5.8 GREENHOUSE GAS EMISSIONS

This section discusses potential GHG emissions associated with project construction, operation, and maintenance, and concludes that impacts will be less than significant. GHG emissions were calculated and reported in carbon dioxide equivalents (CO_2e) for carbon dioxide (CO_2), nitrous oxide (N_2O) and methane (CH_4) emissions from project emissions.

5.8.1 Environmental Setting

5.8.1.1 GHG Setting

The project alignment approximately ~~193.9~~194 miles of Modoc, Lassen, and Sierra Counties located in the NPAB and MCAB. The project involves the installation of an underground fiber-optic network to improve the quality of rural broadband in northeast California and would not replace or upgrade an existing facility or infrastructure that emits GHG emissions.

Many chemical compounds in the Earth's atmosphere act as GHGs, as they absorb and emit radiation within the thermal infrared range. Many gases exhibit "greenhouse" properties. Some of them occur in nature (e.g., water vapor, CO_2, CH_4, and N_2O, while others are exclusively human made (like gases used for aerosols) (EPA 2019). A CO_2e is a metric measure used to compare from the global warming potentials of these various GHG sources by converting amounts of the other gases to the equivalent amount of CO_2 with the same global warming potential.

5.8.2 Regulatory Setting

5.8.2.1 Federal

The federal government is taking steps to address the challenges of climate change. EPA collects various types of GHG emissions data. These data help EPA, policy-makers, and businesses track GHG emissions trends and identify opportunities for reducing emissions and increasing efficiency. EPA has been collecting a national inventory of GHG emissions since 1990, and in 2009 EPA established mandatory reporting of large GHG emissions sources.

The EPA is also achieving GHG reductions through partnerships and initiatives; evaluating policy options, costs, and benefits; advancing the science; partnering internationally and with states, localities, and tribes; and helping communities to adapt to climate change.

5.8.2.2 State

Executive Order S 3-05

On June 1, 2005, the Governor issued Executive Order S 3-05, which set the following GHG emission reduction targets:

- By 2010, reduce GHG emissions to 2000 levels

- By 2020, reduce GHG emissions to 1990 levels
- By 2050, reduce GHG emissions to 80 percent below 1990 levels

To meet these targets, the Climate Action Team prepared a report to the Governor in 2006 that contains recommendations and strategies to help ensure that the targets in EO S-3-05 are met (CalEPA 2006).

Assembly Bill 32

California Assembly Bill (AB) 32, also known as the Global Warming Solutions Act of 2006 (codified in the California Health and Safety Code [HSC] Division 25.5), requires CARB to establish a statewide GHG emissions cap for 2020 based on 1990 emission levels. AB 32 required CARB to adopt regulations that identify and require selected sectors or categories of emitters of GHGs to report and verify their statewide GHG emissions, and CARB is authorized to enforce compliance with the program. Under AB 32, CARB was also required to adopt a statewide GHG emissions limit equivalent to the statewide GHG emissions levels set in 1990, which must be achieved by 2020. The 2020 GHG emissions limit is 431 million metric tons of carbon dioxide equivalents ($MMTCO_2e$).

Toward achieving the maximum technologically feasible and cost-effective GHG emission reductions, AB 32 permits the use of market-based compliance mechanisms and requires CARB to monitor compliance with and enforce any rule, regulation, order, emission limitation, emissions reduction measure, or market-based compliance mechanism that it adopts. CARB has adopted nine early action measures for implementation, including the following:

- Ship electrification at ports
- Reduction of high global warming-potential gases in consumer products
- Heavy-duty vehicle GHG emission reduction (aerodynamic efficiency)
- Reduction of perfluorocarbons from semiconductor manufacturing
- Improved landfill gas capture, reduction of hydroflourocarbon-134a from do-it-yourself motor vehicle servicing
- Sulfur hexafluoride reductions from the non-electric sector, a tire inflation program, and a low-carbon fuel standard

Executive Order B-30-15 and Senate Bill 32/Assembly Bill 197

In 2015, EO B-30-15 established the following new interim GHG emission reduction target:

- By 2030, California shall reduce GHG emissions to 40 percent below 1990 levels.
- All state agencies with jurisdiction over sources of GHG emissions shall implement measures to achieve reductions of GHG emissions to meet the 2030 and 2050 reduction targets.
- CARB shall update the Climate Change Scoping Plan to express the 2030 target in terms of $MMTCO_2e$.

Senate Bill (SB) 32 and its companion bill, AB 197, were passed in 2016. SB 32 expanded upon AB 32, amending HSC Division 25.5 to codify the GHG emissions target in EO B-30-15 of 40 percent below 1990

levels by 2030. AB 197 provides the legislature greater authority over CARB and requires CARB to provide a GHG emissions inventory report at least once a year.

