5.2 GREENHOUSE GAS EMISSIONS

On December 30, 2009, the Natural Resources Agency adopted the amendments to the CEQA Guidelines to address GHG emissions This section evaluates the potential for implementation of the Proposed Project to impact or be impacted by global climate change. The analysis in this section is based on the following:

Air Quality and Greenhouse Gas Emissions Technical Study for: Honda Center, The Planning Center|DC&E, November 2011.

A complete copy of this study is included in Appendix C to this EIR.

5.2.1 Environmental Setting

Regulatory Setting

Regulation on an International Level

Currently, there is no international regulatory program regulating greenhouse gas (GHG) emissions from various nations. A brief summary of the state of international climate change regulation is set forth below. In 1992, 154 nations, including the United States, entered into the United Nations Framework Convention on Climate Change (UNFCCC), a nonbinding agreement under which industrialized countries pledged to work to reduce GHG emissions. Five years later, in 1997, the parties to the UNFCCC adopted the Kyoto Protocol, which set binding GHG reduction targets for 37 industrialized countries and the European Community, with the objective of reducing their collective omissions by 5 percent below 1990 levels during the "commitment period" of 2008-2012. The Kyoto Protocol has been ratified by 182 countries, but has not been ratified by the United States. Indeed, in 1995, the Senate passed the Byrd-Hagel Resolution by a 95-0 vote, stating the Senate's directive that the United States should not enter into any protocol that did not set binding targets for developing, as well as industrialized, nations. It should be noted that many of the industrialized countries which ratified the Kyoto Protocol have not and/or are not expected to meet their Kyoto targets.[1] The Kyoto Protocol is set to expire in 2012. Formal negotiations to replace the protocol officially began in December 2007 at the UNFCCC Climate Change Conference in Bali, Indonesia. Whether a workable agreement can be reached, however, remains to be seen, as the United States continues to press for an agreement which requires firm commitments from developing nations, and countries like China and India continue to oppose binding targets (BBK News 2007). Recently, at the United Nations Conference in Durban South Africa, Canada indicated it was withdrawing from the Kyoto Protocol and other major industrialized nations also stated their intention not to sign the protocol

Regulation of GHG Emissions on a National Level

The federal government has taken a number of steps toward addressing global climate change over the past 30 years, but thus far, such actions have been mostly policy oriented. In 1978, Congress enacted the National Climate Program Act, which required an investigation into climate change. In 1987, Congress enacted the Global Climate Protection Act for the purpose of establishing a national climate program that will assist the Nation and the world to understand and respond to natural and man-induced climate processes and their

[1] Canada, which currently has emissions that are 30 percent above 1990 levels, announced in 2009 that it would not be able to meet its obligations under Kyoto (Environment Canada 2010). Likewise, Japan has not indicated that it will not comply with its targets, but as of 2005, its emissions were approximately 8 percent higher than in 1990 (Kestenbaum 2007).

implications (15 USC § 2902.). The act required the establishment of various programs to further climate change research (15 USC § 2904(d).).

On April 2, 2007, the United States Supreme Court ruled that the U.S. Environmental Protection Agency (EPA) has the authority to regulate carbon dioxide (CO_2) emissions under the Federal Clean Air Act. After a thorough examination of the scientific evidence and careful consideration of public comments, the EPA announced on December 7, 2009, that GHG emissions threaten the public health and welfare of the American people. The EPA also finds that GHG emissions from on-road vehicles contribute to that threat. The EPA's final findings respond to the 2007 U.S. Supreme Court decision that GHG emissions fit within the Clean Air Act definition of air pollutants. The findings do not in and of themselves impose any emission reduction requirements, but do allow the EPA to finalize the GHG standards proposed in 2009 for new light-duty vehicles as part of the joint rulemaking with the Department of Transportation.

The EPA's endangerment finding covers emissions of six key greenhouse gases—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6)—that have been the subject of scrutiny and intense analysis for decades by scientists in the United States and around the world.

Regulation of GHG Emissions on a State Level

AB 32, the Global Warming Solutions Act, was passed by the California state legislature on August 31, 2006, to place the state on a course toward reducing its contribution of GHG emissions. AB 32 follows the 2020 tier of emissions reduction targets established in Executive Order S-3-05, signed June 1, 2005. The Executive Order requires the state's global warming emissions to be reduced to 1990 levels by the year 2020 and by 80 percent of 1990 levels by the year 2050. It is projected that GHG emissions in California by 2020 will be approximately 596 million metric tons (MMTons) of CO_{2e} by 2020 (CARB 2008). In December 2007, CARB approved a 2020 emissions limit of 427 MMTons (471 million tons) of CO_{2e} for the state (CARB 2008). The 2020 target requires emissions reductions of 169 MMTons, 28.5 percent of the projected emissions compared to projected year 2020 emissions (i.e., 28.5 percent of 596 MMTons) (CARB 2008). The California Air Resources Board (CARB) defines the projected 2020 emissions as business-as-usual (BAU) in its Scoping Plan as emissions levels that would occur if California continued to grow and add new GHG emissions but did not adopt any measures to reduce emissions. Projections for each emission-generating sector were compiled and used to estimate emissions for 2020 based on 2002–2004 emissions intensities. Under CARB's definition of BAU, new growth is assumed to have the same carbon intensities as was typical in 2002 through 2004.

In order to effectively implement the cap, AB 32 directed CARB to establish a mandatory reporting system to track and monitor global warming emissions levels for large stationary sources that generate more than 25,000 metric tons (MTons) per year, prepare a plan demonstrating how the 2020 deadline can be met, and develop appropriate regulations and programs to implement the plan by 2012. The Climate Action Registry Reporting Online Tool was established through the Climate Action Registry to track GHG emissions. In June 2008, CARB released a draft of the Climate Change Scoping Plan, which was revised in October 2008. The final Scoping Plan was adopted by CARB on December 11, 2008. Key elements of CARB's GHG reduction plan are:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;

- Increases the State's Renewable Portfolio Standard (RPS) to 33 percent by 2020. Retail sellers of electricity are required to increase the portion of electricity they provide each year by renewable energy to achieve the 33 percent goal;

- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system for large stationary sources;

- Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets;

- Adopting and implementing measures pursuant to state laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard

- Creating target fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the state's long-term commitment to AB 32 implementation.

Table 5.2-1, *Scoping Plan Greenhouse Gas Reduction Measures and Reductions toward 2020 Target*, shows the proposed reductions from regulations and programs outlined in the Scoping Plan. While local government operations were not accounted for in achieving the 2020 emissions reduction, CARB estimates that land use changes implemented by local governments that integrate jobs, housing, and services are estimated to result in a reduction of 5 MMTons of CO_{2e}, which is approximately 3 percent of the 2020 GHG emissions reduction goal. In recognition of the critical role local government plays in successful implementation of AB 32, CARB is recommending GHG reduction goals of 15 percent of today's levels by 2020 to ensure that municipal and community-wide emissions match the state's reduction target. Measures that local governments take to support shifts in land use patterns are anticipated to emphasize infill and refill, compact, low-impact developments over growth on undevelopment, greenfield areas, resulting in fewer per capita miles driven by passenger vehicle. According to the Measure Documentation Supplement to the Scoping Plan, local government actions and targets are anticipated to reduce vehicle miles travelled by approximately 2 percent through land use planning, resulting in a potential GHG reduction of 2 MMTons of CO_{2e} (or approximately 1.2 percent of the GHG reduction target).

