

5.8 Greenhouse Gases

5.8.1 Environmental Setting

According to the U.S. Environmental Protection Agency (EPA), climate change refers to any significant change in measures of climate (such as temperature, precipitation, or wind) lasting for an extended period—decades or longer (EPA 2017). The term is often used interchangeably with the term “global warming.” Climate change, or global warming, represents an average increase in the temperature of the atmosphere near the Earth’s surface, which can contribute to changes in global climate patterns. Changes in climate may cause a variety of consequences, such as increased flooding in coastal areas, multi-year droughts, and heat waves. Climate change has been attributed to a variety of causes, including natural and human activities (EPA 2017). Climate change is expected to affect water supplies, agriculture, power and transportation systems, the natural environment, and health and safety (EPA 2017).

Constituent gases that trap heat in the earth’s atmosphere are called greenhouse gases (GHGs), analogous to the way a greenhouse retains heat. Anthropogenic emissions of these GHGs in excess of natural ambient concentrations are responsible for the augmentation of the “greenhouse effect” and have led to a trend of unnatural warming of the earth’s natural climate known as global warming. The standard definition of GHGs include six substances identified in the Kyoto Protocol: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆).

State and Local Greenhouse Gas Emissions

The Shasta Regional Climate Action Plan (CAP) was developed in 2012 and comprises a collection of individual climate action plan for the cities of Anderson, Redding, and Shasta Lake, and unincorporated areas of Shasta County. The CAP is consistent with Assembly Bill (AB) 32 and sets the County on a path to achieve a more substantial long-term reduction in the post-2020 period; see section 5.8.2, “Regulatory Setting,” below.

California’s total GHG emissions have followed a declining trend since 2007. In 2015, statewide emissions were reported as approximately 440.4 million metric tons of carbon dioxide equivalents (MTCO₂e) (CARB 2017a). From 2000 to 2015, GHG emissions in the state decreased by approximately 19 percent; the peak year for annual emissions was 2001 (CARB 2017b).

According to recent data reported by the California Air Resources Board (CARB), the transportation sector was the state’s largest contributor to emissions in 2015, accounting for approximately 37 percent of total emissions in California. On-road vehicles account for approximately 89 percent of transportation sector emissions. The second largest contributor to total emissions is the industrial sector, generating approximately 21 percent of total emissions. Emissions from electricity generation make up 19 percent of total emissions. (CARB 2017b)

In 2008, the unincorporated communities in Shasta County reported total baseline emissions of 3,131 million MTCO₂e. Stationary and transportation were the predominant GHG sources in these communities, representing 81 percent of the total emission. Other sources of GHG in unincorporated Shasta County included energy consumption (7 percent), forestry (5 percent), and agriculture (4 percent). The off-road vehicle/recreation, solid waste, and water (including water and wastewater) sectors make up the remaining 4 percent of the emissions inventory (Shasta County 2012).

5.8.2 Regulatory Setting

Federal

In response to the Supreme Court’s *Massachusetts v EPA* decision in December 2009, the EPA issued two findings regarding GHGs under Section 202(a) of the Clean Air Act:

- The Endangerment Finding states that the current and projected concentrations of the six key GHGs (CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆) in the atmosphere threaten public health and welfare.
- The Cause or Contribute Finding states that the combined emissions of GHGs from new motor vehicles and new motor vehicle engines contribute to GHG pollution.

These findings were a foundation for the EPA’s regulation of vehicle GHG emissions. The EPA and the U.S. Department of Transportation’s National Highway Traffic and Safety Administration (NHTSA) jointly developed GHG emission reduction regulations for light-duty vehicles and heavy-duty engines. The standards are projected to cut 6 billion metric tons of GHG over the lifetime of new vehicles sold between 2012 and 2025 (EPA 2016).

State

Assembly Bill 1493. In 2002, the California legislature adopted regulations to reduce GHG emissions in the transportation sector. In September 2004, pursuant to AB 1493, CARB approved regulations to reduce GHG emissions from new motor vehicles, beginning with the 2009 model year. In September 2009, CARB adopted amendments to AB 1493 regulations to reduce GHG in new passenger vehicles from 2009 to 2016. CARB, the EPA, and the NHTSA have coordinated efforts to develop fuel economy and GHG standards for model 2022-2025 vehicles. The GHG standards are incorporated into the Low Emission Vehicle Regulations (LEV III).

Executive Order S-3-05. Executive Order (EO) S-3-05, issued in 2005, established statewide GHG emission reduction targets of 2000 levels by 2010, 1990 levels by 2020, and 80 percent below 1990 levels by 2050. This EO recognized the state’s susceptibility to climate change impacts.