Climate Change Scoping Plan

In December 2008, CARB approved the AB 32 Scoping Plan outlining the state's strategy to achieve the 2020 GHG emissions limit. The Scoping Plan estimated a reduction of 174 $MMTCO_2e$ (about 191 million U.S. tons) from the transportation, energy, agriculture, forestry, and high climate-change-potential sectors, and proposed a comprehensive set of actions designed to reduce overall GHG emissions in California, improve the environment, reduce dependence on oil, diversify California's energy sources, save energy, create new jobs, and enhance public health. The Scoping Plan must be updated every 5 years to evaluate the implementation of AB 32 policies to ensure that California is on track to achieve the 2020 GHG reduction goal. The First Update to the Climate Change Scoping Plan was approved by CARB on May 22, 2014. In 2016, the legislature passed SB 32, which codified a 2030 GHG emissions reduction target of 40 percent below 1990 levels. With SB 32, the legislature passed companion legislation AB 197, which provided additional direction for developing the Scoping Plan. On December 14, 2017, the CARB approved the Second Update to the Climate Change Scoping Plan, the 2017 Climate Change Scoping Plan: The Strategy for Achieving California's 2030 Greenhouse Gas Target.

In the 2017 Scoping Plan, CARB estimated the projected statewide 2030 emissions for the Reference Scenario (under business-as-usual conditions [i.e., emissions that would occur without any plans, policies, or regulations to reduce GHG emissions]) to be 389 $MMTCO_2e$. HSC Division 25.5 set the emissions target of 260 $MMTCO_2e$. Based on this, the Reference Scenario is expected to exceed the 2030 target by 129 $MMTCO_2e$.

Renewables Portfolio Standard

In 2002, a state law established the basic policy framework for the increased use of renewable energy resources in California, known as the Renewables Portfolio Standard (RPS). Specific requirements were established for investor-owned utilities, including a 20 percent target and provisions for the types of renewable resources that could be used to meet the target. The major eligible renewable energy resources, as defined by CEC, include biomass, geothermal, solar, wind, and small hydroelectric facilities. Under the law, publicly owned utilities (POUs) were directed to pursue voluntary actions to increase the use of renewable energy in their portfolios but were allowed the flexibility to define their targets and the types of resources that could meet those targets. CEC and CPUC work collaboratively to implement the RPS.

In 2006, new state policy heightened the need to increase the use of renewable energy as part of the state's GHG reduction efforts. In April 2011, Governor Brown signed SB X1-2, which revised the RPS target to be 33 percent renewables by 2020. The new RPS standards apply to all electricity retailers in the state, including POUs, investor-owned utilities, electricity service providers, and community choice aggregators. In October 2015, Governor Brown signed SB 350, which expanded and increased the target of the RPS program to 50 percent by the end of 2030. SBs X1-2 and 350 included new enforcement provisions and directed CARB to collect financial penalties for any Notice of Violation issued by CEC to a POU for its failure to comply with requirements of the state's RPS Program. Lastly, in 2018, SB 100 was

signed into law, which again increased the RPS program to 60 percent by 2030 and requires all of the state's electricity to come from carbon-free resources by 2045.

Senate Bill 375

SB 375 passed the Senate on August 30, 2008, and was signed by the Governor on September 30, 2008. According to SB 375, the transportation sector is the largest contributor of GHG emissions, contributing more than 40 percent of the GHG emissions in California, with automobiles and light trucks alone contributing almost 30 percent. SB 375 indicated that GHGs from automobiles and light trucks can be reduced by new vehicle technology. However, significant reductions from changed land use patterns and improved transportation policy were also necessary. SB 375 stated, "Without improved land use and transportation policy, California will not be able to achieve the goals of AB 32." SB 375 did the following: 1) required metropolitan planning organizations to include sustainable community strategies in their regional transportation plans for reducing GHG emissions; 2) aligned planning for transportation and housing; and 3) specified incentives for the implementation of the strategies.

Executive Order B-30-15

On April 29, 2015, the Governor issued EO B-30-15, which added an interim target of GHG emissions reductions to help ensure that the state meets its 80 percent reduction by 2050 as set in EO S-3-05. The interim target is reducing GHG emissions by 40 percent by 2030. It also directed state agencies to update the Scoping Plan, update the Adaptation Strategy every 3 years, and take climate change into account in their planning and investment strategies. Additionally, it required that the state's Five-Year Infrastructure Plan take current and future climate change impacts into account in all infrastructure projects.

Executive Order B-18-12

EO-B-18-12 calls for significant reductions in state agencies' energy purchases and GHG emissions. The EO included a Green Building Action Plan, which provided additional details and specific requirements for implementation of the EO.

Airborne Toxic Control Measure

In 2004, CARB initially approved an ATCM to implement idling restrictions of diesel-fueled commercial motor vehicles operating in California (13 CCR, Section 2485) (CARB 2005). The ATCM applies to diesel-fueled commercial vehicles with a gross vehicle weight rating greater than 10,000 pounds. The ATCM would limit idling times of these vehicle's primary engine to no more than 5 minutes. Although the ATCM's intent was to reduce DPM, this measure would also reduce GHG emissions.

