

3.8 Global Climate Change

This section analyzes the potential global climate change impacts resulting from the proposed Project's greenhouse gas (GHG) emissions. This analysis discusses the scientific and regulatory developments surrounding global climate change, and provides a quantitative inventory of the GHG emissions that would result from Project implementation. The analysis presented in this section is based on the "Global Climate Change Evaluation for the Otay Ranch Resort Village Specific Plan" (GCC Report, SRA, February 2015), as included in **Appendix C-2** to this EIR.

The Otay Ranch PEIR, certified in 1993, provided a program-level analysis of the existing conditions and potential impacts related to air quality for the entire Otay Ranch area, including the Project site. Although the PEIR did not expressly address impacts on global climate change or increases in GHG emissions, in response to identified significant impacts in other environmental resource areas, the County adopted numerous mitigation measures that not only reduce the identified significant impacts in those resource areas, but also result in co-benefits in the area of global climate change by reducing the amount of GHG emissions that would be generated by the proposed Project (see **Appendix C-2** to this EIR).

3.8.1 Existing Conditions

3.8.1.1 *Global Climate Change*

Global climate change refers to changes in average climatic conditions on the Earth as a whole, including temperature, wind patterns, precipitation, and storms. Global climate change may result from natural factors, natural processes, and/or human activities that change the composition of the atmosphere and alter the surface and features of land. Human-caused emissions of GHGs in excess of natural ambient concentrations are responsible for intensifying the greenhouse effect²³ and have led to a trend of unnatural warming of Earth's climate, known as global climate change or global warming.

California law defines GHGs as any of the following compounds: carbon dioxide (CO₂), methane (CH₄), nitrous oxides (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride (SF₆) (Health & Safety Code, §38505(g)). CO₂, followed by CH₄ and N₂O, are the most common GHGs that result from human activity.

Climate change is a global problem. And GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (about 1 day), GHGs have much longer atmospheric lifetimes of 1 year to several thousand years that allow them to be dispersed around the globe. Although the exact lifetime of any particular GHG molecule is dependent on multiple variables and cannot be pinpointed, it is understood by scientists who study atmospheric chemistry that more CO₂ is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, and other forms of sequestration.

²³ GHGs allow solar radiation (sunlight) into the Earth's atmosphere, but prevent radiative heat from escaping, thus warming the Earth's atmosphere.

Global Warming Potentials and Sources of GHGs

The California Air Resources Board (ARB) annually prepares a GHG inventory that identifies and quantifies statewide anthropogenic GHG emissions and sinks. The current inventory covers the years 1990 to 2012, and is summarized in **Table 3.8-1**, State of California GHG Emissions by Sector. The inventory is divided into seven broad sectors and categories: Agriculture, Commercial, Electricity Generation, Forestry, Industrial, Residential, and Transportation.

GHGs have varying global warming potentials (GWP) (i.e., the potential of a gas or aerosol to trap heat in the atmosphere). The reference gas for GWP is CO₂; therefore, CO₂ has a GWP of 1. The other main GHGs that have been attributed to human activity include CH₄, which has a GWP of 21, and N₂O, which has a GWP of 310. When accounting for GHGs, emissions are expressed in terms of CO₂ equivalents (CO₂e), are typically quantified in metric tons (MT) or millions of metric tons (MMT), and are shown as MMTCO₂e.

Human-caused sources of CO₂ include combustion of fossil fuels (coal, oil, natural gas, gasoline, and wood). CH₄ is the main component of natural gas and also arises naturally from anaerobic decay of organic matter. Human-caused sources of natural gas include landfills, fermentation of manure, and cattle farming. Human-caused sources of N₂O include combustion of fossil fuels and industrial processes such as nylon production and production of nitric acid. Other GHGs are present in trace amounts in the atmosphere and are generated from various industrial or other uses.

3.8.1.2 Regulatory Setting

Federal Action

Clean Air Act

In *Massachusetts v. Environmental Protection Agency* (2007) 549 U.S. 497, the U.S. Supreme Court held that the U.S. Environmental Protection Agency (USEPA) has authority under the Clean Air Act to regulate CO₂ emissions if those emissions pose an endangerment to the public health or welfare.

In 2009, the USEPA issued an “endangerment finding” under the Clean Air Act, concluding that GHGs threaten the public health and welfare of current and future generations and that motor vehicles contribute to GHG emissions. These findings provide the basis for adopting national regulations to mandate GHG emission reductions under the Clean Air Act.

To date, the USEPA has exercised its authority to regulate mobile sources that reduce GHG emissions via the control of vehicle manufacturers, as discussed immediately below.

Federal Vehicle Standards

In response to the U.S. Supreme Court ruling discussed above, the Bush Administration issued Executive Order 13432 in 2007 directing the USEPA, the Department of Transportation

(DOT), and the Department of Energy (DOE) to establish regulations that reduce GHG emissions from motor vehicles, non-road vehicles, and non-road engines by 2008. In 2009, the National Highway Traffic Safety Administration (NHTSA) issued a final rule regulating fuel efficiency and GHG emissions from cars and light-duty trucks for model year 2011; and, in 2010, the USEPA and NHTSA issued a final rule regulating cars and light-duty trucks for model years 2012–2016.

In 2010, President Obama issued a memorandum directing the DOT, DOE, USEPA and NHTSA to establish additional standards regarding fuel efficiency and GHG reduction, clean fuels, and advanced vehicle infrastructure. In response to this directive, the USEPA and NHTSA proposed stringent, coordinated federal GHG and fuel economy standards for model years 2017–2025 light-duty vehicles. The proposed standards projected to achieve 163 grams/mile of CO₂ in model year 2025, on an average industry fleet-wide basis, which is equivalent to 54.5 miles per gallon (mpg) if this level were achieved solely through fuel efficiency. The final rule was adopted in 2012 for model years 2017–2021, and NHTSA intends to set standards for model years 2022–2025 in a future rulemaking.

In addition to the regulations applicable to cars and light-duty trucks described above, in 2011, the USEPA and NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks for model years 2014–2018. The standards for CO₂ emissions and fuel consumption are tailored to three main vehicle categories: combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles. According to the USEPA, this regulatory program will reduce GHG emissions and fuel consumption for the affected vehicles by 9 to 23 percent over the 2010 baselines.²⁴

Energy Independence and Security Act

The Energy Independence and Security Act of 2007 facilitates the reduction of national GHG emissions by requiring the following:

- Increasing the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard (RFS) that requires fuel producers to use at least 36 billion gallons of biofuel in 2022;
- Prescribing or revising standards affecting regional efficiency for heating and cooling products, procedures for new or amended standards, energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances;

²⁴ See USEPA, *EPA and NHTSA Adopt First-Ever Program to Reduce Greenhouse Gas Emissions and Improve Fuel Efficiency of Medium- and Heavy Duty Vehicles*, EPA-420-F-11-031 (August 2011). Note that the emission reductions attributable to the regulations for medium- and heavy-duty trucks were not included in the Project's emissions inventory due to the difficulty in quantifying the reductions. Excluding these reductions results in a more conservative (i.e., higher) estimate of emissions for the Project.

- Requiring approximately 25 percent greater efficiency for light bulbs by phasing out incandescent light bulbs between 2012 and 2014; requiring approximately 200 percent greater efficiency for light bulbs, or similar energy savings, by 2020; and
- While superseded by the USEPA and NHTSA actions described above, (i) establishing miles per gallon targets for cars and light trucks and (ii) directing the NHTSA to establish a fuel economy program for medium- and heavy-duty trucks and to create a separate fuel economy standard for trucks.

Additional provisions of this Act address energy savings in government and public institutions, promote research for alternative energy, additional research in carbon capture, international energy programs, and the creation of “green jobs.”

State Action

Executive Order S-3-05

In 2005, former Governor Schwarzenegger signed Executive Order S-3-05, which established the following GHG emission reduction goals for California: (1) by 2010, reduce GHG emissions to 2000 levels; (2) by 2020, reduce GHG emissions to 1990 levels; and (3) by 2050, reduce GHG emissions to 80 percent below 1990 levels. However, in adopting the 2006 Global Warming Solutions Act (AB 32), discussed below, the Legislature did not adopt the 2050 horizon-year goal from Executive Order No. S-3-05; and, in the last legislative session, the Legislature rejected legislation to enact the Executive Order’s 2050 goal.²⁵

Assembly Bill 32

Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006, was enacted after considerable study and expert testimony before the Legislature. The heart of AB 32 is the requirement that statewide GHG emissions be reduced to 1990 levels by 2020 (Health & Safety Code, §38550). In order to achieve this reduction mandate, AB 32 requires the ARB to adopt rules and regulations in an open public process that achieve the maximum technologically feasible and cost-effective GHG reductions.

In response to the adoption of AB 32, in 2007, the ARB approved a statewide limit on the GHG emissions level for year 2020 consistent with the determined 1990 baseline. The ARB’s adoption of this limit is in accordance with Health & Safety Code section 38550.

Further, in 2008, the ARB adopted the *Climate Change Scoping Plan: A Framework for Change (Scoping Plan)* in accordance with Health & Safety Code section 38561. The *Scoping Plan* establishes an overall framework for the measures that will be adopted to reduce California’s GHG emissions for various emission sources/sectors to 1990 levels by 2020.

²⁵ See *Cleveland National Forest Foundation v. San Diego Association of Governments*(2014) 231 Cal.App.4th 1056, 1096; *Professional Engineers in California Government v. Schwarzenegger* (2010) 50 Cal.4th 989, 1015; and see Office of Planning and Research, *Guide to the California State Executive Branch* (Oct. 2004), p. 8.

In the *Scoping Plan*, the ARB determined that achieving the 1990 emissions level in 2020 would require a reduction in GHG emissions of approximately 28.5 percent from the otherwise projected 2020 emissions level; i.e., those emissions that would occur in 2020, absent GHG-reducing laws and regulations (referred to as “Business-As-Usual” [BAU] or “No Action Taken” [NAT]).²⁶ For example, in further explaining the ARB’s BAU methodology, the ARB assumed that all new electricity generation would be supplied by natural gas plants, no further regulatory action would impact vehicle fuel efficiency, and California’s building energy efficiency codes (Title 24) would be held at the 2005 Title 24 standards.

