4.0 ENVIRONMENTAL IMPACT ANALYSIS
C. ENERGY

1. INTRODUCTION

In accordance with Appendix F of the State CEQA Guidelines, this Draft EIR includes relevant information and analyses that address the energy implications of the Project. This section represents a summary of the Project's anticipated energy needs, impacts, and conservation measures. Information found herein, as well as other aspects of the Project's energy implications, are discussed in greater detail elsewhere in this Draft EIR, including in Chapter 2.0, *Project Description*, and Sections 4.E., *Greenhouse Gas Emissions*, 4.H., *Land Use and Planning*, and 4.L., *Transportation and Traffic*. Additional supporting calculations for the analysis presented in this section are provided in Appendix F of this Draft EIR.

2. ENVIRONMENTAL SETTING

Section 21100(b) of the State CEQA Guidelines requires that an EIR include a detailed statement setting forth mitigation measures proposed to minimize a project's significant effects on the environment, including, but not limited to, measures to reduce the wasteful, inefficient, and unnecessary consumption of energy. CEQA Guidelines Appendix F of the State CEQA Guidelines states that in order to ensure that energy implications are considered in project decisions, the potential energy implications of a project shall be considered in an EIR, to the extent relevant and applicable to the project. CEQA Guidelines Appendix F further states that a project's energy consumption and proposed conservation measures may be addressed, as relevant and applicable, in the Project Description, Environmental Setting, and Impact Analysis portions of technical sections, as well as through mitigation measures and alternatives and potentially in other required sections of this Draft EIR.

a. Existing Conditions

(1) Existing On-Site Improvements

Most of the facilities in the central Campus were designed and constructed prior to 1960, prior to modern energy standards. Many of the existing buildings on the Campus date back to the 1940s, including numerous small wood-frame barracks and temporary/modular buildings that collectively occupy the majority of the Medical Center Campus land area. Further, the existing layout of the Medical Center Campus reflects its piecemeal growth over time, and the scattered, aging buildings and infrastructure have become inefficient to operate and maintain, contributing to serious logistical obstacles and service deficiencies.

The existing Central Plant provides and maintains 24-hour utility generation, transmission, and distribution to on-site buildings. As described in the Campus Master Plan, the Central Plant consists of a Boiler Plant and Chiller Plant. The Boiler Plant consists of three natural gas-fired steam boilers that are permitted by the South Coast Air Quality Management District (SCAQMD). Boilers H-1 and H-2 are rated at 400 horsepower with a steam capacity of 13,800 pounds per hour and Boiler H-3 is rated at 300 horsepower with a steam capacity of 10,400 pounds per hour. The Chiller Plant consists of four chillers with a total capacity of 3,814 tons with chilled water pumping capacity of 6,065 gallons per minute. From the Central Plant, low-pressure

steam with condensate return (for research equipment), compressed air (for instrumentation and automation functions), hot water (for building heating and domestic hot water), and chilled water (for cooling) are distributed though on-site infrastructure throughout the Campus. Thus, the Central Plant operates as the primary component of the Campus's heating, ventilation, and air conditioning (HVAC) system. Electricity is primarily distributed via overhead powerlines to transformers located at the individual buildings, while steam, compressed air, and heated/cooled water is distributed through an underground pipe system. The Campus also maintains six 2 megawatt (MW) emergency generators.

As the distribution systems were designed and implemented in a piecemeal fashion as demand warranted, they do not achieve optimal operating efficiency. Further, the generation and distribution infrastructure is reaching the end of its service life and requires continually increased levels of maintenance to remain operational.

A number of infrastructure systems on the Medical Center Campus are at the end of their service life or inadequate for current needs and require increasing maintenance or replacement. These include portions of the electrical system (normal and emergency power), which includes 40-year-old substations throughout the Campus and some inadequate distribution systems; lighting systems, many of which are original and require replacement for reasons of energy-efficiency.

Materials management throughout the Medical Center Campus—encompassing everything from loading dock design to the handling and provision of medical supplies and equipment, technology, linens, and food—also requires overhauling and centralization for reasons of efficiency and improved fulfillment of requests. At the other end of that continuum, waste management operations also require improvements in collection, staging, and processing, to allow for more efficiency and sustainable practices for compliance with increasingly stringent mandatory state and local regulations.

b. Regulatory Framework Summary

No federal or regional regulations are applicable to the analysis of energy resources impacts. As such, only State and local regulations are discussed below.