Table 5.2-1
Scoping Plan GHG Reduction Measures Toward 2020 Target

Recommended Reduction Measures	*Reductions Counted toward 2020 Target of 169 MMTons CO_{2e}*	*Percentage of Statewide 2020 Target*
Cap and Trade Program and Associated Measures		
California Light-Duty Vehicle GHG Standards	31.7	19%
Energy Efficiency	26.3	16%
Renewable Portfolio Standard (33 percent by 2020)	21.3	13%
Low Carbon Fuel Standard	15	9%
Regional Transportation-Related GHG Targets[1]	5	3%
Vehicle Efficiency Measures	4.5	3%
Goods Movement	3.7	2%
Million Solar Roofs	2.1	1%
Medium/Heavy Duty Vehicles	1.4	1%
High Speed Rail	1.0	1%
Industrial Measures	0.3	0%
Additional Reduction Necessary to Achieve Cap	34.4	20%
Total Cap and Trade Program Reductions	**146.7**	**87%**
Uncapped Sources/Sectors Measures		
High Global Warming Potential Gas Measures	20.2	12%
Sustainable Forests	5	3%
Industrial Measures (for sources not covered under cap and trade program)	1.1	1%
Recycling and Waste (landfill methane capture)	1	1%
Total Uncapped Sources/Sectors Reductions	**27.3**	**16%**
Total Reductions Counted toward 2020 Target	**174**	**100%**
Other Recommended Measures – Not Counted toward 2020 Target		
State Government Operations	1.0 to 2.0	1%
Local Government Operations	To Be Determined[2]	NA
Green Buildings	26	15%
Recycling and Waste	9	5%
Water Sector Measures	4.8	3%
Methane Capture at Large Dairies	1	1%
Total Other Recommended Measures – Not Counted toward 2020 Target	**42.8**	**NA**

Source: CARB. 2008,
[1] Reductions represent an estimate of what may be achieved from local land use changes. It is not the SB 375 regional target.
[2] According to the Measure Documentation Supplement to the Scoping Plan, local government actions and targets are anticipated to reduce vehicle miles by approximately 2 percent through land use planning, resulting in a potential GHG reduction of 2 million metric tons of CO_{2e} (or approximately 1.2 percent of the GHG reduction target). However, these reductions were not included in the Scoping Plan reductions to achieve the 2020 target.

SB 97

In addition to the requirements under AB 32 to address GHG emissions and global climate change in general plans and CEQA documents, Senate Bill 97 (Chapter 185, 2007) required the Governor's Office of Planning and Research (OPR) to develop CEQA guidelines for addressing global warming emissions and mitigating project-generated GHG emissions. OPR transmitted the proposed guidelines to the California Natural Resources Agency (CNRA) and the guidelines were adopted on December 30, 2009. The amended CEQA Guidelines became effective on March 18, 2010.

The new CEQA Guidelines concerning GHG emissions do not include or recommend any particular threshold of significance; instead, they leave that decision to the discretion of the lead agency. However, with respect to adopting thresholds of significance, newly added CEQA Guidelines section 15064.7(c) provides:[A] lead agency may consider thresholds of significance previously adopted or recommended by other public agencies or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence. The new CEQA Guidelines also do not suggest or recommend the use of any specific GHG emission mitigation measures. Instead, newly added CEQA Guidelines section 15126.4(c) provides that lead agencies shall consider feasible means, supported by substantial evidence and subject to monitoring or reporting, of mitigating the significant effects of greenhouse gas emissions.

Among other things, CNRA noted in its public notice for these changes to the CEQA Guidelines that the impacts of GHG emissions should be considered in the context of a cumulative impact, rather than a project impact. The public notice states:

> While the Proposed Amendments do not foreclose the possibility that a single project may result in greenhouse gas emissions with a direct impact on the environment, the evidence before [CNRA] indicates that in most cases, the impact will be cumulative. Therefore, the Proposed Amendments emphasize that the analysis of greenhouse gas emissions should center on whether a project's incremental contribution of greenhouse gas emissions is cumulatively considerable.

Executive Order S-03-05

In summary, current State of California guidance and goals for reductions in GHG emissions are generally embodied in AB 32 and Executive Order S-03-05. AB 32 establishes a goal of reaching 1990 levels by 2020 and describes a process for achieving that goal. Executive Order S- 03-05 sets a goal for the following for reduction of GHG emissions:

- 2000 levels by 2010
- 1990 levels by 2020
- 80 percent below 1990 levels by 2050

Energy Conservation Standards

Energy conservation standards for new residential and nonresidential buildings were adopted by the California Energy Resources Conservation and Development Commission in June 1977 and most recently revised in 2008 (Title 24, Part 6 of the California Code of Regulations [CCR]).[2] Title 24 requires the design of building shells and building components to conserve energy. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods. The 2006 Appliance Efficiency Regulations (Title 20, CCR Sections 1601 through 1608) were adopted by the California Energy Commission on October 11, 2006, and approved by the California Office of Administrative Law on December 14, 2006. The regulations include standards for both federally regulated appliances and nonfederally regulated appliances.

On July 17, 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (proposed Part 11, Title 24) was adopted as part of the California Building Standards Code (Title 24, California Code of Regulations). The green building

[2] Although new building energy efficiency standards were adopted in April 2008, these standards did not go into effect until 2009.

standards that became mandatory in the 2010 edition of the code established voluntary standards on planning and design for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants. The mandatory provisions of the California Green Building Code Standards became effective January 1, 2011.

Renewable Power Requirements

A major component of California's Renewable Energy Program is the renewable portfolio standard (RPS) established under Senate Bills (SBs) 1078 (Sher) and 107 (Simitian). Under the RPS, certain retail sellers of electricity are required to increase the amount of renewable energy each year by at least 1 percent in order to reach at least 20 percent by December 30, 2010. CARB has now approved an even higher goal of 33 percent by 2020. Renewable sources of electricity include wind, small hydropower, solar, geothermal, biomass, and biogas. The increase in renewable sources for electricity production will decrease indirect GHG emissions from development projects because electricity production from renewable sources is generally considered carbon neutral.

In addition to the States RPS, Senate Bill 1368 limits long-term investments in baseload generation by utility power plants to meet emissions performance standard established by CEC and the California Public Utilities Commission. New, or capital investment in, electricity generating facilities owned by or under contract to publically owned utilities are required to achieve an emissions standard of 1,100 lbs per megawatt-hour (MWh).

Vehicle Emission Standards/Improved Fuel Economy

Vehicle GHG emission standards were enacted under AB 1493 (Pavley I) and the Low Carbon Fuel Standard (LCFS). Pavley I is a clean-car standard that reduces GHG emissions from new passenger vehicles (light duty auto to medium duty vehicles) from 2009 through 2016 and is anticipated to reduce GHG emissions from new passenger vehicles by 30 percent in 2016. The LCFS requires a reduction of 2.5 percent in the carbon intensity of California's transportation fuels by 2015 and a reduction of at least 10 percent by 2020.[3]

In summary, current State of California guidance and goals for reductions in GHG emissions are generally embodied in AB 32 and Executive Order S-03-05.