In the 2011 Final Supplement to the *Scoping Plan’s* Functional Equivalent Document, the ARB revised its estimates of the projected 2020 emissions level in light of the economic recession and the availability of updated information about GHG reduction regulations. Based on the new economic data, the ARB determined that achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of 21.7 percent (down from 28.5 percent) from the BAU conditions. The 2020 emissions level projection was also updated to account for newly implemented regulatory measures, including Pavley I (model years 2009–2016) and the Renewable Portfolio Standard (12 percent to 20 percent), resulting in the ARB’s determination that achieving the 1990 emissions level in 2020 would require a reduction in GHG emissions of 16 percent (down from 28.5 percent) from the BAU conditions.

Most recently, in 2014, the ARB adopted the *First Update to the Climate Change Scoping Plan: Building on the Framework (First Update)*.²⁷ The stated purpose of the *First Update* is to “highlight California’s success to date in reducing its GHG emissions and lay the foundation for establishing a broad framework for continued emission reductions beyond 2020, on the path to 80 percent below 1990 levels by 2050.”²⁸ The *First Update* found that California is on track to meet the 2020 emissions reduction mandate established by AB 32. The *First Update* also noted that California could reduce emissions further by 2030 to levels squarely in line with those needed to stay on track to reduce emissions to 80 percent below 1990 levels by 2050 if the State realizes the expected benefits of existing policy goals.²⁹

In conjunction with the *First Update*, the ARB identified “six key focus areas comprising major components of the State’s economy to evaluate and describe the larger transformative actions that will be needed to meet the State’s more expansive emission reduction needs by 2050.”³⁰ Those six areas are: (1) energy; (2) transportation (vehicles/equipment, sustainable communities, housing, fuels, and infrastructure); (3) agriculture; (4) water; (5) waste management; and, (6) natural and working lands. The *First Update* identifies key recommended actions for each sector that will facilitate achievement of the 2050 reduction target.

²⁶ ARB, *Climate Change Scoping Plan: A Framework for Change*, p. 12, December 2008.

²⁷ Health & Safety Code section 38561(h) requires the ARB to update the *Scoping Plan* every five years.

²⁸ ARB, *First Update*, p. 4, May 2014.

²⁹ ARB, *First Update*, p. 34, May 2014.

³⁰ ARB, *First Update*, p. 6, May 2014.

Based on the ARB's research efforts, it has a "strong sense of the mix of technologies needed to reduce emissions through 2050."³¹ Those technologies include energy demand reduction through efficiency and activity changes; large-scale electrification of on-road vehicles, buildings and industrial machinery; decarbonizing electricity and fuel supplies; and, the rapid market penetration of efficient and clean energy technologies.

As part of the *First Update*, the ARB recalculated the State's 1990 emissions level using more recent global warming potentials identified by the IPCC. Using the recalculated 1990 emissions level and the revised 2020 emissions level projection identified in the 2011 Final Supplement, the ARB determined that achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of approximately 15 percent (instead of 28.5 percent or 16 percent) from the BAU conditions.

The *First Update* included a strong recommendation from the ARB for setting a mid-term statewide GHG emissions reduction target. The ARB specifically recommended that the mid-term target be consistent with: (i) the United States' pledge to reduce emissions 42 percent below 2005 levels (which translates to a 35 percent reduction from 1990 levels in California); and (ii) the long-term policy goal of reducing emissions to 80 percent below 1990 levels by 2050. However, to date, there is no legislative authorization for a post-2020 GHG reduction target, and the ARB has not established such a target.

The *First Update* discusses new residential and commercial building energy efficiency improvements, specifically identifying progress towards zero net energy buildings by 2020 for residential buildings and 2030 for commercial buildings, as an element of meeting mid-term and long-term GHG reduction goals. The *First Update* expresses the ARB's commitment to working with the California Public Utilities Commission and California Energy Commission to facilitate further achievements in building energy efficiency.

The original 2008 *Scoping Plan* and the 2014 *First Update* represent important milestones in California's efforts to reduce GHG emissions statewide. The law also requires the *Scoping Plan* to be updated every five years. The *Scoping Plan* process, as stated, is also thorough and encourages public input and participation.

For example, the original *Scoping Plan* (2008) was introduced through four workshops held between November 30, 2007 and April 17, 2008. A draft *Scoping Plan* was released for public review and comment on June 2008, followed by more workshops in July and August 2008. The proposed *Scoping Plan* was released on October 2008 and considered at the Board hearing on December 12, 2008. In August 2011, after litigation, the initial *Scoping Plan* was re-approved by the Board, and was supported by the Final Supplement to the Scoping Plan Functional Equivalent Document.

In June 2013, the ARB held a kick-off public workshop in Sacramento to discuss the development of the *First Update* to the 2008 Scoping Plan, public process, and overall schedule. In July 2013, subsequent regional workshops were held, which provided forums to discuss

³¹ ARB, First Update, p. 32, May 2014.

region-specific issues, concerns, and priorities. In addition, the ARB accepted and considered informal stakeholder comments and reconvened the Environmental Justice Advisory Committee to advise and provide recommendations on the development of the *First Update*. On October 1, 2013, the ARB released a discussion draft of the update for public review and comment. On October 15, 2013, the ARB held a public workshop on the *First Update* and provided an update to the Board at the October 24, 2013 Board hearing. In addition, over 115 comment letters were submitted on the discussion draft. On February 10, 2014, the ARB released the draft proposed *First Update*. On February 20, 2014, the ARB held a Board meeting discussion that included opportunities for stakeholder feedback and public comment. On March 14, 2014, the ARB released the Appendix F Environmental Analysis, including the 45-day public comment notice, the Appendix B Status of Scoping Plan Measures, and the Appendix C Focus Group Working Papers. On May 15, 2014, the ARB released the *First Update*, staff's written responses to comments received on the draft and final environmental assessments. On May 22, 2014, the Board approved the *First Update*, along with the finalized environmental documents.

Energy-Related Sources

Renewable Portfolio Standard

California's Renewable Portfolio Standard requires retail sellers of electric services to increase procurement from eligible renewable energy resources to 33 percent of total retail sales by 2020.³² The 33 percent standard is consistent with the Renewable Portfolio Standard goal established in the *Scoping Plan*. As interim measures, this standard requires 20 percent of retail sales to be sourced from renewable energy by 2013, and 25 percent by 2016.³³

Building Energy Efficiency Standards (Title 24)

Title 24 of the California Code of Regulations regulates the design of building shells and building components. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods. The California Energy Commission's (CEC) 2013 Building Energy Efficiency Standards (effective July 1, 2014) are 25 and 30 percent more efficient than the 2008 Title 24 standards for residential and nonresidential construction, respectively. The 2013 standards require higher efficiency windows, insulation, lighting, ventilation systems and other features that further reduce energy consumption in homes and businesses as compared to the prior 2008 standards.³⁴

³² Initially, the Renewable Portfolio Standard provisions applied only to investor-owned utilities, community choice aggregators, and electric service providers. SBX1-2 added, for the first time, publicly owned utilities to the entities subject to the standard.

³³ On January 28, 2015, Assembly Member Eduardo Garcia introduced AB 197, which – if enacted – would require an electrical corporation or local publicly-owned electric utility to adopt a long-term procurement strategy to achieve a target of procuring 50 (not 33) percent of its electricity products from eligible renewable energy resources by December 31, 2030.

³⁴ The CEC recently opened the public process and rulemaking proceedings for adoption of the 2016 Building Energy Efficiency Standards, which the CEC anticipates will be proposed for adoption in 2015 and have an effective date of January 1, 2017. In addition, as discussed later in this section, the CEC, in conjunction with the California Public Utilities Commission, has adopted a goal that all new residential and commercial construction

In addition to the CEC’s efforts, in 2008, the California Building Standards Commission adopted the nation’s first green building standards. The California Green Building Standards Code (Part 11 of Title 24) is commonly referred to as CALGreen, and establishes minimum mandatory standards as well as voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and interior air quality.³⁵

Appliance Energy Efficiency Standards

The CEC also has adopted the 2012 Appliance Efficiency Regulations (2012 Appliance Standards), which are contained in Title 20 of the California Code of Regulations and include standards for both federally-regulated appliances and non-federally regulated appliances.

Mobile Sources

Pavley Standards

AB1493 required the ARB to adopt regulations to reduce GHG emissions from non-commercial passenger vehicles and light-duty trucks for model years 2009–2016, which are often times referred to as the “Pavley I” standards. The ARB obtained a waiver from the USEPA that allows for implementation of these regulations notwithstanding possible federal preemption concerns.

Low Carbon Fuel Standard

Executive Order S-1-07 requires a 10 percent or greater reduction in the average fuel carbon intensity for transportation fuels in California regulated by the ARB by 2020.³⁶ In 2009, the ARB approved the Low Carbon Fuel Standard (LCFS) regulations, which became fully effective in April 2010. In 2013, an ethanol company obtained a court order compelling the ARB to remedy substantive and procedural defects under CEQA of the LCFS adoption process.³⁷ However, the court allowed implementation of the LCFS to continue pending correction of the identified defects. Consequently, this analysis assumes that the LCFS will remain in effect during construction and operation of the Project.

achieve zero net energy by 2020 and 2030, respectively. See, e.g., CPUC, California’s Zero Net Energy Policies and Initiatives, Sept. 18, 2013, accessed at <http://www.cpuc.ca.gov/NR/rdonlyres/C27FC108-A1FD-4D67-AA59-7EA82011B257/0/3.pdf>. It is expected that achievement of the zero net energy goal will occur via revisions to the Title 24 standards.

³⁵ Comparisons of the requirements of Tiers 1 and 2 of CALGreen with LEED v4 indicate where CALGreen and LEED points overlap and where additional effort is required to achieve LEED points. See https://www.bayren.org/sites/default/files/CG%202013_LEEDv4_Comparison_Detailed.pdf.

³⁶ Carbon intensity is a measure of the GHG emissions associated with the various production, distribution and use steps in the “lifecycle” of a transportation fuel.

³⁷ POET, LLC v. CARB (2013) 217 Cal.App.4th 1214.

