride (SF_6). Atmospheric concentrations of the two most important directly-emitted, long-lived GHGs, CO_2 and CH_4, are currently well above the range of atmospheric concentrations that occurred over the last 650,000 years. (Pew Center 2008) According to the Intergovernmental Panel on Climate Change (IPCC), increased atmospheric levels of CO_2 are correlated with rising temperatures; concentrations of CO_2 have increased by 31 percent above pre-industrial levels since the year 1750. Climate models show that temperatures would probably increase by 1.4 degrees Celsius (°C) to 5.8°C by the year 2100. (IPCC 2007)

Global warming potential (GWP) estimates how much a given mass of a GHG contributes to climate change. The term enables comparison of the warming effects of different gases. GWP uses a relative scale that compares the warming effect of the gas in question with that of the same mass of CO_2. The CO_2 equivalent (CO_2e) is a measure used to compare the effect of emissions of various GHGs based on their GWP, when projected over a specified time period (generally 100 years). CO_2e is commonly expressed as metric tons (MT) of CO_2 equivalents ($MTCO_2e$) or million metric tons (MMT) of CO_2 equivalents ($MMTCO_2e$). The CO_2e for a gas is obtained by multiplying the mass of the gas (in tons) by its GWP.

4.8.2 Regulatory Setting

Federal, state, and local regulations were reviewed for applicability to the IC Project.

4.8.2.1 Federal

4.8.2.1.1 Federal Mandatory Reporting of Greenhouse Gases (Section 40 Code of Federal Regulations [C.F.R.] Part 98

The Federal Clean Air Act (CAA) requires the U.S. Environmental Protection Agency (EPA) to define national standards to protect U.S. public health and welfare. The CAA does not currently regulate GHG emissions from construction activities specifically; however, GHGs are pollutants that can be regulated in the future under the CAA. There are currently no federal regulations that set ambient air quality standards for GHGs.

4.8.2.2 State

4.8.2.2.1 Global Warming Solutions Act of 2006 (Assembly Bill (AB) 32)

The California Global Warming Solutions Act of 2006 (AB 32) charges the California Air Resources Board (CARB) with the responsibility of monitoring and regulating sources of GHG emissions in order to reduce those emissions. CARB established a scoping plan in December 2008 for achieving reductions in

GHG emissions and has established and implemented regulations for reducing those emissions by the year 2020.

4.8.2.2.2 California Mandatory Greenhouse Gas Reporting Regulation (17 California Code of Regulations §§ 95100 - 95133)

Pursuant to AB 32, CARB adopted the Mandatory Greenhouse Gas Reporting Regulation. The facilities required to annually report their GHG emissions include electricity-generating facilities, electricity retail providers and power marketers, oil refineries, hydrogen plants, cement plants, cogeneration facilities, and industrial sources that emit over 25,000 $MTCO_2e$ from stationary source combustion. In particular, retail providers of electricity are required to report fugitive emissions of SF_6 related to transmission and distribution systems, substations, and circuit breakers located in California that the retail provider or marketer is responsible for maintaining in proper working order. SCE complies with these requirements.

4.8.2.3 Local

The California Public Utilities Commission (CPUC) has sole and exclusive state jurisdiction over the siting and design of the IC Project. Pursuant to CPUC General Order 131-D (GO 131-D), Section XIV.B, "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters." Consequently, public utilities are directed to consider local regulations and consult with local agencies, but the counties' and cities' regulations are not applicable as the counties and cities do not have jurisdiction over the IC Project. The IC Project, however, must comply with applicable local air district regulations.

4.8.2.3.1 Eastern Kern Air Pollution Control District

The EKAPCD has adopted an addendum to their EKAPCD CEQA Guidelines, titled *Addressing GHG Emission Impacts for Stationary Source Projects When Serving as the Lead CEQA Agency*. This addendum establishes a significance threshold of 25,000 $MTCO_2e$ per year.

4.8.2.3.2 Great Basin Unified Air Pollution Control District

The GBUAPCD has not formally adopted recommendations or official guidance to evaluate the significance of GHG emissions for projects.

4.8.2.3.3 Mojave Desert Air Quality Management District

The MDAQMD has established 100,000 tons of CO_2e per annum or 548,000 pounds per day as the District's significant emissions thresholds for greenhouse gases.