(1) State

(a) State CEQA Guidelines

Section 21100(b) of the CEQA Statute requires that an EIR include a detailed statement setting forth mitigation measures proposed to minimize a project's significant effects on the environment, including, but not limited to, measures to reduce the wasteful, inefficient, and unnecessary consumption of energy. Appendix F of the State CEQA Guidelines states that, in order to ensure that energy implications are considered in project decisions, the potential energy implications of a project shall be considered in an EIR, to the extent relevant and applicable to the project. Appendix F further states that a project's energy consumption and proposed conservation measures may be addressed, as relevant and applicable, in the Project Description, Environmental Setting, and Impact Analysis portions of technical sections, as well as through mitigation measures and alternatives and potentially in other required sections of this Draft EIR.

Section 21100(b) of the CEQA Statute requires that an EIR include a detailed statement setting forth mitigation measures proposed to minimize a project's significant effects on the environment, including but not limited to measures to reduce the wasteful, inefficient, and unnecessary consumption of energy. Appendix F of the State CEQA Guidelines states that, in order to ensure that energy implications are considered in project decisions, the potential energy implications of a project shall be considered in an EIR, to the extent relevant and applicable to the project. Appendix F further states that a project's energy consumption and proposed conservation measures may be addressed, as relevant and applicable, in the Project Description, Environmental Setting and Impact Analysis portions of technical sections, as well as through mitigation measures and alternatives and potentially in other required sections of this Draft EIR. In accordance with Appendix F of the State CEQA Guidelines, this Draft EIR includes relevant information and analyses that address the energy implications of the Project. This section provides a summary of the Project's anticipated energy needs, impacts, and conservation measures. Information found herein, as well as other aspects of the Project's energy implications, are also discussed elsewhere in this Draft EIR including in Chapter 2.0, Project Description, Section 4.E., *Greenhouse Gas Emissions*, Section 4.H., *Land Use and Planning*, and Section 4.L., *Transportation and Traffic*.

(b) Senate Bill 375 (SB 375, Steinberg) (Chapter 728, Statutes of 2008)

Senate Bill (SB) 375 establishes mechanisms for the development of regional targets for reducing passenger vehicle greenhouse gas emissions and was adopted by the State on September 30, 2008. Under SB 375, the target must be incorporated within that region's Regional Transportation Plan (RTP), which is used for long-term transportation planning, in a Sustainable Communities Strategy (SCS). Certain transportation planning and programming activities would then need to be consistent with the SCS; however, SB 375 expressly provides that the SCS does not regulate the use of land, and further provides that local land use plans and policies (e.g., general plan) are not required to be consistent with either the RTP or SCS. On April 7, 2016, the Southern California Association of Governments (SCAG) adopted the *2016-2040 Regional Transportation Plan/Sustainable Communities Strategy* (2016 RTP/SCS).[1] Using growth forecasts and economic trends, the 2016 RTP/SCS provides a vision for transportation throughout the region for the next 25 years. It considers the role of transportation in the broader context of economic, environmental, and quality-of-life goals for the future, identifying regional transportation strategies to address mobility needs. The 2016 RTP/SCS successfully achieves and exceeds the greenhouse gas (GHG) emission-reduction targets set by CARB by demonstrating an eight percent reduction by 2020, 18 percent reduction by 2035, and 21 percent reduction by 2040 compared to the 2005 level on a per capita basis.

SCAG's 2016 RTP/SCS provides specific strategies for successful implementation. These strategies include supporting projects that encourage a diverse job opportunities for a variety of skills and education, recreation and culture and a full-range of shopping, entertainment and services all within a relatively short distance; encouraging employment development around current and planned transit stations and neighborhood commercial centers; encouraging the implementation of a "Complete Streets" policy that meets the needs of all users of the streets, roads and highways including bicyclists, children, persons with disabilities, motorists, electric vehicles, movers of commercial goods, pedestrians, users of public transportation, and seniors; and supporting alternative fueled vehicles.

[1] *Southern California Association of Governments, 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy, adopted April 20126 http://scagrtpscs.net/Pages/FINAL2016RTPSCS.aspx. Accessed June 2016.*

(c) Title 24, Building Standards Code and CALGreen Code

The California Energy Commission first adopted the Energy Efficiency Standards for Residential and Nonresidential Buildings (California Code of Regulations, Title 24, Part 6) in 1978 in response to a legislative mandate to reduce energy consumption in the State. The standards are updated periodically to allow for the consideration and inclusion of new energy efficiency technologies and methods.