Regulation of GHG Emissions on a Regional Level

In 2008, SB 375 was adopted and was intended to represent the implementation mechanism necessary to achieve the GHG emissions reductions targets established in the Scoping Plan for the transportation sector as it relates to local land use decisions that affect travel behavior. Implementation is intended to reduce GHG emissions from light-duty trucks and automobiles (excludes emissions associated with goods movement) by aligning regional long-range transportation plans, investments, and housing allocations with local land use planning. This coordination is expected to reduce per capita GHG emissions that result from travel. Specifically, SB 375 requires CARB to establish GHG emissions reduction targets for each of the 17 regions in California managed by a metropolitan planning organization (MPO). SCAG is the MPO for the southern California region, which includes the counties of Los Angeles, Orange, San Bernardino County, Riverside, Ventura, and Imperial. SCAG's targets are an 8 percent per capita reduction from 2005 GHG emissions levels by 2020 and a 13 percent per capita reduction from 2005 GHG emissions levels by 2035.

[3] CARB's user guide for the Pavley I + Low Carbon Fuel Standard Postprocessor provides more detail. Available at: http://www.arb.ca.gov/cc/sb375/tools/pavleylcfs-userguide.pdf (accessed August 2010).

The 2020 targets are smaller than the 2035 targets because a significant portion of the built environment in 2020 has been defined by decisions that have already been made. In general, the 2020 scenarios reflect that more time is needed for large land use and transportation infrastructure changes. Most of the reductions in the interim are anticipated to come from improving the efficiency of the region's existing transportation network. The proposed targets would result in 3 MMTons of GHG reductions by 2020 and 15 MMTons of GHG reductions by 2035. Based on these reductions, the passenger vehicle target in CARB's Scoping Plan (for AB 32) would be met (CARB 2010).

SB 375 requires the MPOs to prepare a Sustainable Communities Strategy (SCS) in their regional transportation plan. For the SCAG region, the first SCS is anticipated to be adopted in April 2012 (SCAG 2011). The SCS will set forth a development pattern for the region, which, when integrated with the transportation network and other transportation measures and policies, would reduce GHG emissions from transportation (excluding goods movement). The SCS is meant to provide regional growth strategies that will achieve the regional GHG emissions reduction targets. However, the SCS does not require that local general plans, specific plans, or zoning be consistent with the SCS, but provides incentives for consistency for governments and developers. If the SCS is unable to achieve the regional GHG emissions reduction targets, the MPO is required to prepare an Alternative Planning Strategy that shows how the GHG emissions reduction target could be achieved through other development patterns, infrastructure, and/or transportation measures.

Regulation of GHG Emissions on a Local Level

City of Anaheim General Plan, Green Element

The General Plan Update for the City of Anaheim was adopted in May 2004. The City of Anaheim General Plan, Green Element, while not specifically addressing GHG emissions or climate change, establishes goals and policies that are representative of those activities expected to reduce emissions. These include topics addressing conservation of natural resource, vehicle emissions reduction, reducing vehicle work trips, expanding transit trips, sound land use planning, efficient, clean-burning public transit, energy conservation, and building performance standards (see also Section 5.4, Land Use and Planning).

City of Anaheim Green Resolution, Green Connection, and Green Building Programs

In 2006, the City Council adopted a Resolution setting a series of goals for the City, grounded in the principles of environmental soundness and sustainable development. The City's Green Resolution includes a goal to reduce energy use by 20 percent and water use by 15 percent by 2015. Anaheim Public Utilities, through Anaheim's Green Connection Program, is exploring a variety of different ways to meet these green goals. For example, the City offers several incentive-based program through Anaheim Public Utilities.[4] The City's Green Building Programs promote the following in the design and construction of new development and redevelopment:

- Sustainable Sites. Takes into consideration future needs including access to public transportation, parking capacity, accommodation for alternative fuel vehicles, protection or restoration of open space, storm water management, and prevention of the heat island effect and light pollution.

[4] A list of the City of Anaheim Public Utilities incentives for business efficiency can be found on the City's webpage at: http://www.anaheim.net/article.asp?id=990.

- Water Efficiency. Requires water-efficient landscapes, water-efficient equipment and appliances, and innovative wastewater technologies to reduce costs, help preserve water supplies and prevent pollution.

- Energy Efficiency. Encourages energy-efficiency measures such as use of daylighting, renewable energy, superior insulation, and high-efficiency appliances and equipment.

- Cleaner Atmosphere. Reduction of greenhouse gas and chlorofluorocarbons in heating, ventilation, and air conditions (HVAC) systems and refrigeration to preserve and protect the environment.

- Wiser Use of Materials and Resources. All materials used in construction should provide the best value in terms of the life of the product and future maintenance costs. At the same time, materials must be selected with environmental concerns in mind. Green builders consider not only the finished products they will use in construction, but also the methods of raw material acquisition, product manufacturing, packaging, transportation and use. Green building also means being conscious of waste management. Recycling and reusing materials when practical helps prevent overusing landfills.

- Indoor Environmental Quality. Green buildings provide good indoor air quality, lighting, acoustics and temperature control for the health and comfort of inhabitants. This requires the use of the most environmentally friendly building materials and innovative designs with special attention to ventilation, insulation, and HVAC systems.

Greenhouse Gases and Climate Change

Climate change is a term that refers to the variation of Earth's climate over time, whether due to natural variability or as a result of human activities. The climate system is interactive, consisting of five major components: the atmosphere, the hydrosphere (ocean, rivers, and lakes), the cryosphere (sea ice, ice sheets, and glaciers), the land surface, and the biosphere (flora and fauna). The atmosphere is the most unstable and rapidly changing part of the system. It is made up of 78.1 percent nitrogen (N_2), 20.9 percent oxygen (O_2), and 0.93 percent argon (Ar). These gases have only limited interaction with the incoming solar radiation and do not interact with infrared (long-wave) radiation emitted by the Earth. However, there are a number of trace gases, such as carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and ozone (O_3), that absorb and emit infrared radiation and therefore have an effect on climate. These are GHGs, and while they comprise less than 0.1 percent of the total volume mixing ratio in dry air, they play an essential role in influencing climate (IPCC 2001).

Non-CO_2 GHGs are those listed in the Kyoto Protocol[5] (CH_4, N_2O, hydrofluorocarbons [HFC], perfluorocarbons [PFC], and sulfur hexafluoride [SF_6])and those listed under the Montreal Protocol and its Amendments[6] (chlorofluorocarbons [CFC], hydrochlorofluorocarbons [HCFC], and halons). Table 5.2-2 lists a selection of some of the GHGs and their relative global warming potentials (GWP) as compared to CO_2. Although not included in this table, water vapor (H_2O) is the strongest GHG, also the most variable in its phases (vapor, cloud droplets, ice crystals). However, water vapor is not considered a pollutant in the atmosphere (IPCC 2001). The major GHGs are briefly described below the table.

[5] Kyoto Protocol: Established by the United Nations Framework Convention on Climate Change (UNFCC) and signed by more than 160 countries (excluding the United States) stating that they commit to reduce their GHG emissions by 55 percent or engage in emissions trading.