Assembly Bill 32 and Assembly Bill 32 Scoping Plan. In 2006, the Global Warming Solutions Act, AB 32, was enacted, requiring a reduction of the state’s GHG emissions to 1990 levels by 2020, consistent with EO S-3-05.

AB 32 requires CARB to prepare and approve a scoping plan, known as the Climate Change Scoping Plan, to achieve the maximum technologically feasible and cost-effective reductions in GHG emissions from sources or categories of sources of GHGs by 2020. The initial Climate Change Scoping Plan was approved in December 2008, and CARB approved the plan’s first update in May 2014 (CARB 2018). Measures in the Climate Change Scoping Plan are being adopted over time as regulations. The plan includes a range of GHG emission reduction actions, including direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms such as a cap-and-trade system.

GHG reduction measures presented in the Climate Change Scoping Plan that are applicable to the proposed project include the Low Carbon Fuel Standard, regional transportation-related GHG targets, light-duty vehicle GHG standards, medium/heavy-duty vehicle GHG standards, vehicle efficiency measures, goods movement, energy efficiency, high global warming potential (GWP) gases, and recycling and waste. The California legislature has also passed legislation implementing most of the

1 Climate Change Scoping Plan’s measures. Legislation applicable to the proposed projects is described
2 below.

3
4 **Executive Order S-01-07 – Low Carbon Fuel Standard.** In January 2007, the governor set a new
5 standard for transportation fuels sold in California, which set a reduction of at least 10 percent in the
6 carbon intensity of transportation fuels by 2015.

7
8 **Senate Bill 375 – Sustainable Communities Strategy.** In 2008, Senate Bill (SB) 375 was adopted to
9 achieve the GHG reduction targets established in the Climate Change Scoping Plan for the transportation
10 sector through local land use decisions that affect travel behavior. In relevant part, SB 375 requires CARB
11 to set regional targets for GHG emission reductions from passenger vehicles and light duty trucks.

12
13 **Other Mobile Source Reduction Requirements.** Several other state provisions address the GHG
14 emissions reduction targets set by CARB for mobile sources. The following measures are applicable to
15 the proposed project:

- 16
17 • **Advanced Clean Cars Program:** adopted in 2012; a set of regulations (LEV III, Zero Emissions
18 Vehicle regulation, and Clean Fuels Outlet) that would apply to new vehicles with model years
19 between 2017 and 2025, with a goal of GHG emission reduction of 34 percent in 2025 (CARB
20 2012).
- 21 • **Heavy-Duty Vehicle GHG Emission Reduction Regulations:** regulations that apply to new heavy
22 duty tractors and trailers to reduce GHG emissions through installation fuel efficient tires and
23 aerodynamic devices on trailers (CARB 2008).
- 24 • **On-Road Heavy Duty Diesel Vehicle Regulations:** requires diesel trucks and buses to be
25 upgraded to reduce GHG emissions under a phased implementation that would have almost all
26 buses and trucks with 2010 engines by January 1, 2023 (CARB 2016).

27
28 **Executive Order B-30-15.** Governor Jerry Brown Jr. signed EO B-30-15 on April 29, 2015, which
29 established an interim statewide GHG reduction target of 40 percent below 1990 levels by 2030,
30 necessary to guide regulatory policy and investments in California in the mid-term and put the state on the
31 most cost-effective path for long-term emission reductions. Under this order, all state agencies with
32 jurisdiction over sources of GHG emissions must continue to develop and implement emissions reduction
33 programs to reach the state’s 2050 target and attain a level of emissions necessary to avoid the most
34 dangerous outcomes of climate change. According to the Governor’s Office, this order is in line with the
35 scientifically established levels needed in the United States to limit global warming below 2 degrees
36 Celsius—the warming threshold at which scientists say there would likely be major climate disruptions
37 such as super droughts and rising sea levels (Office of Governor Edmund G. Brown, Jr. 2015).

38
39 **Senate Bill 32 and Assembly Bill 197.** In 2016, the California Legislature enacted SB 32, requiring a
40 reduction of the state’s GHG emissions to at least 40 percent below 1990 levels by 2030, consistent with
41 EO B-30-15. The legislature also passed AB 197, a companion bill to SB 32, which provides additional
42 direction for development of scoping plans. CARB is currently in the process of updating the Climate
43 Change Scoping Plan to reflect the new targets for 2030 (CARB 2017a).