Advanced Clean Cars Program

In 2012, the ARB approved the Advanced Clean Cars (ACC) program, a new emissions-control program for model years 2017–2025. (This program is sometimes referred to as “Pavley II.”) The program combines the control of smog, soot, and GHGs with requirements for greater numbers of zero-emission vehicles. By 2025, when the rules will be fully implemented, new automobiles will emit 34 percent fewer greenhouse gases.

Senate Bill 375

The Sustainable Communities and Climate Protection Act of 2008 (SB 375) coordinates land use planning, regional transportation plans, and funding priorities to reduce GHG emissions from passenger vehicles through better-integrated regional transportation, land use, and housing planning that provides easier access to jobs, services, public transit, and active transportation options.³⁸ SB 375 specifically requires the Metropolitan Planning Organization (MPO) relevant to the Project area (here, the San Diego Association of Governments [SANDAG]) to include a Sustainable Communities Strategy in its Regional Transportation Plan that will achieve GHG emission reduction targets set by the ARB by reducing vehicle miles traveled from light-duty vehicles through the development of more compact, complete, and efficient communities.

For the area under SANDAG’s jurisdiction, including the Project Site, the ARB adopted regional targets for reduction of mobile source-related GHG emissions by 7 percent for 2020 and by 13 percent for 2035. (These targets are expressed by the ARB as a percent change in per capita GHG emissions relative to 2005 levels.) In October 2011, SANDAG’s Board adopted its 2050 Regional Transportation Plan and Sustainable Communities Strategy.³⁹ Subsequently, in November 2011, the ARB - by resolution – accepted SANDAG’s GHG emissions quantification analysis and determination that, if implemented, the Sustainable Communities Strategy would achieve the ARB’s 2020 and 2035 GHG emission reduction targets for the region.

Pursuant to Government Code Section 65080(b)(2)(K), SANDAG’s Sustainable Communities Strategy does not: (i) regulate the use of land; (ii) supersede the land use authority of cities and counties; or (iii) require that a city’s or county’s land use policies and regulations, including those in a general plan, be consistent with it. Nonetheless, SB 375 makes regional and local planning agencies responsible for developing Sustainable Communities Strategy as part of the

³⁸ ARB, First Update, pp. 49-50, May 2014.

³⁹ Subsequent to SANDAG’s adoption of its 2050 Regional Transportation Plan and Sustainable Communities Strategy, a lawsuit was filed by the Cleveland National Forest Foundation and others challenging SANDAG’s compliance with CEQA. SANDAG received adverse judicial determinations from the San Diego County Superior Court (Case No. 37-2011-00101593-CU-TT-CTL) and Fourth District Court of Appeal (Case No. D063288); however, in March 2015, the California Supreme Court granted SANDAG’s petition for review of the Fourth District’s decision (Case No. S223603). At no time was SANDAG ordered to set aside its 2050 Regional Transportation Plan and Sustainable Communities Strategy by the Superior Court or Fourth District; as such, the plan remains valid and intact.

federally required metropolitan transportation planning process and the state-mandated housing element process.⁴⁰

Solid Waste Sources

The California Integrated Waste Management Act of 1989, as modified by AB 341, requires each jurisdiction's source reduction and recycling element to include an implementation schedule that shows: (1) diversion of 25 percent of all solid waste by January 1, 1995, through source reduction, recycling, and composting activities; (2) diversion of 50 percent of all solid waste on and after January 1, 2000; and (3) diversion of 75 percent of all solid waste on or after 2020, and annually thereafter. The California Department of Resources Recycling and Recovery (CalRecycle) is required to develop strategies, including source reduction, recycling, and composting activities, to achieve the 2020 goal.

CalRecycle published a discussion document, entitled *California's New Goal: 75 Percent Recycling*, which identified concepts that would assist the State in reaching the 75 percent goal by 2020. Subsequently, in October 2013, CalRecycle released a revised concept list, entitled *Update on AB 341 Legislative Report: Statewide Strategies to Achieve the 75 Percent Goal by 2020*.

Local Action

The County's General Plan Update (County of San Diego 2011b) includes smart growth and land use planning principles designed to reduce VMT and result in a reduction in GHG emissions. As discussed in the General Plan Update, climate change and GHG reduction policies are addressed in plans and programs in multiple elements of the General Plan. The strategies for reduction of GHG emissions in the General Plan Update are as follows:

- Strategy A-1: Reduce vehicle trips generated, gasoline/energy consumption, and greenhouse gas emissions.
- Strategy A-2: Reduce non-renewable electrical and natural gas energy consumption and generation (energy efficiency).
- Strategy A-3: Increase generation and use of renewable energy sources.
- Strategy A-4: Reduce water consumption.
- Strategy A-5: Reduce and maximize reuse of solid wastes.
- Strategy A-6: Promote carbon dioxide consuming landscapes.
- Strategy A-7: Maximize preservation of open spaces, natural areas, and agricultural lands.

The General Plan Update also includes climate adaptation strategies to deal with potential adverse effects of climate change. The climate adaptation strategies include the following:

⁴⁰ ARB, First Update, p. ES-4, May 2014. See also Gov. Code, § 65080(b).

- Strategy B-1: Reduce risk from wildfire, flooding, and other hazards resulting from climate change.
- Strategy B-2: Conserve and improve water supply due to shortages from climate change.
- Strategy B-3: Promote agricultural lands for local food production.
- Strategy B-4: Provide education and leadership.

The County has also implemented a number of outreach programs such as the Green Building Program, lawn mower trade-in program, and reduction of solid waste by recycling to reduce air quality impacts as well as GHG emissions.

In addition to the County's General Plan Update and other programs described above, the County's Department of Planning and Development Services issued "2015 GHG Guidance: Recommended Approach to Addressing Global Climate Change in CEQA Documents" (2015 GHG Guidance; dated January 2015) in an effort to bring a degree of consistency and objectivity to the CEQA analyses prepared for pending projects. The analysis provided below considers the 2015 GHG Guidance, in conjunction with other identified methodologies.

3.8.1.3 *Current and Projected Impacts of Global Warming*

Globally, climate change has the potential to impact numerous environmental resources through anticipated, though uncertain, impacts related to future air temperatures and precipitation patterns.

There is a general scientific consensus that global climate change will increase the frequency of heat extremes, heat waves, and heavy precipitation events. Other likely direct effects include an increase in the areas affected by drought and by floods, an increase in tropical cyclone activity, a rise in sea level, and recession of polar ice caps. Global temperature increases, therefore, may have significant negative impacts on ecosystems, natural resources, and human health. Ecosystem structure and biodiversity would be compromised by temperature increases and associated climatic and hydrological disturbances. The availability and quality of potable water resources may be compromised by increased salinization of groundwater due to sea-level rises, decreased supply in semi-arid and arid locations, and poorer water quality arising from increased water temperatures and more frequent floods and droughts. These impacts on freshwater systems, in addition to the effects of increased drought and flood frequencies, can reduce crop productivity and the food supply.

In addition to compromising food and water resources, there are other means through which climatic changes associated with global warming can affect human health and welfare. Warmer temperatures can cause more ground-level ozone, a pollutant that causes eye irritation and respiratory problems. Ranges of infectious diseases will likely increase and some areas are expected to face greater incidences of illness and mortality associated with increased flooding and drought events.

According to the ARB, some of the potential California-specific impacts of global warming may include loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years. To protect the State's public health and

safety, resources, and economy, the California Natural Resources Agency—in coordination with other state agencies—has updated the *2009 California Climate Adaptation Strategy* that is titled, *Safeguarding California: Reducing Climate Risk*. The final *Safeguarding California* plan is dated July 2014, and provides policy guidance for state decision makers relative to climate risks in nine sectors: agriculture; biodiversity and habitat; emergency management; energy; forestry; ocean and coastal ecosystems and resources; public health; transportation; and water. It also identifies policies for reducing GHG emissions and accelerating the transition to a clean-energy economy through reductions in emissions, readiness, and continued research.

3.8.1.4 Project Site and Surrounding Area

Based on the Project site’s current conditions and the absence of development, existing GHG emissions are negligible and assumed to be zero. (As discussed in Section 1.4 (Environmental Setting) of this EIR, the Project site is currently vacant, with vegetation consisting of native coastal sage scrub and grassland habitats.)

In addition to considering the existing conditions on the Project site, because the effects of GHG emissions on global climate change extend well beyond the Project vicinity, the following discussion also provides context regarding national and statewide GHG emission levels.

In 2012, the United States emitted about 6.5 billion metric tons (emissions not including sinks) of CO₂e or about 20.5 metric tons per person per year.⁴¹ (This represents a 10 percent reduction below 2005 total emission levels.) Of the four major sectors nationwide—residential, commercial, industrial, and transportation—transportation accounts for the highest fraction of GHG emissions (approximately 34 percent); these emissions are entirely generated from direct fossil fuel combustion. Over 60 percent of the United States’ transportation emissions resulted from passenger car and light-duty truck use. According to the Inventory of U.S. Greenhouse Gas Emissions and Sinks,⁴² from 2005 to 2012, transportation emissions dropped by 9 percent due, in part, to increased fuel efficiency across the U.S. vehicle fleet; higher fuel prices; and an associated decrease in the demand for passenger transportation. However, from 1990 to 2012 as a whole, transportation emissions rose by 16 percent, principally because of increased demand for travel with limited gains in fuel efficiency.

In 2012, California emitted approximately 459 million tons of CO₂e, or about 7 percent of the nation’s emissions.⁴³ California’s relative contribution to the nationwide emissions level is due primarily to the sheer size of California, as compared to other states. For example, in 2011 (the most recent year with compiled data), California had the fourth lowest per capita GHG emission rates in the country, due to the success of its energy-efficiency and renewable energy programs and to commitments that have lowered the State’s rate of emissions growth.⁴⁴ Another factor that

⁴¹ See <http://www.epa.gov/climatechange/ghgemissions/usinventoryreport.html>.

⁴² U.S. EPA. 2014. *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990 – 2012*. EPA 430-R-14-003. April 15.

⁴³ ARB. 2014. *California Greenhouse Gas Inventory for 2000-2012*. http://www.arb.ca.gov/cc/inventory/data/tables/ghg_inventory_scopingplan_00-12_2014-03-24.pdf.