[6] Montreal Protocol and Amendments: International Treaty signed in 1987 and subsequently amended in 1990 and 1992. Stipulates that the production and consumption of compounds that deplete ozone in the stratosphere (CFC, halons, carbon tetrachloride, and methyl chloroform) are to be phased out by 2000 (2005 for methyl chloroform).

Table 5.2-2
Greenhouse Gases and Their Relative Global Warming Potential Compared to CO_2

GHG	Atmospheric Lifetime (years)	Global Warming Potential Relative to CO_2[1]
Carbon Dioxide (CO_2)	50 to 200	1
Methane (CH_4)[2]	12 (±3)	21
Nitrous Oxide (N_2O)	120	310
Hydrofluorocarbons:		
HFC-23	264	11,700
HFC-32	5.6	650
HFC-125	32.6	2,800
HFC-134a	14.6	1,300
HFC-143a	48.3	3,800
HFC-152a	1.5	140
HFC-227ea	36.5	2,900
HFC-236fa	209	6,300
HFC-4310mee	17.1	1,300
Perfluoromethane: CF_4	50,000	6,500
Perfluoroethane: C_2F_6	10,000	9,200
Perfluorobutane: C_4F_{10}	2,600	7,000
Perfluoro-2-methylpentane: C_6F_{14}	3,200	7,400
Sulfur Hexafluoride (SF_6)	3,200	23,900

Source: USEPA.
[1] Based on 100-Year Time Horizon of the Global Warming Potential (GWP) of the air pollutant relative to CO_2.
[2] The methane GWP includes the direct effects and those indirect effects due to the production of tropospheric ozone and stratospheric water vapor. The indirect effect due to the production of CO_2 is not included.

- **Carbon dioxide (CO_2)** enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, respiration, and also as a result of other chemical reactions (e.g., manufacture of cement). Carbon dioxide is also removed from the atmosphere (sequestered) when it is absorbed by plants as part of the biological carbon cycle.

- **Methane (CH_4)** is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and by the decay of organic waste, including waste in solid waste landfills.

- **Nitrous oxide (N_2O)** is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste.

- **Fluorinated gases** are synthetic, strong greenhouse gases that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for ozone-depleting substances. These gases are typically emitted in smaller quantities, but because they are potent greenhouse gases, they are sometimes referred to as High GWP gases.

    - ***Chlorofluorocarbons (CFCs)*** are greenhouse gases covered under the 1987 Montreal Protocol and used for refrigeration, air conditioning, packaging, insulation, solvents, or aerosol propellants. Since they are not destroyed in the lower atmosphere (troposphere, stratosphere), CFCs drift into the upper atmosphere where, given suitable conditions, they

break down ozone. These gases are also ozone-depleting gases and are therefore being replaced by other compounds that are also GHGs covered under the Kyoto Protocol.

- ***Perfluorocarbons (PFCs)*** are a group of human-made chemicals composed of carbon and fluorine only. These chemicals (predominantly perfluoromethane [CF_4] and perfluoroethane [C_2F_6]) were introduced as alternatives, along with HFCs, to the ozone-depleting substances. In addition, PFCs are emitted as by-products of industrial processes and are also used in manufacturing. PFCs do not harm the stratospheric ozone layer, but they have a high global warming potential.

- ***Sulfur Hexafluoride (SF_6)*** is a colorless gas that is soluble in alcohol and ether, and is slightly soluble in water. SF_6 is a strong greenhouse gas used primarily in electrical transmission and distribution systems as an insulator.

- ***Hydrochlorofluorocarbons (HCFCs)*** contain hydrogen, fluorine, chlorine, and carbon atoms. Although ozone-depleting substances, they are less potent at destroying stratospheric ozone than CFCs. They have been introduced as temporary replacements for CFCs and are also greenhouse gases.

- ***Hydrofluorocarbons (HFCs)*** contain only hydrogen, fluorine, and carbon atoms. They were introduced as alternatives to ozone-depleting substances in serving many industrial, commercial, and personal needs. HFCs are emitted as by-products of industrial processes and are also used in manufacturing. While they do not significantly deplete the stratospheric ozone layer, they are strong greenhouse gases (USEPA 2008a, IPCC 2001, IPCC 2007).

California's GHG Sources and Relative Contribution

California is the second largest emitter of GHG in the United States, only surpassed by Texas, and the tenth largest GHG emitter in the world (CEC 2005).This is due to both its physical land area and its large population and employment base. However, because of more stringent air emission regulations, in 2001 California ranked fourth lowest in carbon emissions per capita and fifth lowest among states in CO2 emissions from fossil fuel consumption per unit of Gross State Product (total economic output of goods and services) (CEC 2006). In 2004, California produced 492 million metric tons (MMTons) of CO_2-equivalent (CO_2e).[7] Of these GHG emissions 81 percent were CO_2 emissions produced by the combustion of fossil fuels, 2.8 percent were from other sources of CO_2, 5.7 percent were from methane, and 6.8 percent were from N_2O (CEC 2006). The remaining 2.9 percent of GHG emissions were from high global warming potential gases, which include hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride (CEC 2006).

CO_2 emissions from human activities make up 84 percent of the total GHG emissions (CEC 2006). California's transportation sector is the single largest generator of GHG emissions, producing 40.7 percent of the state's total emissions (CEC 2006). Electricity consumption is the second largest source, comprising 22.2 percent. While out-of-state electricity generation comprises 22 to 32 percent of California's total electricity supply, it contributes 39 to 57 percent of the GHG emissions associated with electricity consumption in the state (CEC 2006). Industrial activities are California's third largest source of GHG emissions, comprising 20.5

[7] CO_2-equivalence is used to show the relative potential that different GHG have to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. The global warming potential of a GHG is also dependent on the lifetime, or persistence, of the gas molecule in the atmosphere.

percent of state's total emissions (CEC 2006). Other major sources of GHG emissions include mineral production, waste combustion and land use, and forestry changes. Agriculture, forestry, commercial, and residential activities compose the balance of California's greenhouse gas emissions (CEC 2006).

Human Influence on Climate Change

For approximately 1,000 years before the Industrial Revolution, the amount of GHG in the atmosphere remained relatively constant (IPCC 2007). During the 20th century, however, scientists observed a rapid change in the climate and climate change pollutants that are attributable to human activities. The amount of CO_2 has increased by more than 35 percent since preindustrial times and has increased at an average rate of 1.4 parts per million (ppm) per year since 1960, mainly due to combustion of fossil fuels and deforestation (IPCC 2007). These recent changes in climate change pollutants far exceed the extremes of the ice ages, and the global mean temperature is warming at a rate that cannot be explained by natural causes alone. Human activities are directly altering the chemical composition of the atmosphere through the buildup of climate change pollutants (CAT 2006).