1 **Local**

2 The CAP was developed in 2012 and, as noted above, comprises a collection of individual climate action
3 plans for the cities of Anderson, Redding, and Shasta Lake, and unincorporated areas of Shasta County.
4 The CAP documents the county’s commitment to the state’s GHG reduction efforts. It summarizes
5 jurisdictional GHG inventories and describes how each jurisdiction would achieve GHG reductions
6 through local actions that contribute to the statewide GHG emissions reduction target defined in AB 32. A
7 2008 baseline for GHG emissions was used by each jurisdiction, and forecasts were made for 2020, 2035,
8 and 2050 for each jurisdiction, with the exception of Redding, which focused on 2020. Emission
9 reduction goals were 15 percent below 2008 levels by 2020; 49 percent below 2008 levels by 2035; and
10 83 percent by 2050. The CAP proposes a number of measures for existing and new residential and
11 commercial projects that would help the county reach its GHG goals. None of the measures are applicable
12 to the proposed project, and the plan does not provide specific thresholds for significance for individual
13 source contributors to total GHGs (Shasta County 2012).

15 **5.8.3 Environmental Impacts and Mitigation Measures**

17 The impact analysis below identifies and describes the proposed project’s potential impacts on GHGs
18 within the proposed project area. Potential impacts were evaluated according to significance criteria based
19 on the checklist items presented in Appendix G of the CEQA Guidelines and listed at the start of each
20 impact analysis section below. Both the construction and maintenance/operations phases were considered;
21 however, because the construction phase could result in physical changes to the environment, analysis of
22 construction phase effects warranted a detailed evaluation. GHG impacts anticipated to occur from the
23 proposed project’s operational characteristics would be negligible and emissions from this phase would
24 be from occasional truck trips for maintenance, connecting or disconnecting customers, and inspecting or
25 potentially repairing equipment.

27 **Applicant Proposed Measures**

28 The applicant has not incorporated APMs to specifically minimize or avoid impacts on GHGs. A list of
29 all project APMs is included in Table 4-2 in Chapter 4.

31 **Significance Criteria**

32 Table 5.8-1 describes the significance criteria from Appendix G of the CEQA Guidelines’ GHG section
33 which the CPUC used to evaluate the environmental impacts of the proposed project.

34 Table 5.8-1 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

35

1 **a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact**
2 **on the environment?**

3
4 In the absence of a rulemaking by CARB to establish a statewide GHG emission significance threshold,
5 the CPUC assesses the impacts of GHG emissions on a case-by-case basis. The Shasta County AQMD
6 has not adopted any performance-based standards to assess significance as required by CEQA. In areas of
7 California where the local air pollution control district has not adopted a threshold of significance, as is
8 the case with the Shasta County AQMD, the CPUC typically applies a significance threshold from
9 another district. For the purposes of this analysis, the South Coast Air Quality Management District
10 (SCQAMD) interim significance threshold for stationary sources was selected as a reference value for
11 impact assessment under this criterion. The SCQAMD approach establishes a significance threshold of
12 10,000 MTCO₂e per year for the construction emissions amortized over a 30-year project lifetime, plus
13 annual operation emissions (SCAQMD 2008).

14
15 During construction of the proposed project, GHGs (primarily CO₂) would be emitted from engine
16 exhaust of diesel- and gasoline-fueled construction equipment and on-road vehicles (e.g., delivery trucks,
17 light-duty vehicles, off-road construction equipment, heavy-duty diesel vehicles, and worker vehicles).

18
19 In total, construction activities associated with the proposed project would generate approximately 75
20 MTCO₂e of emissions, as shown in Table 5.8-2. Amortized over 30 years, this would be equivalent to 3
21 MTCO₂e per year. Therefore, the impact is less than significant. Detailed emissions calculations and
22 assumptions are presented in Appendix C.

23 **Table 5.8-2 Estimated Construction Unmitigated Greenhouse Gas Emissions**

Greenhouse Gas Equivalent Emissions	Total Project (MTCO ₂ e)
Carbon dioxide (CO ₂)	75
Methane (CH ₄)	< 1
Total	75
Amortized construction emissions (30-year period)	3

Key:
MTCO₂e metric tons of carbon dioxide equivalents

24
25 **Significance: Less than significant.**

26
27 **b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the**
28 **emissions of greenhouse gases?**

29
30 The proposed project's GHG emissions would not exceed regional or quantitative thresholds developed to
31 comply with AB 32 and California Climate Change Scoping Plan statewide reduction targets; therefore,
32 the proposed project would not conflict with an applicable plan, policy, or regulation adopted for the
33 purpose of reducing GHG emissions. Project construction and operation would result in emissions
34 covered by several relevant plans, policies, and regulations. Table 5.8-3 contains an analysis of
35 consistency with those plans, policies, and regulations.