Part 11 of the Title 24 Building Standards Code is referred to as the California Green Building Standards (CALGreen) Code. The purpose of the CALGreen Code is to "improve public health, safety and general welfare by enhancing the design and construction of buildings through the use of building concepts having a positive environmental impact and encouraging sustainable construction practices in the following categories: (1) planning and design, (2) energy efficiency, (3) water efficiency and conservation, (4) material conservation and resource efficiency, and (5) environmental air quality."[2] The CALGreen Code is not intended to substitute for or be identified as meeting the certification requirements of any green building program that is not established and adopted by the California Building Standards Commission. When the CALGreen Code went into effect in 2009, compliance through 2010 was voluntary. As of January 1, 2011, the CALGreen Code is mandatory for all new buildings constructed in the State. The CALGreen Code establishes mandatory measures for new residential and non-residential buildings. The CALGreen Code was most recently updated in 2013 to include new mandatory measures for residential as well as nonresidential uses; the new measures took effect on January 1, 2014 (the energy provisions took effect on July 1, 2014).[3]

(d) Senate Bill 1078(SB 1078, Sher) (Chapter 516, Statutes of 2002) and Senate Bill 107 (SB 107, Simitian) (Chapter 464, Statutes of 2006) and Executive Order S-14-08

SB 1078 (Chapter 516, Statutes of 2002) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) changed the target date to 2010. In November 2008, Governor Schwarzenegger signed Executive Order S-14-08, which expands the State's Renewables Portfolio Standard (RPS) to 33 percent renewable power by 2020. Pursuant to Executive Order S-21-09, CARB was also preparing regulations to supplement the RPS with a Renewable Energy Standard that would result in a total renewable energy requirement for utilities of 33 percent by 2020. However, on April 12, 2011, Governor Jerry Brown signed SB X1-2 to increase California's RPS to 33 percent by 2020. SB 350 (Chapter 547, Statues of 2015) further increased the RPS to 50 percent by 2030. The legislation also included interim targets of 40 percent by 2024 and 45 percent by 2027. SB 350 was signed into law on October 7, 2015.

(e) California Senate Bill 1368 (Perata, Chapter 598, Statutes of 2006)

California SB 1368, a companion bill to the Global Warming Solutions Act of 2006 (Assembly Bill [AB] 32), requires the California Public Utilities Commission (CPUC) and the CEC to establish GHG emission performance standards for the generation of electricity. These standards will also generally apply to power that is generated outside of California and imported into the State. SB 1368 provides a mechanism for

---

[2] *California Building Standards Commission, Title 24, California Code of Regulations, Part 11, 2010 California Green Building Standards Code (CalGreen), 2010.*

[3] *California Energy Commission, Building Standards Information Bulletin 13-07, December 18, 2013.*

reducing the emissions of electricity providers, thereby assisting CARB to meet its mandate under AB 32. On January 25, 2007, the CPUC adopted an interim GHG Emissions Performance Standard, which is a facility-based emissions standard requiring that all new long-term commitments for baseload generation to serve California consumers be with power plants that have GHG emissions no greater than a combined cycle gas turbine plant. That level is established at 1,100 pounds of CO_2 per megawatt-hour. Further, on May 23, 2007, the CEC adopted regulations that establish and implement an identical Emissions Performance Standard of 1,100 pounds of CO_2 per megawatt-hour.

(f) Executive Order B-30-15

On April 29, 2015, Governor Jerry Brown issued Executive Order B-30-15, which:

- Established a new interim Statewide reduction target to reduce GHG emissions to 40 percent below 1990 levels by 2030,
- Ordered all State agencies with jurisdiction over sources of GHG emissions to implement measures to achieve reductions of GHG emissions to meet the 2030 and 2050 reduction targets, and
- Directed CARB to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent.

CARB subsequently expressed its intention to initiate the Climate Change Scoping Plan update during the summer of 2015, with adoption scheduled for 2016.

(2) Local

The Los Angeles County General Plan provides the fundamental basis for the County's land use and development policy, and addresses all aspects of development including public health, land use, community character, transportation, economics, housing, air quality, and other topics. The General Plan sets forth objectives, policies, standards, and programs for land use and new development, Circulation and Public access, and Service Systems for the Community as a whole. Measures related to energy usage that would be applicable to the Project are contained in the Los Angeles County 2035 General Plan Update Land Use Element and the County of Los Angeles Community Climate Action Plan (CCAP). Project consistency with the General Plan is discussed in Section 4.H., *Land Use and Planning*, of this Draft EIR, while Project consistency with the CCAP is discussed in Section 4.E., *Greenhouse Gas Emissions*.