Climate-change scenarios are affected by varying degrees of uncertainty (IPCC 2007). The Intergovernmental Panel on Climate Change's (IPCC) 2007 IPCC Fourth Assessment Report projects that the global mean temperature increase from 1990 to 2100, under different climate-change scenarios, will range from 1.4 to 5.8 °C (2.5 to 10.4°F). In the past, gradual changes in the earth's temperature changed the distribution of species, availability of water, etc. However, many scientists believe that human activities are accelerating this process so that environmental impacts associated with climate change no longer occur in a geologic timeframe but within a human lifetime (IPCC 2007. However, as set forth below, many scientists disagree with the climate change scenarios identified by the IPCC.

Potential Climate Change Impacts for California

Climate change is not a local environmental impact; it is a global impact. Unlike criteria pollutants, CO_2 emissions cannot be attributed to a direct health effect. However, human-caused increases in GHG have been shown to be highly correlated with increases in the surface and ocean temperatures on Earth (IPCC 2007). What is not clear is the extent of the impact on environmental systems.

Like the variability in the projections of the expected increase in global surface temperatures, the environmental consequences of gradual changes in the Earth's temperature are also hard to predict. Likewise, there are varying degrees of uncertainty in environmental impact scenarios. Because of this uncertainty, the IPCC uses five different confidence levels to quantify climate change impacts on the environment: Very High Confidence (95 percent or greater), High Confidence (67 to 95 percent), Medium Confidence (33 to 67 percent), Low Confidence (5 to 33 percent), and Very Low Confidence (5 percent or less).

In California and western North America, 1) observations in the climate have showed a trend toward warmer winter and spring temperatures, 2) a smaller fraction of precipitation is falling as snow, 3) there is a decrease in the amount of spring snow accumulation in the lower and middle elevation mountain zones, 4) there is an advance snowmelt of 5 to 30 days earlier in the spring, and 5) there is a similar shift (5 to 30 days earlier) in the timing of spring flower blooms (CAT 2006). According to the California Climate Action Team (CAT), even if actions could be taken to immediately curtail climate change emissions, the potency of emissions that have already built up, their long atmospheric lifetimes (see Table 5.2-1), and the inertia of the Earth's climate system could produce as much as 0.6°C (1.1°F) of additional warming. Consequently, some impacts from climate change are now considered unavoidable.

CAT and Cal/EPA use the results from the recent analysis of global climate change impacts for California under three IPCC scenarios: lower emissions (B1), medium-high emissions (A2), and high emissions (A1F1); each is associated with an increasing rise in average global surface temperatures. According to the California Energy Commission's (CEC) 2006 report, "Our Changing Climate, Assessing the Risks to California," global climate change risks to California include public health impacts (poor air quality made worse and more severe heat), water resources impacts (decreasing Sierra Nevada snow pack, challenges in securing adequate water supply, potential reduction in hydropower, and loss of winter recreation), agricultural impacts (increasing temperatures, increasing threats from pests and pathogens, expanded ranges of agricultural weeds, and declining productivity), coast sea level impacts (rising coastal sea levels, increasing coastal floods, and shrinking beaches), forest and biological resource impacts (increasing wildfires, increasing threats from pest and pathogens, declining forest productivity, and shifting vegetation and species distribution), and electricity impacts (increased energy demand).

Specific climate change impacts that could affect the project include health impacts from a reduction in air quality, water resources impacts from a reduction in water supply, and increased energy demand.

Scientific Debate Regarding the Scope and Extent of Anthropogenic Global Warming

As a matter of public policy, through the enactment of Assembly Bill 32 (AB 32) and other legislation, the State of California has declared that the continued rise in concentrations of GHG emissions pose a threat to the health and welfare of the people of the State. Thus, this EIR sets forth a comprehensive analysis consistent with the framework provided by state and regional authorities, of the proposed project's impacts with respect to climate change. Nevertheless, there continues to be significant debate among scientists on the cause and extent of anthropogenic global warming and whether California's commitments to reduce GHG emissions will have any measurable affect on global climate change trends.

Significant scientific debate continues to exist regarding the cause and extent of anthropogenic global warming.[8] During the past two years additional evidence and factual material has been disclosed and debated that calls into question the integrity of scientific methodologies of the IPCC – which has served as the primary basis for much of the proposed regulatory action throughout the world.[9] Thus, while the State of California has embarked upon a comprehensive regulatory program and has declared that climate change poses a significant threat to the health and welfare of the citizens of the State, it is nevertheless true that scientific debate exists regarding the cause and extent of anthropogenic global warming.

In addition, assuming that the State of California can achieve its greenhouse gas emissions reductions goals set forth in AB 32, it is unclear as to whether the achievement would have any effect on any global warming trends caused by fossil fuel combustion. While California Air Resources Board's (CARB) Scoping Plan outlines strategies to reduce GHG emissions by approximately 169.4 MMTons (CARB 2008), these savings

[8] In 2008, 650 scientists from around the globe submitted a several hundred page report calling into question the claims made by the IPCC that global warming exits and is caused by humans (U.S. Senate Minority Report 2008).

[9] The factual material consists of the following: (1) the charge that the IPCC is a political organization and not a scientific organization (Singer 2008 and Tol 2007); (2) extensive criticism that the IPCC's Fourth Assessment Report lacked any sort of meaningful scientific peer review (Holland 2007); (3) the assertion that the Fourth Assessment Report contains numerous errors and unsubstantiated factual assertions such as the use of the "Hockey Stick" (Gray 2010 and Monckton 2008), leaked emails from the University of East Anglia (Delingpole 2009), various claims contained in the Fourth Assessment Report were false, including, but not limited to the claims that the Himalayan Glaciers would melt by 2035, that African crop production would be cut by 50 percent by 2020; and the claim that sea levels would rise based on melting ice having equal displacement with water, among others (Webster 2010, IPCC 2010, and Leake 2010).

are not nearly enough to compensate for the expected increase in emissions in developing countries during the same period alone. China has surpassed the United States as the world's largest GHG emitter and GHG levels are projected to increase by 75 percent to more than double existing levels.[10] India's emissions are projected to increase fourfold by 2030 (The Economist 2008).[11] Similarly, Brazil, the largest economy in South America, GHG emissions increased by more than 60 percent between 1990 and 2004, and are projected to continue to rise at a similar pace (International Energy Agency 2006). Both of those increases, however, are insignificant compared to the increases projected for China. Consequently, it is clear that similar steps to reduce emissions must be taken in developed and developing nations to reduce GHG emissions worldwide.

5.2.2 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if it would:

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

GHG-2 Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

CEQA allows the significance criteria established by the applicable air quality management or air pollution control district to be used to assess impacts of a project on air quality. The analysis of the proposed project's GHG impacts follows the guidance and methodologies recommended in SCAQMD's *CEQA Air Quality Handbook* and the significance thresholds on SCAQMD's website.[12] SCAQMD has proposed thresholds of significance for GHGs.