Table 5.8-3 Project Consistency with Plans, Policies, and Regulations

Plan, Policy, or Regulation	Consistency Analysis
Federal vehicle emissions standards	The proposed project would utilize vehicles during construction that would be subject to federal vehicle regulations and would therefore comply with federal vehicle emissions standards. The proposed project would not conflict with vehicle emission standards.
AB 32 and Scoping Plan	The proposed project would be subject to and comply with policies and measures in the AB 32 Scoping Plan that have been and will be implemented as regulations. The Scoping Plan sets forth GHG reduction measures such as the Low Carbon Fuel Standard, light and heavy-duty GHG standards, energy efficiency, and recycling and waste reduction. The proposed project would comply with all of the fuel and vehicle standards and would dispose of and recycle all project-related waste in the appropriate manner, as required by law. The proposed project's GHG emissions would not exceed regional quantitative thresholds developed to comply with AB 32 and the California Climate Change Scoping Plan statewide reduction target. The proposed project would therefore not conflict with AB 32.
Executive Order S-3-05	This EO established statewide GHG emission reduction targets of 2000 levels by 2010, 1990 levels by 2020, and 80 percent below 1990 levels by 2050. The proposed project would not substantially increase GHG emissions in the proposed project area during construction. GHG emissions from the proposed project would not exceed regional quantitative thresholds developed to comply with AB 32 and the California Climate Change Scoping Plan statewide reduction target. The proposed project would therefore not conflict with EO S-3-05
AB 1493	The proposed project would use construction vehicles that comply with state vehicle emissions standards. The proposed project would not conflict with AB 1493.
Executive Order S-01-07—Low Carbon Fuel Standard	Fuels purchased for the proposed project would comply with the Low Carbon Fuel Standard. The proposed project would not conflict with the low carbon fuel standard.
California Renewable Energy Programs	In 2002, California initially established its Renewables Portfolio Standard, to increase the percentage of renewable energy in the state's electricity mix to 20 percent by 2017. State energy agencies recommended accelerating that goal, and California EO S-14-08 (November 2008) required California utilities to reach the 33 percent renewable electricity goal by 2020, consistent with the AB 32 Scoping Plan. SB X1-2 expressly applies the new 33 percent Renewables Portfolio Standard by December 31, 2020, to all retail sellers of electricity and establishes renewable energy standards for interim years prior to 2020. The proposed project would not involve a decrease or increase in renewable energy generation or aim to specifically increase import of renewable energy. Therefore, it would not conflict with the California Renewable Energy Programs.
Executive Order B-30-15	EO B-30-15 establishes a new interim statewide GHG emission reduction target of 40 percent below 1990 levels by 2030. The interim GHG reduction target was established to ensure that California meets its goal of reducing GHG emissions to 80 percent below 1990 levels by 2050. Executive Order B-30-15 requires state agencies to consider climate change in their planning and investment decisions, giving priority to actions that reduce GHG emissions. The proposed project would not significantly increase GHG emissions in the proposed project area during construction and during operations and maintenance, as previously discussed. The proposed project would therefore not conflict with EO B-30-15.
Advanced Clean Cars Program	Vehicles with a model year from 2017 to 2025 purchased for use for the proposed project would comply with regulations in the Advanced Clean Cars Program. The proposed project would not conflict with the Advanced Clean Cars Program.
Heavy-Duty Truck GHG Regulations	Certain vehicles used for the proposed project would be subject to heavy-duty truck and trailer regulations. Heavy duty trucks and trailers that comply with state regulations would be used. The proposed project would therefore not conflict with heavy-duty truck GHG regulations.

Table 5.8-3 Project Consistency with Plans, Policies, and Regulations

Plan, Policy, or Regulation	Consistency Analysis
On-Road Heavy Duty Diesel Vehicle Regulations	Certain vehicles used for the proposed project would be subject to heavy-duty truck and trailer regulations. Heavy duty trucks and trailers that comply with state regulations would be used. The proposed project would therefore not conflict with on-road heavy-duty diesel vehicle regulations.

Key:

AB Assembly Bill
 EO Executive Order
 GHG greenhouse gas
 proposed project Olinda Last Mile Underserved Broadband Project
 SB Senate Bill

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Significance: Less than significant.

Mitigation Measures

Because all GHG impacts related to the proposed project would be less than significant, no mitigation measures are required.

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