5.8.2.3 Local

The project spans multiple counties and multiple local air quality districts. MCAPCD has jurisdiction over Modoc County, LCAPCD has jurisdiction over Lassen County, and NSAQMD has jurisdiction over Sierra County. Currently, these air quality districts have not established GHG emissions thresholds for emissions generated from construction or operations of development projects or guidance on evaluating GHG impacts. To evaluate impacts of GHG emissions, project emissions would be compared to the GHG

threshold established by the nearby PCAPCD~~PCAPCD~~. PCAPCD updated their thresholds to reflect post-2020-time-frames to contribute to GHG emissions reduction goals set by AB 32, SB 32, the Scoping Plan, and Executive Orders. Since construction activities would be similar across geographies, PCAPCD's annual GHG threshold is 10,000 metric tons of carbon dioxide equivalent per year ($MTCO_2e$/yr) was used for the project (PCAPCD 2016).

5.8.3 Impact Questions

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	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?	☐	☐	☒	☐

5.8.4 Impact Analysis

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less Than Significant Impact. Emissions of GHGs associated with the construction of the project were calculated for the duration of construction activities. Construction of the project would result in temporary increases in GHG emissions associated with the use of off-road diesel equipment and vehicle trips. GHG emissions were estimated using CalEEMod Version 2016.3.2 and CARB's most recent version of its EMission FACtor model, EMFAC2017. Details of the GHG emissions modeling are provided in Appendix B.

Because impacts from construction activities would be brief, they contribute a relatively small portion of the overall lifetime project GHG emissions. In addition, there are few effective options for reducing GHG emissions from construction equipment. Therefore, a standard practice is to amortize construction emissions over the anticipated lifetime of a project, so that GHG reduction measures would address construction GHG emissions as part of the operational GHG reduction strategies. In the case of the project, there is no anticipated increase in operational activities, as such, there is no increase in operational GHG emissions. Nonetheless, GHG construction emissions are amortized to evaluate the lifetime impact of the project. The project's GHG emissions are shown in Table 5.8-1.

Table 5.8-1: Project Annual Construction GHG Emissions

Source	$MTCO_2e$/year
Off-road Equipment	1,457.31
Mobile	~~350.31~~658.52
Project Total	**~~1,807.62~~2,115.83**
30-Year Amortization	**~~60.25~~70.53**
PCAPCD Threshold	10,000
Exceeds Threshold?	**No**

Source: PCAPCD 2016

The project's GHG emissions would not exceed the PCAPCD's threshold as shown in Table 5.8-1. Operations of the project would have no impact. The project's GHG emissions would be below the PCAPCD's thresholds; therefore, the project would have a less than significant impact. Implementation of APM GHG-1 would further minimize GHG emissions from construction by implementing best management practices wherever possible.

b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?

As a statewide plan, California's 2017 Climate Change Scoping Plan adopted by CARB on December 14, 2017, would be applicable to the project. The 2017 Climate Change Scoping Plan Update addressed SB 32 to achieve a 40 percent below 1990 statewide GHG emissions limit no later than 2030.

Many of the measures included in the 2017 Scoping Plan are implemented on a statewide level and do not specifically apply to the project. However, by using cleaner construction equipment, the project would participate in generating fewer short-lived climate pollutants consistent with the state's Short-Lived Climate Pollutant Reduction Strategy for black carbon. The construction worker and haul fleet would also be subject to cleaner fuels as regulations are implemented at the statewide level. The project would not be inconsistent with any of the state's strategies included in the 2017 Scoping Plan, and as such, would not conflict with this plan.

The project would comply with CARB's ATCM, which would reduce excessive GHG emissions from heavy duty truck idling during construction and equipment would be properly maintained according to the manufacturer's specifications to ensure efficient engine performance. Overall, the project would not conflict with any applicable plans, policies, or regulations adopted for the purpose of reducing GHG emissions; therefore, impacts would be less than significant.

5.8.5 Draft Environmental Measures

APM GHG-1: ~~Greenhouse Gas Emissions~~ Greenhouse Gas Emissions Reduction During Construction

The following measures shall be implemented as a best management practices to minimize greenhouse gas emissions from all construction sites wherever possible:~~:~~

- If suitable park-and-ride facilities are available in the project vicinity, construction workers shall be encouraged to carpool to the job site.
- The applicant shall develop a carpool program to the job site, if feasible.
- On-road and off-road vehicle tire pressures shall be maintained to manufacturers' specifications.
- Tires shall be checked and re-inflated at regular intervals.
- Demolition debris shall be recycled for reuse to the extent feasible.
- The contractor shall use line power instead of diesel generators at all construction sites where line power is available.
- The contractor shall maintain construction equipment per manufacturing specifications.

~~There are no applicable environmental measures for GHG emissions.~~

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