South Coast Air Quality Management District Significance Criteria

To provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents, SCAQMD has convened a GHG CEQA Significance Threshold Working Group (Working Group). Based on the last Working Group meeting (Meeting No. 15) held in September 2010, SCAQMD is proposing to adopt a tiered approach for evaluating GHG emissions for development projects where SCAQMD is not the lead agency:

[10] A recent study conducted by economists at the University of California, Berkeley and UC San Diego estimated that China's CO_2 emissions are growing by as much as 11 percent annually and that a ton of CO_2 emitted from China comingles with a ton of carbon dioxide emitted from Southern California in approximately seventy two hours (Auffhammer and Carson 2008). A 2009 analysis of Chinese emissions by the French Institute for Sustainable Development and International Relations projects that even if the Chinese government reduces carbon emissions by about 40-45 percent per unit of gross domestic product, China will still have an approximate 75 percent increase in CO_2 emissions by 2020 (The Times of India 2009). A different study by the Climate Change Institute at Australian National University suggested that China's emissions may grow even more: doubling by 2020 (The Times of India 2009). China's increase in emissions alone could be three to four times higher than the combined cuts promised by the United States and the European Union (The Times of India 2009).

[11] According to projections from the Energy Information Administration (EIA), carbon emissions from Brazil alone are expected to increase from 216 MMTons in 1990 and 356 MMTons in 2005 to 541 MMTons in 2020, nearly double the amount of emissions which will be saved by the implementation of AB 32. During that period, India's emissions are projected to increase by about 1,253 MMTons (EIA 2008).

[12] SCAQMD's Air Quality Significance Thresholds are current as of March 2011 and can be found here: http://www.aqmd.gov/ceqa/hdbk.html.

Tier 1 If a project is exempt from CEQA, project-level and cumulative GHG emissions are less than significant.

Tier 2 If the project complies with a GHG emissions reduction plan or mitigation program that avoids or substantially reduces GHG emissions in the project's geographic area (i.e., city or county), project-level and cumulative GHG emissions are less than significant.

For projects that are not exempt or where no qualifying GHG reduction plans are directly applicable, SCAQMD requires an assessment of GHG emissions. SCAQMD is proposing a screening-level threshold of 3,000 MTons annually for all land use types or the following land-use-specific thresholds: 1,400 MTons for commercial projects, 3,500 MTons for residential projects, or 3,000 MTons for mixed-use projects. This bright-line threshold is based on a review of the Governor's Office of Planning and Research database of CEQA projects. Based on their review of 711 CEQA projects, 90 percent of CEQA projects would exceed the bright-line thresholds identified above. Therefore, projects that do not exceed the bright-line threshold would have a nominal, and therefore, less than cumulatively considerable impact on GHG emissions:

Tier 3 If GHG emissions are less than the screening-level threshold, project-level and cumulative GHG emissions are less than significant.

Tier 4 If emissions exceed the screening threshold, a more detailed review of the project's GHG emissions is warranted.

SCAQMD is proposing to adopt an efficiency target for projects that exceed the screening threshold. The current recommended approach is per capita efficiency targets. SCAQMD is not recommending use of a percent emissions reduction target. Instead, SCAQMD proposes a 2020 efficiency target of 4.8 MTons per year per service population (MTons/year/SP) for project-level analyses and 6.6 MTons/year/SP for plan level projects (e.g., program-level projects such as specific plans and general plans).[13] If projects exceed these per capita efficiency targets, GHG emissions would be considered potentially significant in the absence of mitigation measures.

5.2.3 Environmental Impacts

Methodology

This GHG analysis analyzes potential operational phase impacts related to an increase in the number of annual events at Honda Center to accommodate an additional professional sports franchise. Honda Center is permitted to host up to 162 events per year. Over the last five years, Honda Center has averaged 11,264 visitors during an event and 153 events per year. To estimate air quality and GHG emissions from increasing the number of events in a year, information on operation of the event center was obtained from Honda Center during surveys and follow-up conversations in June through July 2011, and is shown in Table 5.2-3.

[13] It should be noted that the Working Group also considered efficiency targets for 2035 for the first time in this Working Group meeting.

Table 5.2-3
Honda Center Operational Characteristics

Source	Information
Energy Use	• Winter: 1,217,583.90 kWH • Summer: 1,974,389.70 kWH
Natural Gas Use	• Winter: 16,666 Therms • Summer: 5,100 Therms
Water Use[1]	• Winter: 1,530,000 gallons • Summer: 1,860,000 gallons
Waste	• 1.5 Tons of garbage per event • 0.5 Tons of recycling per event
Transportation	• Average one-way travel distance for event patrons is 31.1 miles based on Ticketmaster sales (main customer base is Orange, Riverside, and north San Diego counties)[2] • Average 4,000 cars, 5 buses, and between 4 and 20 trucks per event.[2]

Source: Starkey 2011.
[1] Modeling assumes 95 percent of water use is indoor water use because of the amount of surface parking and limited landscaping.
[2] While cash sales and season ticket holders distance is unknown, it is probable that these purchases occur in a similar service area, close to Honda Center. Therefore, tickets purchased at will-call, via cash, or season tickets sales, which represent approximately 30 percent of ticket sales, are assumed to occur at a similar distance as Ticketmaster the 90th percentile distance. Based on Ticketmaster sales, over 90 percent of the ticket sales occur within 28.7 miles of Honda Center. Assumes ticket sales in locations farther than 4 hours away are "visitors" to the southern California region (e.g., vacation trips which may coincide with other destinations in southern California) and trips were calculated from the Los Angeles International Airport. Therefore, a 31.1 mile trip length is considered a conservative estimate of average trip length for patrons of Honda Center.
[3] Modeling assumes a conservative fleet mix of 98.4% passenger vehicles (62.7% LDA, 8.5% LDT1, 27.2% LDT2 based on EMFAC2007), 1% medium duty trucks, 0.5% heavy duty trucks, and 0.1% urban buses based on estimates provided by Honda Center of parked vehicles during an event. Assumes a similar fleet mix for both event and nonevent days.

SCAQMD has published the *CEQA Air Quality Handbook* (Handbook) as well as updates included on SCAQMD's website, which are intended to provide local governments with guidance for analyzing and mitigating project-specific air quality impacts. This Handbook provides standards, methodologies, and procedures for conducting air quality analyses in environmental impact reports and was used extensively in the preparation of this analysis. Modeling was conducted using emission factors and methodologies in the California Emissions Estimator Model (CalEEMod), version 2011.1.1 and CalEEMod user's guide (SCAQMD 2011). Criteria air pollutant and GHG modeling files are included as an appendix to this technical study. The following assumptions were utilized in the analysis:

- Average attendance per event is assumed to be similar to historic levels for future events held in Honda Center (11,264 visitors), based on the highest 3 years of attendance from 2006 to 2011.

- Transportation emissions were modeled using CARB's EMFAC2007 for year 2011. Both existing and project emissions are modeled for year 2011 because no construction is necessary for Honda Center to accommodate a second professional sports franchise and would result in a worst-case emissions inventory. Assumes a 5 percent reduction in trips as a result of proximity to the Anaheim Regional Transportation Intermodal Center (ARTIC), transit service provided by the Orange County Transportation Authority (OCTA), and location within the Platinum Triangle mixed-use area. Additional assumptions on transportation emissions, including trip generation during an event, are included as Appendix A to this technical study.

- While operation of Honda Center on nonevent days generates water and energy demand, the demand for these services is assumed to be proportional to the average annual population of the facility. Consequently, the increase in water demand and energy use (natural gas and purchased energy) is assumed to be proportional to the increase in the number of events.

- The increase in waste disposal is based on existing estimates of waste disposal after an event and increased proportionately.