⁴⁴ U.S. Energy Information Administration. 2014. *State-Level Energy-Related Carbon Dioxide Emissions, 2000-2011*. <http://www.eia.gov/environment/emissions/state/analysis/>.

has reduced California’s fuel use and GHG emissions is its mild climate, as compared to that of many other states. In 2012, the ARB found that transportation is the source of approximately 37 percent of the State’s GHG emissions, followed by industrial sources at 22 percent and electricity generation (both in-state and out-of-state) at 21 percent. Agriculture and forestry is the source of approximately 8 percent of the State’s GHG emissions. Residential and commercial emissions account for 7 percent and 5 percent of the inventory, respectively.⁴⁵

3.8.2 Analysis of Project Effects and Determination as to Significance

3.8.2.1 Appendix G Guidelines for the Determination of Significance

A significant global climate change impact would occur if implementation of the proposed Project would do the following:

- Generate greenhouse gas 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 the emissions of greenhouse gases.⁴⁶

Rationale for Selection of Guidelines

The significance criteria for global climate change are based on Appendix G of the CEQA Guidelines. The first criterion requires evaluation of whether the Project’s GHG emissions would significantly impact the environment either directly or indirectly, while the second criterion requires evaluation of the Project’s potential to conflict with any applicable plans, policies or regulations adopted to reduce GHG emissions.

Fundamental to the analysis of a project’s contribution to GHG emissions, in the context of CEQA, “GHG impacts are exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective.”⁴⁷

⁴⁵ ARB. 2014. *California Greenhouse Gas Emission Inventory*. http://www.arb.ca.gov/cc/inventory/inventory_current.htm.

⁴⁶ An assessment of the Project’s potential to conflict with applicable goals and policies of the County’s General Plan Update, including those relating to global climate change and GHG emissions, is provided in **Section 3.3, Land Use**, of this EIR.

⁴⁷ CAPCOA, CEQA & Climate Change, p. 35, January 2008. See also SMAQMD, CEQA Guide, p. 6-1, November 2014 [the Sacramento Metropolitan Air Quality Management District (SMAQMD) has concluded that “from the standpoint of CEQA, GHG impacts to global climate change are inherently cumulative”]; SJVAPCD, Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA, p. 4, December 17, 2009 [the San Joaquin Valley Air Pollution Control District (SJVAPCD) has concluded that the “effects of project specific GHG emissions are cumulative”].

3.8.2.2 *Emission Sources, Modeling, and Methodologies*

Emission Sources

GHG emissions associated with the proposed Project were estimated for six categories of emissions: (1) construction; (2) area sources (including fireplace use and landscaping); (3) energy use, including electricity and natural gas usage; (4) water consumption; (5) transportation; and, (6) solid waste.

Modeling Program and Parameters

The proposed Project's construction and operational GHG emissions were calculated using the CalEEMod model, with adjustments to account for site- and project- specific conditions, as further described in **Appendix C-2** to this EIR.

Methodologies

In order to evaluate the Project's significance relative to the two significance criteria identified in Subsection 3.8.2.1 above, seven different methodologies are used. Each of the seven methodologies is a separate and independent ground for the significance determination herein.

In accordance with CEQA Guidelines sections 15064.4(b)(1) and 15125(a), this section:

- (1) Identifies the numeric incremental increase in GHG emissions attributable to the Project, compared to GHG emissions resulting from on-site existing conditions.

In accordance with CEQA Guidelines section 15064.4(b)(2)-(3), this section analyzes the Project's consistency with AB 32. Utilization of AB 32 (and specifically Health & Safety Code section 38550) as a benchmark for determining the significance of the Project's GHG emissions for purposes of CEQA has been affirmed by California courts (e.g., *Friends of Oroville v. City of Oroville* (2013) 219 Cal.App.4th 832; *Citizens for Responsible Equitable Environmental Development v. City of Chula Vista* (2011) 197 Cal.App.4th 327). In order to assess consistency with AB 32, the analysis considers:

- (2) The County's 2015 GHG Guidance, which requires at least a 16 percent reduction in GHG emissions for impacts to be less than significant based on the ARB's 2011 Final Supplement to the *Scoping Plan*;
- (3) The Sacramento Metropolitan Air Quality Management District's (SMAQMD) CEQA Guide, which requires at least a 21.7 percent reduction from the BAU condition for impacts to be less than significant based on the ARB's 2011 Final Supplement to the *Scoping Plan*;⁴⁸ and,

⁴⁸ SMAQMD, CEQA Guide, p. 6-12, November 2014 [SMAQMD's guidance "provides that a 21.7 percent reduction of GHG emissions is adequate mitigation and shows consistency with AB 32 and [CARB] Scoping Plan GHG reduction goals"]; see also SJVAPCD, Guidance for Valley Land-use Agencies in Addressing GHG

- (4) The Bay Area Air Quality Management District's (BAAQMD)'s threshold of significance for GHGs, which allows no more than 4.6 metric tons per year of CO₂e per service population for impacts to be less than significant.⁴⁹

In accordance with CEQA Guidelines section 15064.4(b)(3), this section:

- (5) Considers the Project's consistency with the San Diego County General Plan;
- (6) Analyzes the Project's consistency with SANDAG's 2050 Regional Transportation Plan and Sustainable Communities Strategy; and,
- (7) Evaluates whether the Project's post-buildout GHG emissions trajectory would impede the attainment of the 2050 GHG reduction goal identified in Executive Order S-3-05, including the trajectory's relation to a mid-term goal.

Rationale for Selection of Methodologies

Methodology 1 discloses the extent to which the Project may increase GHG emissions as compared to the existing environmental setting, which is identified as a factor that the lead agency should consider pursuant to CEQA Guidelines section 15064.4(b)(1).

Methodologies 2 and 3 compare the proposed Project's reduction in CO₂e emissions in relation to percentage reductions targets identified by the County of San Diego and Sacramento Metropolitan Air Quality Management District via reference to the ARB's August 2011 Final Supplement to the *Scoping Plan*. Utilization of these percentage reduction targets allows the analysis to consider whether the Project would impede attainment of AB 32's emissions reduction mandate that the State return to its 1990 emissions level by 2020, which remains the only legislatively-adopted statewide mandate. In addition to the County's own 2015 GHG Guidance, the SMAQMD's methodology is utilized because the air district has technical expertise in the subject area, recently adopted its GHG guidance in October 2014 after considering the latest scientific information (including the ARB's *First Update*), and conducted an open and public process leading up to the guidance's adoption.

Emission Impacts for New Projects under CEQA, p. 4, December 17, 2009 [SJVAPCD's guidance provides that, "in order to be determined to have a less than significant individual and cumulative impact on global climate changes, such projects must be determined to have reduced or mitigated GHG emissions by 29%, consistent with GHG emission reduction targets established in [CARB's] AB 32 Scoping Plan"].

⁴⁹ Subsequent to their adoption, the BAAQMD's thresholds were set aside by the Alameda County Superior Court, which concluded that the BAAQMD did not comply with CEQA when adopting its thresholds. The Superior Court did not find the thresholds were inadequate on their merits. (See <http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Updated-CEQA-Guidelines.aspx>.) Thereafter, the First District Court of Appeal reversed the Superior Court's decision in this respect, thereby reinstating the thresholds (*Cal. Building Industry Assn. v. BAAQMD*; Case No. A136212). Most recently, in November 2013, the California Supreme Court granted review of the decision, thereby vacating the First District's decision, but exclusively as to whether CEQA requires an analysis of how existing environmental conditions will impact future sensitive receptors of a proposed project (Case No. S213478). The Supreme Court is not considering the adequacy of the BAAQMD's GHG thresholds or the process by which those thresholds were adopted. The case is fully briefed and awaiting a judicial determination.

The 16 percentage reduction target identified in County’s 2015 GHG Guidance is based on the 2011 Final Supplement’s integration of both economic data and implemented regulatory standards. The 2015 GHG Guidance requires estimation of both “unmitigated” and “mitigated” emissions. The former estimate is calculated assuming that the Pavley I vehicle standards and 2008 Title 24 standards are in place, whereas the latter estimate is based on the existing regulatory framework and other project design considerations. For more information regarding the assumptions utilized under Methodology 2, please see Section 4.3 of **Appendix C-2**. The 21.7 percentage reduction target identified in the SMAQMD’s methodology is based on the 2011 Final Supplement’s integration of economic data. Unlike the County’s 2015 GHG Guidance, the SMAQMD methodology’s “no action taken” condition assumes that the Pavley I vehicle standards have not been adopted, and the 2005 Title 24 standards are in place. For more information regarding the assumptions utilized under Methodology 3, please see Section 4.3 of **Appendix C-2**.

Methodology 4 utilizes a service population metric developed by the Bay Area Air Quality Management District, also established by reference to AB 32, in order to evaluate the comparative efficiencies of the proposed Project at build out. This methodology has been selected because, like the SMAQMD, the BAAQMD has technical expertise in the subject area. Further, its service population metric is the most restrictive of those presently available.⁵⁰

Methodology 5 considers the Project’s potential to conflict with an applicable plan – the County of San Diego’s General Plan, as that planning document contains various goals, policies and objectives related to the reduction of GHG emissions and global climate change.

Methodology 6 considers the Project’s potential to conflict with an applicable plan – SANDAG’s 2050 Regional Transportation Plan and Sustainable Communities Strategy – adopted for the purpose of reducing GHG emissions at the regional level from passenger vehicles, which is identified as a factor that the lead agency should consider pursuant to CEQA Guidelines section 15064.4(b)(3).

Methodology 7 considers the Project’s potential to conflict with a horizon-year (2050) policy goal set forth in a state executive order, as well as the Project’s emissions trajectory relative to a mid-point between AB 32’s 2020 emissions reduction mandate and Executive Order S-3-05’s 2050 goal.

3.8.2.3 Regulatory Compliance Measures and Project Design Features

The following is a summary of the regulatory compliance measures that would apply to and be implemented by the proposed Project, all of which would reduce GHG emissions. The emission reduction benefits of these regulatory compliance measures were incorporated into the Project’s emissions inventory.