4.8.3 Significance Criteria

The significance criteria for assessing the impacts from GHG emissions are derived from the California Environmental Quality Act (CEQA) Environmental Checklist. According to the CEQA Checklist, a project causes a potentially significant impact if it would:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions

4.8.4 Impact Analysis

4.8.4.1 Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

4.8.4.1.1 Construction and Operations

Less than Significant Impact. GHG emissions would be generated from operation of heavy equipment, support vehicles and helicopters. The most common GHGs associated with fuel combustion are CO_2, CH_4, and N_2O. Annual GHG emissions were estimated for construction activities using the CalEEMod model for both on-road and off-road sources. Helicopter emissions were estimated based on the Swiss Federal Office of Civil Aviation (FOCA) Guidance on the Determination of Helicopter Emissions. (FOCA 2015)

Construction activities would result in emissions of GHG over the construction period. Construction activities would result in exhaust emissions from vehicular traffic, as well as from construction equipment and machinery. Over the construction period, approximately 15,046 $MTCO_2e$ would be emitted. GHG construction emissions from future activities amortized over 30 years is approximately 502 $MTCO_2e$.

As explained in Section 4.3, operational emissions would not differ in scope or scale from activities currently conducted. Thus, the estimated annual emission of GHGs from the operation of the IC Project is 0 $MTCO_2e$.[18] Combined, the 502 $MTCO_2e$ emissions associated with construction and operations would be well below the 25,000 $MTCO_2e$ threshold of significance established by the EKAPCD, which is the more stringent of the two quantified thresholds. Therefore, the IC Project would not generate, either directly or indirectly, GHG emissions that would have a significant impact on the environment, and impacts would be less than significant.

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

4.8.4.2.1 Construction

No Impact. Construction of the IC Project would be consistent with applicable policies, plans, and regulations for reducing GHG emissions. The IC Project would incorporate best management practices and other standard SCE practices, such as reducing the idle time of construction vehicles, that are consistent with the requirements and intentions of the federal and state plans, polices, and regulations. Construction activities would not be expected to consume a substantial amount of energy that would result in a conflict with policies that serve to reduce GHG emissions through a reduction in energy consumption. As presented above, GHG construction emissions from activities amortized over 30 years would be approximately 502 $MTCO_2e$. GHG emissions would fall well below the most-stringent numerical threshold of significance in the area of the IC Project. Therefore, the IC Project would not conflict with any applicable plan, policy, or regulation, and no impact would occur under this criterion.

[18] The installation of ACCC conductor in Segments 1, 2, 3N, and 3S will improve the operational efficiency of the circuits included in these Segments by reducing electrical impedance and associated line losses. Reduced line losses will result in a greater percentage of the electricity generated being delivered, which may allow the combustion of a smaller volume of carbon-based fuels per unit of electricity generated, and thus some reduction of GHG emitted by generators served by these circuits. The potential reduction of GHG emissions associated with the generation of electricity has not been quantified as the IC Project's construction and O&M-related GHG emissions are below the most-stringent numerical threshold of significance.

4.8.4.2.2 Operations

No Impact. As presented in Chapter 3, SCE is currently performing operation and maintenance (O&M) activities, including inspections, along the subtransmission lines that would be rebuilt and reconductored under the IC Project. No material changes in O&M activities or the locations of these activities are anticipated with implementation of the IC Project, and therefore no impacts would be realized under this criterion during operations and maintenance.

4.8.5 Applicant Proposed Measures

Because no significant impacts to GHG emissions would occur as a result of the IC Project, no avoidance or minimization measures are proposed.

4.8.6 Alternatives

Alternatives to the IC Project are addressed in Section 5.2, Description of Project Alternatives and Impact Analysis.

4.8.7 References

EKAPCD. 2012. Addendum to CEQA Guidelines. Addressing GHG Emission Impacts for Stationary Source Projects When Serving as Lead CEQA Agency. Available at http://www.kernair.org/Documents/CEQA/EKAPCD%20CEQA%20GHG%20Policy%20Adopted%203-8-12.pdf

Mojave Desert Air Quality Management District. 2016. California Environmental Quality Act (CEQA) And Federal Conformity Guidelines. Available at http://mdaqmd.ca.gov/home/showdocument?id=192.