- Service population is based on an average annual population at Honda Center. The traditional metric for service population is typically characterized as people who live or work at the project site (i.e., residents and employees). However, defining the service population metric in this manner excludes other users of the facility who drive to the event, use water, generate waste, and contribute to the energy demand. Consequently, for an entertainment land use, the service population has been defined as staff/employees, team members/production members, and visitors to Honda Center (see Table 5.2-4).

Table 5.2-4
Service Population of Honda Center

	Existing	Project
Average Annual Visitors	1,723,333	2,500,523
Average Annual Employees/Staff and Team/Production Members	343,619	465,663
Average Number of People Onsite Per Day per year (Service Population)	5,663	8,127
Increase in the average number of people onsite per day per year		2,464

Source: Starkey 2011. Based on average annual attendance during an event and employees on nonevent days.

The following impact analysis addresses thresholds of significance for which the Initial Study disclosed potentially significant impacts. The applicable thresholds are identified in brackets after the impact statement.

IMPACT 5.2-1: THE PROPOSED PROJECT WOULD INCREASE THE NUMBER OF EVENTS HELD AT HONDA CENTER, RESULTING IN A SUBSTANTIAL INCREASE IN GHG EMISSIONS. [THRESHOLDS GHG-1 AND GHG-2]

Impact Analysis: Global climate change is not confined to a particular project area and is generally accepted as the consequence of global industrialization over the last 200 years. A typical project, even a very large one, does not generate enough GHG emissions on its own to influence global climate change significantly; hence, the issue of global climate change is, by definition, a cumulative environmental impact. The analysis below provides the conclusions on the project-specific impact toward the cumulative impact of global climate change. The State of California, through its governor and its legislature, has established a comprehensive framework for the substantial reduction of GHG emissions over the next 10+ years. This will occur primarily through the implementation of AB 32 and SB 375, which address GHG emissions on a statewide cumulative basis.

The proposed project would result in an increase in GHG emissions from transportation sources, offsite energy production required for onsite activities, natural gas used on site for heating and cooking, water use, and waste disposal. Lifecycle emissions are not required to be analyzed due to the speculative nature of such

analysis.[14] Project-related GHG emissions are shown in Table 5.2-5.

Table 5.2-5
Greenhouse Gas Emissions Inventory

Source	GHG Emissions MTons/Year		
	Existing	Project	Net Increase
Transportation	23,755	32,926	9,171
Purchased Energy	*12,342*	*17,712*	*5,370*
Natural Gas	*693*	*994*	*301*
Total Energy	**13,035**	**18,706**	**5,671**
Water and Wastewater	151	220	68
Waste Disposal	126	183	57
Total All Sectors[2]	**37,068**	**52,035**	**14,967**
GHG Emissions per Service Population[1]	**6.5**	**6.4**	**-0.1**

Notes: MTons: metric tons
[1] Because of the type of regional event services provided by Honda Center, the traditional definition of Service Population is not directly applicable to Honda Center operations. Consequently, for the purpose of the GHG assessment. Service population is based on historical average daily spectators, staff/employee, and team/production member provided by Honda Center.
[2] GHG emissions from construction activities are nominal and therefore not included in the inventory above. Per SCAQMD's guidance, amortized construction emissions would be2 MTons per year.

GHG Emissions Impacts

The proposed project would generate a net increase of 14,967 MTons of GHG per year compared to existing conditions. In other words, the total emissions associated with an additional 69 events per year at sell out capacity would generate a net increase in 14,967 MTons of GHG per year. The total increase in GHG emissions onsite from the project would exceed SCAQMD's proposed screening threshold of 3,000 MTons for all land use types.[15] When the proposed screening threshold is exceeded, SCAQMD provides another tier of evaluation with the per capita threshold of 4.8 MTons per service population. The increase in GHG emissions cited above does not include gradual reductions in GHG emissions from an increase in fuel efficiency and higher utilization of renewable power in the local energy grid by year 2020 in accordance with AB 32, which is the efficiency target year. Table 5.2-6 presents GHG emissions of the project with Scoping Plan emission reductions and a comparison of total project emissions in comparison to SCAQMD's proposed efficiency target of 4.8 MTons in 2020. For the purpose of this assessment, service population includes average daily employees and average daily visitors based on historic annual attendance at Honda Center (see Table 5.2-4). The proposed project would result in annual emissions of 5.0 MTons per service population with the project. An increase in the number of annual events at Honda Center results in a decrease in per capita GHG emissions because the building generates emissions regardless of whether it is in use or not (see Table

[14] Life cycle emissions include indirect emissions associated with materials manufacture. However, these indirect emissions involve numerous parties, each of which is responsible for GHG emissions of their particular activity. Because the origin of materials consumed during the operation or construction of the proposed project is not known, the origin of the raw materials purchased is not known, and manufacturing information for those raw materials are also not known, the Governor's Office of Planning and Research has concluded that calculation of life cycle emissions would be speculative (Governor's Office of Planning and Research, 2008).

[15] This threshold is based on SCAQMD's 3,000 MTons combined threshold proposed by SCAQMD's Working Group, which is based on a survey of the GHG emissions inventory of CEQA projects. Approximately 90 percent of CEQA projects GHG emissions inventories exceed 3,000 MTons, which is based on a potential threshold approach cited in CAPCOA's white paper, "CEQA and Climate Change."

5.2-5). Thus, increase the number of events per year increases the intensity and efficiency and the existing land use. However, GHG emissions associated with the project would exceed SCAQMD's proposed per capita significance threshold; and therefore, the proposed project's cumulative contribution to GHG emissions would be potentially significant. A total of 1,819 MTons would need to be reduced in order to achieve a per capita efficiency goal of 4.8 MTons per service population in accordance with SCAQMD's proposed efficiency metric.

Table 5.2-6
Greenhouse Gas Emissions Inventory with Scoping Plan Reductions

Source	Year 2020 GHG Emissions MTons/Year	
	Project	Percent of Inventory
Transportation[1]	24,126	59%
Purchased Energy[2]	*15,303*	*37%*
Natural Gas	*994*	*2%*
Total Energy	**16,297**	**40%**
Water and Wastewater	220	<1%
Waste Disposal	183	<1%
Total All Sectors	**40,826**	**100%**
GHG Emissions Per Service Population[3]	**5.0**	**NA**

Notes: MTons: metric tons; Emissions may not add to 100% due to rounding.
[1] Based on the EMFAC2007 Pavley I + LCFS Postprocessor Version 1.0.
[2] SCE derives approximately 19.4 percent of its energy from renewable energy sources (SCE 2011). Assuming a similar percentage increase in renewable power for Anaheim Public Utilities between 2011 and 2020, in accordance with the state's 33 percent RPS goal.
[3] Because of the type of regional event services provided by Honda Center, the traditional definition of service population is not directly applicable to Honda Center operations. Consequently, for the purpose of the GHG assessment, service population is based on historical average daily spectators, staff/employee, and team/production member provided by Honda Center.