- Pavley I Standards
- Low Carbon Fuel Standard

⁵⁰ See, *infra*, footnote 34.

- Advanced Clean Cars Program (aka, “Pavley II”)
- 33 Percent Renewable Portfolio Standard
- 2013 Title 24 Building Energy Efficiency Standards
- CALGreen Building Code
- California Integrated Waste Management Act

The emission reduction benefits of other regulatory compliance measures were not incorporated into the Project’s emissions inventory due to uncertainties regarding the precise quantity of emission reductions that would result (e.g., dedicated circuits for electric vehicle plug-in facilities/stations in residential garages per the 2015 CALGreen Interim Code Update; energy efficient LED lighting per the County’s illumination and energy conservation requirements).

Additionally, Table 3.8-2 provides a summary of the specific project design features (PDFs) that would be implemented by the proposed Project as conditions of approval of the Specific Plan and Tentative Maps, all of which are designed to reduce GHG emissions.

3.8.2.4 Impact Analysis

The following discussion analyzes the significance of the Project’s GHG emissions relative to the two significance criteria identified in Subsection 3.8.2.1 by utilizing the seven methodologies identified in Subsection 3.8.2.2.

Methodology 1: Comparison of Project Emissions to the Existing Condition

Given the site’s vacant condition, existing uses within the Project Site emit approximately zero (0) metric tons of CO_{2e} per year. As shown in **Table 3.8-5**, Summary of Project GHG Emissions at Full Buildout in 2025, the proposed Project would emit about 31,755 metric tons of CO_{2e} per year, after accounting for the effects of regulatory reductions and project design features. As such, the proposed Project would increase the existing emissions level by approximately 31,755 metric tons of CO_{2e} per year.

While the Project would result in an obvious change to the existing GHG emissions from the Project Site, because climate change is occurring on a global scale, it is not meaningfully possible to quantify the scientific effect of new GHG emissions caused by a single project or whether a project’s net increase in GHG emissions, when coupled with other activities in the region, is cumulatively considerable.⁵¹ Indeed, there is no scientific or regulatory consensus regarding what particular quantity of GHG emissions is considered significant, and there remains no applicable, adopted numeric threshold for assessing the significance of a project’s individual emissions as a direct impact. Furthermore, the global scale of climate change makes it difficult to

⁵¹ SMAQMD, CEQA Guide, pp. 6-9 to 6-10, November 2014 [the SMAQMD has “recognize[d] ... that there is no known level of emissions that determines if a single project will substantially impact overall GHG emission levels in the atmosphere”]; SJVAPCD, Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA, p. 3, December 17, 2009 [the SJVAPCD has concluded that “existing science is inadequate to support quantification of impacts that project specific GHG emissions have on global climatic change”].

assess the significance of a single project, particularly one designed to accommodate anticipated population growth.⁵² Indeed, unlike criteria pollutants, GHG emissions and climate change are not localized effects, and their magnitude cannot be quantified locally.⁵³

Also, it should be noted that “AB 32 demonstrates California’s commitment to reducing GHG emissions and the state’s associated contribution to climate change, without intent to limit population or economic growth within the state.”⁵⁴ As a result, there are negative policy implications arising from the utilization of a uniform numeric threshold because of its potential to conflict with projected population and economic growth. CEQA is not a policy tool to control population or economic growth, and, the future residents and occupants of development enabled by this Project would exist and live somewhere else even if this Project were not approved.⁵⁵

In summary then, the proposed Project’s numeric increase of approximately 31,755 metric tons of CO₂e per year, alone, is not a sufficiently informative or reliable indicator of the significance of the Project’s GHG emissions. Therefore, as discussed below, this section also considers other methodologies for analyzing the significance of the Project’s GHG emissions in the context of a cumulative contribution to global climate change.

Methodology 2: County’s 2015 GHG Guidance -16 Percent Reduction Target

In accordance with the County’s 2015 GHG Guidance, this methodology considers whether the Project, inclusive of its PDFs, would achieve a 16 percent reduction from a condition whereby the Project is not proposed and designed utilizing the same PDFs and is instead built consistent with the assumptions set forth in the ARB’s 2011 Final Supplement to the *Scoping Plan*.

In order to estimate the Project’s “unmitigated” emissions, it was assumed that the Pavley I standards would be implemented to reduce emissions from vehicles; the 20% Renewable Portfolio Standard would be implemented to reduce indirect emissions from electricity use; and the 2008 Title 24 standards would be implemented to reduce emissions from buildings.

⁵² See, e.g., Council on Environmental Quality, Revised Draft Guidance on the Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in NEPA Reviews, p. 2, December 2014 [“Climate change is a particularly complex challenge given its global nature and inherent interrelationships among its sources, causation, mechanisms of action, and impacts ...”].

⁵³ See, e.g., CAPCOA, CEQA & Climate Change, p. 22, January 22 [“[U]nlike criteria pollutants where individual districts are characterized by varying levels of pollutant concentrations and source types, [GHG emissions] and their attendant climate change ramifications are a global problem and, therefore, may suggest a uniform approach to solutions that ensure both progress and equity.”].

⁵⁴ SMAQMD, CEQA Guide, p. 6-19, November 2014.

⁵⁵ CAPCOA, CEQA & Climate Change p. 73, January 2008 [“[A] land development project, such as a specific plan, does not necessarily create ‘new’ emitters of GHG, but would theoretically accommodate a greater number of residents in the state. Some of the residents that would move to the project could already be California residents, while some may be from out of state (or would ‘take the place’ of in-state residents who ‘vacate’ their current residences to move to the new project). Some also may be associated with new births over deaths (net population growth) in the state. The out-of-state residents would be contributing new emissions in a statewide context, but would not necessarily be generating new emissions in a global context.”].

In order to estimate the Project’s “mitigated” emissions, it was assumed that, in addition to the measures listed for the “unmitigated” estimate, the following regulatory standards and project design features would be implemented:

- Low Carbon Fuel Standard – 10% reduction in emissions from vehicles
- Advanced Clean Cars – 3% reduction by 2020
- Renewable Portfolio Standard – 33% renewable
- 2013 Title 24 Standards –
 - Single-family residential: 36.4% reduction in electricity use, 6.5% reduction in natural gas use
 - Multi-family residential: 23.3% reduction in electricity use, 3.8% reduction in natural gas use
- Nonresidential: 21.8% reduction in electricity use, 16.8% reduction in natural gas use
- Solar Panels – 30% offset to Project’s overall electricity usage

Conservatively, no credit was taken in this analysis for the mix of uses proposed by the Project. Instead, CalEEMod default trip lengths and diverted/pass by trips were used for both the “unmitigated” and “mitigated” cases in the calculations. This assumption results in conservative emission estimates for the “mitigated” case because it assumes that trip lengths are not reduced by the on-site retail, school, and park uses.

As shown in **Table 3.8-3**, Summary of Project GHG Emissions in 2020 With and Without PDFs, the Project without its PDFs would emit approximately 41,977 metric tons of CO_{2e} per year, whereas the Project with its PDFs would emit approximately 34,692 metric tons of CO_{2e} per year in the year 2020. This amounts to a 17.40 percent reduction, 1.40 percent beyond the County’s 16 percent reduction target.

In summary, the Project’s GHG emissions would be consistent with AB 32 pursuant to the County’s 2015 GHG Guidance and impacts would be less than significant.

Methodology 3: SMAQMD’s CEQA Guide - 21.7 Percent Reduction Target

SMAQMD’s CEQA Guide provides that a 21.7 percent reduction in GHG emissions from the ARB’s “no action taken” condition (hereinafter referred to as the BAU condition) is substantial evidence of consistency with AB 32.

In accordance with the SMAQMD methodology, under the BAU condition, it was assumed that the 20% Renewable Portfolio Standard would be implemented to reduce indirect emissions from electricity use; no vehicle GHG emission standards would be in place; and, building energy efficiency would be in accordance with the 2005 Title 24 standards.

In order to estimate the proposed Project’s emissions, it was assumed that, in addition to the measures listed for the BAU condition, the following regulatory standards and project design features would be implemented:

- Pavley I Standards – 14.15% reduction for light-duty vehicles

- Low Carbon Fuel Standard – 10% reduction in emissions from vehicles
- Advanced Clean Cars – 3% reduction by 2020
- Renewable Portfolio Standard – 33% renewable
- 2013 Title 24 Standards –
 - Single-family residential: 36.4% reduction in electricity use, 6.5% reduction in natural gas use
 - Multi-family residential: 23.3% reduction in electricity use, 3.8% reduction in natural gas use
 - Nonresidential: 21.8% reduction in electricity use, 16.8% reduction in natural gas use
- Solar Panels – 30% offset to Project’s overall electricity usage

As discussed above, conservatively, no credit was taken in this analysis for the mix of uses proposed by the Project. Instead, CalEEMod default trip lengths and diverted/pass by trips were used for both the BAU and Project emission estimates. This assumption results in conservative emission estimates because it assumes that trip lengths are not reduced by the on-site retail, school, and park uses.

As shown in **Table 3.8-4**, Summary of BAU Versus Project GHG Emissions per SMAQMD’s CEQA Guide, the Project would emit approximately 34,692 metric tons of CO₂e per year, whereas the BAU condition would emit approximately 46,364 metric tons of CO₂e per year. This amounts to a 25.17 percent reduction, 3.47 percent higher than SMAQMD’s 21.7 percent reduction target.

In summary, the Project’s GHG emissions would be consistent with AB 32 pursuant to the SMAQMD methodology and impacts would be less than significant.

Methodology 4: BAAQMD Service Population Target

According to the Project’s Fiscal Impact Analysis (DPFG 2014), the Project’s residences would be occupied by 3.59 people per household, for a total residential population of 6,957. Additionally, the Project would generate 382 jobs and the occupancy rate for the Project’s resort would be 70%, resulting in an average occupancy of 140 persons. The Project’s service population, therefore, would be about 7,479 persons.

In 2020, the Project’s GHG emissions would be approximately 34,692 metric tons of CO₂e per year (see **Table 3.8-4**). Therefore, in 2020, the proposed Project’s emissions would equate to 4.6 metric tons of CO₂e per service population, which would meet the BAAQMD’s threshold of 4.6 metric tons of CO₂e per service population.⁵⁶

⁵⁶ The Project’s service population estimate also is below the draft threshold developed by the South Coast Air Quality Management District (4.8 metric tons of CO₂e per service population), and the San Luis Obispo Air Pollution Control District’s adopted threshold (4.9 metric tons of CO₂e per service population).