Consistency with GHG Reduction Goals and Policies

A project would normally have a significant effect on the environment if it would conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. While actions taken in California alone cannot stabilize the climate, the state's actions set an example and help to drive the global progress toward reduction of GHG. If the industrialized world were to follow the emission reduction targets established by California, and industrializing nations reduced emissions according to the lower emissions path (lower emissions IPPC scenario B1), medium or higher warming ranges of global temperature increases might be avoided, along with the most severe consequences of global warming (IPCC 2007). In 2007, the CEC published "The Role of Land Use in Meeting California's Energy and Climate Change Goals" (CEC 2007). In this publication, the CEC acknowledged that California's land use patterns shape energy use and the production of GHG. Transportation contributes a large percentage of the state's GHG emissions, and research shows that increasing a community or development's density and accessibility to job centers are the two most significant factors for reducing vehicle miles traveled through design (CEC 2007).

In accordance with AB 32, CARB developed the Scoping Plan to outline the state's strategy to achieve 1990 level emissions by year 2020. To estimate the reductions necessary, CARB projected statewide year 2020 BAU GHG emissions (i.e., GHG emissions in the absence of statewide emission reduction measures). CARB identified that the state as a whole would be required to reduce GHG emissions by 28.5 percent from year 2020 BAU. Compliance with the federal and statewide GHG emissions reduction measures that are being implemented over the next 10 years, as outlined above, would reduce Honda Center's GHG emissions. In

addition, increasing the number of annual events results in a decrease in per capita GHG emissions since the building generates emissions regardless of whether it is in use or not (see Table 5.2-5). Thus, increase the number of events per year increases the intensity and efficiency and the existing land use.

In addition, several modes of public transportation provide access to Honda Center, including passenger rail and bus service. The Anaheim Amtrak/Metrolink Station is at the north end of the Angels Stadium of Anaheim parking lot 0.4 mile southwest of Honda Center. Two passenger rail services serve the station. The Amtrak Pacific Surfliner operates between San Diego and San Luis Obispo seven days per week. Eleven trains in each direction, northbound and southbound, stop at Anaheim on weekdays (Amtrak 2011). Metrolink is a commuter rail service. One Metrolink line, the Orange County line, serves the Anaheim station seven days per week; on weekdays 13 northbound and 12 southbound trains stop at Anaheim (Metrolink 2011). Honda Center is a 0.5 mile walk from the Amtrak/Metrolink Station and a 0.5 walk from the proposed ARTIC Station. Public bus service is provided in Orange County by the Orange County Transportation Authority (OCTA). OCTA Route 50 operates on Katella Avenue past Honda Center. Route 50 provides east-west service between the City of Orange and Long Beach seven days per week; peak hour weekday frequency is about 30 minutes (OCTA 2011a). OCTA Route 153 operates on Katella Avenue between Struck Avenue and Main Street, providing north-south service between Anaheim and Brea seven days per week with hourly frequency (OCTA 2011b). The southern terminus of this route, on Katella Avenue, is approximately 0.3 mile east of Honda Center and is walkable using sidewalks. Routes 50 and 135 include regular bus service and station-link bus service.

The project would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions, and for this reason the project would have a less than significant impact under this second threshold.

5.2.4 Cumulative Impacts

As described under Impact 5.2-1, project-related GHG emissions are not confined to a particular air basin but are dispersed worldwide. Hence, GHG impacts are by nature a cumulative impact. Consequently, it is speculative to determine how an individual project's GHG emissions would impact California. Therefore, impacts identified under Impact 5.2-1 are not project-specific impacts to global warming, but the Proposed Project's contribution to this cumulative impact. Because the Proposed Project's GHG emissions were considered significant even with mitigation, the project's GHG emissions and contribution to global climate change impacts are considered cumulatively considerable and therefore significant for GHG emissions.

5.2.5 Existing Regulations

- CARB Rule 2485 – Airborne Toxics Control Measure (ATCM)
- SCAQMD Rule 201 – Permit to Construct
- SCAQMD Rule 402 – Nuisance Odors
- SCAQMD Rule 403 – Fugitive Dust
- SCAQMD Rule 1108 – Cutback Asphalt
- SCAQMD Rule 1113 – Architectural Coatings
- SCAQMD Rule 1301 – New Source Review
- SCAQMD Rule 1403 – Asbestos Emissions from Demolition/Renovation Activities
- 40 CFR Part 85 – Control of Air Pollution from Mobile Sources
- 40 CFR Part 89 – Control of Emissions from New and In-Use Nonroad Compression-Ignition

Engines
- Building Energy Efficiency Standards (Title 24)
- Appliance Energy Efficiency Standards (Title 20)
- Motor Vehicle Standards (AB 1493)

5.2.6 Level of Significance Before Mitigation

Upon implementation of regulatory requirements, the following impacts would be **potentially significant** without mitigation:

- Impact 5.2-1 The Proposed Project would increase the number of events held at Honda Center, resulting in a substantial increase in GHG emissions.

5.2.7 Mitigation Measures

Impact 5.2-1

2-1 Honda Center shall request a Comprehensive Energy Audit by the Anaheim Public Utilities, which is a free service offered by the utility. According to the Anaheim Public Utilities, customers can reduce energy by as much as 10 to 25 percent of month through efficiency reductions. Energy reductions can be accomplished through retrofits and/or offsets provided by renewable energy generation onsite. Potential combination of measures that could be taken to achieve a reduction in energy demand includes:

a. Replacement of indoor and outdoor lighting fixtures with LED or compact fluorescent fixtures.

b. Retrofitting air conditioning, heating, and ventilation systems and/or calibrating systems for efficiency (e.g., increasing average indoor temperature settings in summer and during hockey events).

c. Replacing restaurant refrigerators, freezers, and other appliances with Energy Star rated appliances to reduce plug-load.

d. Installation of photovoltaic system (e.g., carports with solar panels or rooftop-mounted solar panels) or wind-energy-system at Honda Center to offset energy use generated during an event. For example, a 750 kW-ac photovoltaic system is estimated to produce 1,242,163 kWh per year based on the California Public Utilities Commission's Clean Power Estimator.

2-2 The City of Anaheim shall continue coordinating with the Southern California Regional Rail Authority (SCRRA), which operates Metrolink service on Orange County Line in conjunction with the Orange County Transportation Authority (OCTA). The City of Anaheim shall coordinate with SCRRA to discuss the potential for providing special event service to Honda Center and the Angel Stadium of Anaheim on weekends and during the week. A list of events, including the day or the event, time of the event, and duration of the event at Honda Center and the Angel Stadium of Anaheim shall be provided to SCRRA to initiate these discussions. Barriers to implement Special Event Service on the Orange County Line shall be discussed. Potential funding options to

overcoming barriers to implement special event Service on the Orange County line should be indentified and considered, including funding for additional train operators and trains that coincide with commuter service.

2-3 To encourage use of transit by visitors to Honda Center, ticket holders shall be provided information on the Metrolink and Amtrak services available on the day of the event, including Metrolink and Amtrak scheduling.

5.2.8 Level of Significance After Mitigation

Impact 5.2-1

As described previously, Honda Center would need to reduce GHG emissions by 1,819 MTons in order to achieve an efficiency metric of 4.8 MTons per service population. Mitigation Measure 2-1 through 2-3 would reduce GHG emissions to the extent feasible. However, the effectiveness of these mitigation measures are uncertain and can not be quantified. Therefore, GHG emissions impacts would remain significant and unavoidable.

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