For informational purposes, by 2025 at full buildout, and solely taking credit for additional implementation of the Advanced Clean Cars program, the proposed Project's emissions would equate to 4.2 metric tons of CO₂e per service population.

Methodology 5: County of San Diego General Plan

As discussed further in Section 3.3, Land Use, and **Appendix B** of this EIR, the proposed Project is consistent with the County's General Plan Conservation and Open Space Policies that are designed to reduce the emissions of criteria air quality pollutants, emissions of greenhouse gases, and energy use in buildings and infrastructure, while promoting the use of renewable energy sources, conservation, and other methods of efficiency. The following discussion highlights the Project's consistency with applicable General Plan Goals:

- The Project's preservation of open space is consistent with General Plan Goals COS-1 and COS-2, designed to promote an interconnected preserve system and sustainability of the natural environment.
- The proposed Project is also consistent with General Plan Goal COS-14, Sustainable Land Development, through its mix of uses, provision of on-site parks, open space, retail, and school; and use of 30% solar power to conserve energy.
- The project is consistent with General Plan Goal COS-15, Sustainable Architecture and Buildings, in that it will meet green building standards and comply with Title 24 as of 2013, and future Title 24 requirements as implemented.
- The proposed Project is consistent with General Plan Goal COS-16, Sustainable Mobility, by providing a mix of uses on site, which will encourage alternative transportation modes.
- The proposed Project is consistent with General Plan Goal COS-17, Sustainable Solid Waste Management, in that it will encourage recycling and reduction of solid waste.
- The proposed Project is consistent with General Plan Goal COS-18, Sustainable Energy, by committing to provide 30% of electricity through solar power.
- The proposed Project is consistent with General Plan Goal COS-19, Sustainable Water Supply, by utilizing low-flow fixtures in all building designs, and implementing a water conservation plan designed to reduce water use by 30%.

Methodology 6: SANDAG's 2050 Regional Transportation Plan and Sustainable Communities Strategy

At the regional level, SANDAG's Sustainable Communities Strategy (a component of SANDAG's 2050 Regional Transportation Plan) is an applicable plan adopted for the purpose of reducing GHGs in accordance with the 2020 and 2035 emission reduction targets adopted by the ARB for the San Diego region pursuant to SB 375. In order to assess the Project's potential to conflict with SANDAG's Sustainable Communities Strategy, the Project's residential land uses and associated average daily trips (ADTs) were compared to those assumed within the traffic analysis zones (TAZs) for the Project in the SANDAG Series 12 Year 2050 Regional Model (developed in conjunction with the 2050 Regional Transportation Plan). Based on that review, SANDAG's Model anticipates 18,922 residential ADTs on the Project site. The traffic impact study prepared in support of this EIR estimates that the Project will generate 19,266 residential

ADT (see Table 4.1 of the Traffic Impact Study contained in **Appendix C-12** to this EIR). Given the small difference between the two estimates (344 residential ADTs), the Project's proposed residential allowance is similar to that assumed in SANDAG's 2050 Regional Transportation Plan and Sustainable Communities Strategy. Therefore, the Project can be considered to be consistent with the development forecast outlined by SANDAG to achieve the ARB's GHG reduction targets for 2020 and 2035.

SANDAG's inclusion of the proposed land use development on the Project site in the Sustainable Communities Strategy's forecasted development pattern for the region (see Gov. Code, §65080(b)(2)(B)(vii)) is consistent with the fact that SANDAG was required to utilize the "most recent planning assumptions considering local general plans and other factors" when preparing the Sustainable Communities Strategy (Gov. Code, §65080(b)(2)(B)). Here, the Resort Village (i.e., the proposed Project) is part of Otay Ranch's Subregional Plan, as approved in 1993. The County and other regional planning agencies (i.e., SANDAG) have been anticipating development on the Project site since that time.

Additionally, for purposes of SB 375's underlying policy goals, it is important to recognize that the proposed Project is part of the planned and approved Otay Ranch master-planned community, which contains a balanced mix of residential, commercial, civic, recreational and public facilities, all of which – when viewed from an integrated perspective – reduce the amount of vehicle miles traveled and corresponding GHG emissions. In addition to being part of a larger master-planned community, the proposed Project itself also contains a balanced mix of uses, including resident-serving commercial, retail and office uses, a 10.3-acre community park and 18.3 acres of neighborhood parks, an elementary school site, a fire station site, and a resort with up to 200 rooms and related amenities. The Project's mix of uses allows for the Project to internally capture approximately 19.4 percent of all vehicle trips (i.e., these trips remain within the boundaries of the Project site), with an approximate trip length of one mile in each direction. (See **Section 2.9** [Transportation and Traffic] and **Appendix C-2** to the EIR for additional information on the Project's internal trip capture rate.) Further, the Project's mix of land uses, including residential in conjunction with the retail, parks, and school, is coupled with an integrated pathway and trail plan and traffic calming features along internal streets and roads that promote a pedestrian experience for the Project's residents and visitors and facilitate non-vehicular travel, consistent with SB 375.

Methodology 7: Executive Order S-3-05

At the state level, Executive Order S-3-05 is an order from the State's Executive Branch for the purpose of reducing GHG emissions. The Executive Order's goal to reduce GHG emissions to 1990 levels by 2020 was codified by the Legislature as AB 32. And, as analyzed above, the Project is consistent with AB 32. Therefore, the Project does not conflict with this component of the Executive Order.

The Executive Order also establishes a goal to reduce GHG emissions to 80 percent below 1990 levels by 2050. This goal, however, was not codified through legislative or regulatory action. That being said, studies have shown that, in order to meet the 2050 target, aggressive technologies in the transportation and energy sectors, including electrification and the

decarbonization of fuel, will be required. In its *Scoping Plan*, the ARB acknowledged that the “measures needed to meet the 2050 target are too far in the future to define in detail.”⁵⁷ In the *First Update*, however, the ARB generally described the type of activities required to achieve the 2050 target: “energy demand reduction through efficiency and activity changes; large-scale electrification of on-road vehicles, buildings, and industrial machinery; decarbonizing electricity and fuel supplies; and rapid market penetration of efficiency and clean energy technologies that requires significant efforts to deploy and scale markets for the cleanest technologies immediately.”⁵⁸

Due to the technological shifts required and the unknown parameters of the regulatory framework changes that will likely occur between now and 2050, both of which serve to undermine the reasonable accuracy of the available GHG models to estimate emissions that far out in the future, quantitatively analyzing the Project’s impacts relative to the 2050 goal presents challenges and is inherently speculative for purposes of CEQA. That being said, for purposes of disclosure, the proposed Project’s emissions in 2030 and 2050 have been quantified, as shown in **Table 3.8-6**, Summary of Project GHG Emissions in 2030, and **Table 3.8-6**, Summary of Project GHG Emissions in 2050. As mentioned, the GHG emission estimates derived from CalEEMod and EMFAC2014 for 2030 and 2050 are constrained because of their inability to incorporate likely, but presently unknown, technological advancements and regulatory changes, some of which are described below.⁵⁹ As a result, the emission estimates – on their own – are not considered to be a reliable indicator of the Project’s consistency with Executive Order S-3-05’s horizon-year (2050) goal. That being said, the emission estimates do evidence a long-term decline in the Project’s emissions inventory total.

- 2020 Project Emissions: 34,692 metric tons of CO₂e per year (see **Table 3.8-3**)
- 2025 Project Emissions: 31,755 metric tons of CO₂e per year (see **Table 3.8-5**)
- 2030 Project Emissions: 30,341 metric tons of CO₂e per year (see **Table 3.8-6**)
- 2050 Project Emissions: 27,521 metric tons of CO₂e per year (see **Table 3.8-7**)

The emissions calculation for each horizon year is based on consistent assumptions regarding applicable regulatory standards and project design features. The differences in the emission calculations reflect the implementation status of regulatory standards impacting emissions from vehicle fleets at a given horizon year.

Although the Project’s emissions level in 2050 cannot be reliably quantified with absolute certainty, statewide (e.g., ARB regulatory standards), regional (e.g., SB 375 sustainable community strategies) and local (e.g., climate action plans) efforts are underway to facilitate the State’s achievement of that goal and it is reasonable to expect the Project’s emissions level (31,755 metric tons of CO₂e per year at full buildout in 2025) to decline as the regulatory initiatives identified by the ARB in the *First Update* are implemented, and other technological innovations occur. Stated differently, the Project’s emissions total at the end of its build-out year

⁵⁷ ARB, *Scoping Plan*, p. 117, December 2008.

⁵⁸ ARB, *First Update*, p. 32, May 2014.

⁵⁹ While EMFAC2014 allows for the Project’s GHG emissions from mobile sources to be quantified in 2050, subject to the accuracy limitations described here, CalEEMod’s modeling capabilities expire in 2035.

of 2025 represents the maximum emissions inventory for the complete Project as California's emissions sources are being regulated (and foreseeably expected to continue to be regulated in the future) in furtherance of the State's environmental policy objectives.

For example, the ARB's *First Update* "lays the foundation for establishing a broad framework for continued emission reductions beyond 2020, on the path to 80 percent below 1990 levels by 2050,"⁶⁰ and many of the emission reduction strategies recommended by the ARB would serve to reduce the Project's post-2020 emissions level to the extent applicable by law.⁶¹

- **Energy Sector:** Continued improvements in California's appliance and building energy efficiency programs and initiatives, such as the State's zero net energy building goals, would serve to reduce the Project's emissions level.⁶² Additionally, further additions to California's renewable resource portfolio would favorably influence the Project's emissions level.⁶³
- **Transportation Sector:** Anticipated deployment of improved vehicle efficiency, zero emission technologies, lower carbon fuels, and improvement of existing transportation systems all would serve to reduce the Project's emissions level.⁶⁴
- **Water Sector:** The Project's emissions level would be reduced as a result of further desired enhancements to water conservation technologies.⁶⁵
- **Waste Management Sector:** Plans to further improve recycling, reuse and reduction of solid waste would beneficially reduce the Project's emissions level.⁶⁶

The ARB also is implementing a market-based cap-and-trade program to reduce GHG emissions from major GHG-emitting sources, such as electricity generation, large stationary sources (e.g., refineries; cement production facilities; oil and gas production facilities; glass manufacturing facilities; and food processing plants), and fuel distributors (natural gas and propane fuel providers and transportation fuel providers). Although the Project is not a market participant for purposes of the cap-and-trade program, it will indirectly benefit from the emission reductions secured by the program from sources that are utilized by the Project (e.g., electricity generation and fuel providers).

⁶⁰ ARB, *First Update*, p. 4, May 2014. See also *id.* at pp. 32–33 [recent studies show that achieving the 2050 goal will require that the "electricity sector will have to be essentially zero carbon; and that electricity or hydrogen will have to power much of the transportation sector, including almost all passenger vehicles"].

⁶¹ ARB, *First Update*, Table 6: Summary of Recommended Actions by Sector, pp. 94-99, May 2014.

⁶² ARB, *First Update*, pp. 37-39, 85, May 2014. Here, the GHG modeling conservatively assumes that the Project's residences will be subject to the 2013 Title 24 standards. However, given the phasing projections for the Project, which anticipate building construction starting in 2015 and concluding in 2025, it is likely that a subsequent, more rigorous iteration of the Title 24 standards will apply to the Project at the time of building permit issuance.

⁶³ ARB, *First Update*, pp. 40-41, May 2014.

⁶⁴ ARB, *First Update*, pp. 55-56, May 2014.

⁶⁵ ARB, *First Update*, p. 65, May 2014.

⁶⁶ ARB, *First Update*, p. 69, May 2014.

In addition to the ARB's *First Update*, in January 2015, during his inaugural address, Governor Jerry Brown expressed a commitment to achieve "three ambitious goals" that he would like to see accomplished by 2030 to reduce the State's GHG emissions: (1) increasing the State's Renewable Portfolio Standard from 33 percent in 2020 to 50 percent in 2030;⁶⁷ (2) cutting the petroleum use in cars and trucks in half; and, (3) doubling the efficiency of existing buildings and making heating fuels cleaner.⁶⁸ These expressions of Executive Branch policy may be manifested in adopted legislative or regulatory action through the state agencies and departments responsible for achieving the State's environmental policy objectives, particularly those relating to global climate change.

Further, a recent study shows that the State's existing and proposed regulatory framework will allow the State to reduce its GHG emissions level to 40 percent below 1990 levels by 2030, and to 60 percent below 1990 levels by 2050. Even though this study did not provide an exact regulatory and technological roadmap to achieve the 2050 goal, it demonstrated that various combinations of policies could allow the statewide emissions level to remain very low through 2050, suggesting that the combination of new technologies and other regulations not analyzed in the study could allow the State to meet the 2050 target.⁶⁹

Given the proportional contribution of mobile source-related GHG emissions to the State's inventory, recent studies also show that relatively new trends, such as the increasing importance of web-based shopping, the emergence of different driving patterns by the "millennial" generation and the increasing effect of Web-based applications on transportation choices, are beginning to substantially influence transportation choices and the energy used by transportation modes. These factors have changed the direction of transportation trends in recent years, and will require the creation of new models to effectively analyze future transportation patterns and the corresponding effect on GHG emissions. Also, as enacted in 2013, SB 743 creates an opportunity to encourage urban infill projects by revisiting the use of the level-of-service criterion in CEQA when assessing traffic impacts. Once amendments to the CEQA Guidelines are adopted that provide for alternative criteria, projects that provide alternatives to driving, such as public transit, bicycle lanes and other pedestrian features, may not be constrained by congestion-based traffic criteria. Further, for projects within transit priority areas, the criteria are required to "promote the reduction of [GHG] emissions, the development of multimodal transportation networks, and a diversity of land uses" (Pub. Resources Code, §210991(b)(1)).

In its *First Update*, the ARB stated the importance of establishing a mid-term statewide GHG reduction target – i.e., set between 2020 and 2050 – to facilitate achievement of the State's long-term GHG reduction goals. To date, however, the ARB has not adopted such a target and the Legislature has not authorized one. Nonetheless, for the reasons described above, the Project's post-2020 emissions trajectory is expected to follow a declining trend, consistent with any establishment of a mid-term target. Additionally, as described above, the Project has been found

⁶⁷ See also, *supra*, footnote 11.

⁶⁸ Transcript: Governor Jerry Brown's January 5, 2015 Inaugural Address, <http://www.latimes.com/local/political/lame-pc-brown-speech-text-20150105-story.html#page=1>, accessed January 14, 2015.

⁶⁹ Greenblatt, Jeffrey, *Energy Policy*, "Modeling California Impacts on Greenhouse Gas Emissions" (Vol. 78, pp. 158-172).

to be consistent with the 2035 reduction target established by the ARB, pursuant to SB 375, for the SANDAG region for purposes of securing GHG emission reductions resulting from vehicle miles traveled by passenger vehicles. As shown in **Table 3.8-5**, for example, the Project's traffic-related GHG emissions constitute a substantial percentage of the Project's total emissions inventory, such that the Project's consistency with the ARB's 2035 SB 375 target for the SANDAG region affirms the Project's compatibility with any mid-term GHG reduction goals for mobile sources established by the ARB or the Legislature.

In summary, based on the estimated declining trend in Project emissions, as well as existing and planned standards and policies designed to reduce GHG emissions discussed above, the Project is in line with the GHG reductions needed to facilitate the State's attainment of the horizon-year, 2050 reduction goal set forth in Executive Order S-3-05.

3.8.3 Cumulative Impact Analysis

Although the Project would emit GHGs, the emission of GHGs by a single project into the atmosphere is not itself necessarily an adverse environmental effect. Rather, it is the increased accumulation of GHGs from more than one project and many sources in the atmosphere that may combine and result in global climate change.⁷⁰

Here, the Project's GHG emissions also are very small in comparison to state, national and global GHG emissions. Specifically, at buildout in 2025, the Project's percentage contribution to existing international (totaling 34.5 billion metric tons),⁷¹ national,⁷² and California-specific⁷³ GHG emission inventories is 0.0000920 percent, 0.000489 percent, and 0.00692 percent, respectively. This comparative data is not intended to suggest that the Project's emissions are de minimis; rather, the data is provided for overall context as, generally, it is the *combined* emissions of projects globally that appear to be the primary cause of global climate change, and not any one project.

The State has established a mandate, via AB 32, to reduce cumulative statewide emissions to 1990 levels by 2020, even though statewide population and commerce is predicted to continue to expand. To achieve this goal, the ARB is working with other state agencies to establish and implement the necessary regulatory framework to reduce GHG emissions levels to 1990 levels. And, the PDFs, other Project attributes and regulatory initiatives discussed in this section would represent a break from "business-as-usual" and support efforts to return the State to its 1990 emissions level in accordance with AB 32.

⁷⁰ The Governor's Office of Planning and Research has concurred with the general scientific consensus that "climate change is ultimately a cumulative impact." Governor's Office of Planning and Research, Technical Advisory—CEQA and Climate Change: Addressing Climate Change Through California Environmental Quality Act (CEQA) Review, p. 6, June 19, 2008. See also ARB, First Update, p. 33, May 2014 ["Ultimately, climate change is affected by cumulative emissions."].

⁷¹ http://edgar.jrc.ec.europa.eu/news_docs/pbl-2013-trends-in-global-co2-emissions-2013-report-1148.pdf

⁷² U.S. EPA. 2014. *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990 – 2012*. EPA 430-R-14-003. April 15.

⁷³ CARB. 2014. *California Greenhouse Gas Inventory for 2000-2012*. http://www.arb.ca.gov/cc/inventory/data/tables/ghg_inventory_scopingplan_00-12_2014-03-24.pdf.

As discussed above, the Project is consistent with the GHG emission reductions adopted by the 2006 Global Warming Solutions Act (AB 32) and the 2008 Sustainable Communities and Climate Protection Act (SB 375). Additionally, the Project's post-buildout emissions trajectory can reasonably be expected to exhibit a declining trend. Therefore, the Project would not obstruct attainment of the horizon-year (2050) goal of Executive Order S-3-05. In light of the foregoing, the Project's contribution to the cumulative impact of global climate change would be less than significant.

3.8.4 Significance of Impacts Prior to Mitigation

As discussed in Section 3.8.2, Project-level GHG impacts would be less than significant.

3.8.5 Mitigation

No mitigation is required as Project-level GHG impacts would be less than significant.

3.8.6 Conclusion

The proposed Project, at both a Project-specific and cumulative level of analysis, would be consistent with the statewide reduction mandate established by AB 32, as well as the County's own General Plan and regional reduction targets established by SB 375. Further, the Project would not obstruct attainment of the horizon-year (2050) goal set forth in Executive Order S-3-05. Therefore, Project impacts would be less than significant.

**Table 3.8-1
State of California GHG Emissions by Sector**

Sector	Total 1990 Emissions (MMTCO₂e)	Percent of Total 1990 Emissions	Total 2012 Emissions (MMTCO₂e)	Percent of Total 2012 Emissions
Agriculture	23.4	5%	37.86	8%
Commercial	14.4	3%	14.20	3%
Electricity Generation	110.6	26%	95.09	21%
Forestry (excluding sinks)	0.2	<1%		
Industrial	103.0	24%	89.16	19%
Residential	29.7	7%	28.09	6%
Transportation	150.7	35%	167.38	36%
Recycling and Waste	N/A	N/A	8.49	2%
High GWP Gases	N/A	N/A	18.41	4%
Forestry Sinks	(6.7)	N/A	N/A	N/A

N/A – data not provided

Source: *California Greenhouse Gas Inventory for 2000-2012*. http://www.arb.ca.gov/cc/inventory/data/tables/ghg_inventory_scopingplan_00-12_2014-03-24.pdf

**Table 3.8-2
Project Design Features to Reduce GHG Emissions**

Strategy to Reduce GHG Emissions	Description	Emission Reduction	Basis for Emission Reduction
Land Use and Community Design			
Pedestrian Oriented Development	The Otay Ranch Resort Village land use plan locates a school, parks, and commercial land uses in proximity to residential areas to encourage pedestrian and bicycle travel as an alternative to the automobile. In addition, the Resort Village Trail and Pathway system provide alternate routes to these destinations.	Conservatively, no credit was taken for mixed uses at the site and no reduction was assumed.	CAPCOA White Paper, Appendix B
Street Widths, Pavement and Street Trees	The Otay Ranch Resort Village land use plan includes narrow streets and reduced paving, which reduces heat buildup and the demand for air conditioning. Street trees also are included in the land use plan in order to provide shade that further reduces ambient air temperatures.	No reduction assumed.	CAPCOA White Paper, Appendix B
Transit Facilities and Alternative Transportation Modes			
Public Transportation	The applicant or designee will coordinate with the Chula Vista Transit (CVT) and the San Diego Association of Governments (SANDAG) to evaluate the feasibility of providing bus service to the site. Currently, CVT provides bus service through the Chula Vista Eastern Territories including the Eastlake Business Center and nearby Southwestern College.	No reduction assumed.	CAPCOA White Paper, Appendix B
Transportation Demand Management	The applicant or designee shall develop a transportation demand management program to ensure ridesharing and carpooling for residents and employees.	No reduction assumed.	N/A
Alternative Travel Modes	Otay Ranch Resort Village streets will provide for a maximum travel speed of 30 miles per hour, which allows the streets to be used by electric carts and bicycles.	No reduction assumed.	CAPCOA White Paper, Appendix B
Alternative Travel Modes	Off-street pathways and trails in the Resort Village will accommodate pedestrian and bicycle travel.	No reduction assumed.	CAPCOA White Paper, Appendix B
Alternative Travel Modes	The Homeowners Association will partner with the elementary school to create a “walking school bus program” for neighborhood students to safely walk to and from school to reduce vehicular trips for drop-off and pick-up.	No reduction assumed.	N/A
Energy Efficiency			
Energy Efficiency	Indoor residential appliances will carry the Environmental Protection Agency’s (EPA) ENERGYSTAR® certification, as	Accounted for in CalEEMod Model.	CAPCOA White Paper, Appendix B

Strategy to Reduce GHG Emissions	Description	Emission Reduction	Basis for Emission Reduction
	applicable.		
Energy Efficiency	All residential units will be part of the local utility demand response program to limit peak energy usage for cooling. Through the site design and building permit process, the Project will incorporate solar panels on buildings to offset the Project’s overall electricity usage by 30%. Peak solar performance tends to coincide with peak energy usage. Thus, the Project-wide incorporation of solar will further limit peak energy usage.	Unknown (as to demand response program participation). No reduction assumed (as to demand response program participation). (See below for information regarding commitment for provision of on-site solar resources.)	N/A
Water Conservation			
Low-Flow Fixtures	Indoor residential plumbing products would comply with the 2013 CALGreen Code, including future updates to CALGreen as these updates apply to homes in the project built under the updated code. The GHG emission reductions benefits of this PDF have been quantitatively incorporated into the Project’s GHG inventory by including a measure within CalEEMod to account for the use of low-flow fixtures in all buildings.	Accounted for in CalEEMod Model.	CalEEMod Model
Water Conservation Plan	The Project includes a Water Conservation Plan that that will reduce outdoor water usage by 30% compared to existing outdoor water usage for typical residential homes. Through the Project’s site plan process and, in the case of individual homeowners, the Project’s CC&Rs, the Water Conservation Plan will require compliance with the County’s ”Water Conservation in Landscaping Ordinance” (aka, “Model Landscape Ordinance”) for all outdoor landscapes in the Project, including common areas, public spaces, parkways, medians, parking lots, parks, and all builder or homeowner installed private front and backyard landscaping. The Water Conservation Plan goes beyond the County’s Ordinance by applying to all landscaping installed in the Project. Consistent with the County’s Ordinance, the Water Conservation Plan requires the use of a water allocation-based approach to landscape zones, use of drought-tolerant, low-water usage native plants, high-efficiency weather- or evapotranspiration-based irrigation controllers, soil moisture	30% for outdoor uses.	Water Conservation Plan

Strategy to Reduce GHG Emissions	Description	Emission Reduction	Basis for Emission Reduction
	<p>sensors, and drip emitters, soaker hose (e.g., netafim), or equivalent high-efficiency drip irrigation, and limitations on the use of natural turf in residential development to no more than 30% of the outdoor open space. Landscape plans and construction documents for developer and builder installed landscaping will be reviewed and approved by PDS for conformance with the Project's Water Conservation Plan. Individual homeowners will also have to show compliance with the Water Conservation Plan for front and backyard landscaping and may require separate permitting through the County for landscaping of 1,000 square feet or greater in size. The GHG emission reductions benefits of this PDF have been quantitatively incorporated into the Project's GHG inventory by including a measure within CalEEMod to account for a reduction in outdoor water use for irrigation of 30%. This is consistent with the requirements of the Resort Village Water Conservation Plan, Appendix VI to the Resort Village Specific Plan.</p>		
Building and Site Design			
California 2013 Title 24 Building Energy Efficiency Standards as well as the 2013 "CALGreen" Building Code	Residential buildings would be designed to meet the California 2013 Title 24 Building Energy Efficiency Standards as well as the 2013 "CALGreen" Building Code, including future updates to these codes as these updates apply to homes in the project built under the updated codes. The GHG emission reduction benefits of this PDF have been quantitatively incorporated into the Project's GHG inventory by including a measure within CalEEMod to account for a reduction in Title 24 energy use.	CEC impact analysis for Title 24 as of 2013.	CEC 2013
Curbside recycling	Project-wide curbside recycling for single-family, multi-family, resort, school, commercial, and retail establishments would be required in accordance with the California Integrated Waste Management Act (AB 939). The GHG emission reductions benefits of this PDF have been quantitatively incorporated into the Project's GHG inventory by including a measure within CalEEMod to account for a reduction in solid waste generation of 20%.	20% reduction in solid waste generation from CalEEMod defaults.	County of San Diego 2014
EV Plug-Ins	Dedicated circuits for electric vehicle plug-	No reduction	N/A

Strategy to Reduce GHG Emissions	Description	Emission Reduction	Basis for Emission Reduction
	in facilities/stations would be installed in all residential garages per the 2015 CALGreen Interim Code Update (Effective July 1, 2015). The GHG emission reduction benefits of this PDF conservatively have not been quantified and not incorporated into the Project's GHG inventory.	assumed.	
Passive Solar Design	The site design will incorporate passive solar design and building orientation principles to take advantage of the sun in the winter for heating and reduce heat gain and cooling needs during the summer.	No reduction assumed.	CAPCOA White Paper, Appendix B
Passive Solar Design	Vertical landscape elements such as trees and large shrubs shall be installed in order to shade southern and western building facades to reduce energy needed for heating and cooling.	No reduction assumed	CAPCOA White Paper, Appendix B
Solar Access – Hot Water	All single-family structures will be designed and constructed to allow for the later installation of solar hot water heaters.	No reduction assumed.	N/A
Lighting			
Energy-Efficient Lighting	As required by the construction document approval process, and subject to the approval of PDS, energy efficient LED lighting in compliance with the lead agency's illumination and energy conservation requirements will be installed along streets, parks, parking lots, and other public spaces. Through the building permit process, private developers and home builders in the project are required to use energy efficient lighting and design in accordance with Title 24 requirements. The GHG emission reduction benefits of this PDF conservatively have not been quantified and not incorporated into the Project's GHG inventory.	No reduction assumed.	N/A
Renewable Energy			
Solar Power	Through the site design and building permit process, the Project will incorporate solar panels on buildings to offset the Project's overall electricity usage by 30%.	30% offset of the Project's electrical energy usage.	Project-specific design feature

**Table 3.8-3
Summary of Annual Project GHG Emissions in 2020 With and Without PDFs
per County's 2015 GHG Guidance**

Emission Sources	Proposed Project	
	Project Without PDFs (metric tons)	Project With PDFs (as Proposed) (metric tons)
Area Sources	586	586
Electricity Use	5,359	2,852
Natural Gas Use	3,813	3,535
Water Consumption	1,091	732
Solid Waste Handling	1,349	1,080
Vehicles	28,821	24,930
Amortized Construction	977	977
Total CO₂e Emissions	41,997	34,692
Percent Reduction	17.40%	
CO₂ Equivalent Emissions per Service Population	4.6	

**Table 3.8-4
Summary of Annual BAU Versus Project GHG Emissions
per SMAQMD's CEQA Guide**

Emission Sources	Proposed Project	
	BAU Condition (metric tons)	Proposed Project (metric tons)
Area Sources	586	586
Electricity Use	5,509	2,852
Natural Gas Use	4,076	3,535
Water Consumption	1,091	732
Solid Waste Handling	1,349	1,080
Vehicles	32,776	24,930
Amortized Construction	977	977
Total CO₂e Emissions	46,364	34,692
Percent Reduction	25.17%	

**Table 3.8-5
Summary of Project GHG Emissions at Full Buildout in 2025**

Emission Sources	Proposed Project (metric tons)
Area Sources	586
Electricity Use	2,852
Natural Gas Use	3,535
Water Consumption	732
Solid Waste Handling	1,080
Vehicles	21,993
Amortized Construction	977
Total CO₂e Emissions	31,755
Project Without PDFs	41,997
Percent Reduction	24.39%
CO₂e Emissions per Service Population (metric tons per service population)	4.2

**Table 3.8-6
Summary of Project GHG Emissions in 2030**

Emission Sources	Proposed Project (metric tons)
Area Sources	586
Electricity Use	2,852
Natural Gas Use	3,535
Water Consumption	732
Solid Waste Handling	1,080
Vehicles	20,579
Amortized Construction	977
Total CO₂e Emissions	30,341

**Table 3.8-7
Summary of Project GHG Emissions in 2050**

Emission Sources	Proposed Project (metric tons)
Area Sources	586
Electricity Use	2,852
Natural Gas Use	3,535
Water Consumption	732
Solid Waste Handling	1,080
Vehicles	17,558
Amortized Construction	977
Total CO₂e Emissions	27,521

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