3. ENVIRONMENTAL IMPACTS

a. Methodology

The evaluation of potential impacts related to energy usage that may result from the construction and long-term operations of the Project has been conducted as described below.

(1) Construction

Build-out of the Campus Master Plan is expected to occur in eight phases, with each phase lasting several years. Construction is anticipated to begin as early as late 2016/early 2017 and full build-out of all phases is expected in 2030. The energy usage required for Project construction has been estimated based on the

number and type of construction equipment that would be used during Project construction, the extent that various equipment are utilized in terms of equipment operating hours or miles driven, and the estimated duration of construction activities. Energy for construction worker commuting trips has been estimated based on the predicted number of workers for the various phases of construction and the vehicle miles traveled (VMT). The assessment also includes a discussion of the Project's compliance with relevant energy-related regulatory measures and Project Design Features that would minimize the amount of energy usage during construction. These measures are also discussed in Chapter 2.0, Project Description, Section 4.E., *Greenhouse Gas Emissions*, Section 4.H., *Land Use and Planning*, and Section 4.L., *Transportation and Traffic*.

(2) Operations

The energy usage required for Project operations has been estimated based on the net change in energy demand from the new buildings and facilities compared to the existing Campus. The energy usage takes into account building energy standards pursuant to the Title 24 Building Standards Code. Energy for transportation from Campus employees, patients, and visitors has been estimated based on the predicted number of trips to and from the Campus and the VMT. Energy usage from water demand (e.g., electricity used to supply, convey, treat, and distribute) has been estimated based on the net change from the new buildings and facilities compared to the existing Campus. The assessment also includes a discussion of the Project's compliance with relevant energy-related regulations and Project Design Features that would minimize the amount of energy usage during operations. These measures are also discussed in Chapter 2.0, *Project Description*, Section 4.E., *Greenhouse Gas Emissions*, Section 4.H., *Land Use and Planning*, and Section 4.L., *Transportation and Traffic*, of this Draft EIR.

b. Thresholds of Significance

The potential for energy usage impacts is based on thresholds derived from Appendix F of the State *CEQA Guidelines*. These questions are as follows:

Would the project:

- Result in wasteful, inefficient, and unnecessary consumption of energy during project construction, operation, maintenance and/or removal or preempt future energy development or future energy conservation?

In consideration of the above factors, the following threshold is utilized to determine if the Project would result in potentially significant impacts on energy resources:

EN-1 Would the Project result in wasteful, inefficient, and unnecessary consumption of energy during project construction, operation, maintenance and/or removal or preempt future energy development or future energy conservation?

c. Project Characteristics or Design Features

(1) Project Characteristics

The Project would renovate the existing healthcare facilities to implement the County's strategy to respond to the Affordable Care Act of 2010 and modernize and integrate healthcare delivery and update facilities to modern standards by constructing new buildings that meet or exceed the energy standards in the Title 24

Building Standards Code and repurposing/remodeling existing buildings on the campus to improve operational efficiencies.

The Project would replace outdated and inadequate infrastructure systems throughout the Campus with newer systems designed in compliance with current standards of efficiency. Systems that would be replaced include portions of the electrical system (operational and emergency power), which includes 40-year-old substations throughout the Campus and some inadequate distribution systems; and lighting systems, many of which are original. The Central Plant, which provides for heating and cooling for the eastern portion of the Medical Center Campus distributed through an on-site infrastructure system, would be replaced with new more efficient systems. The Central Plant's on-site distribution system would also be improved as each phase is developed, with the entirety of the Medical Center Campus (except LA BioMed uses and proposed future Bioscience Tech Park uses) being served by the Central Plant.

The Central Plant would be replaced during Phase C (anticipated between 2018/2019 and 2023). The Campus's emergency generators would also remain in its current location.

Long-term sustainability is an important principle guiding the Master Plan Project. Green building practices would be incorporated into new construction. The current County policy requires LEED Silver-level certification, or the equivalent, for any public facility over 10,000 square feet in floor area. Green building practices would be integrated into all building design, construction, and operation and would be integrated with Campus infrastructure. Sustainability criteria would include (1) green building metrics, (2) reduction of energy demand, (3) reduction of thermal energy needs, (4) water balance, and (5) use of healthy building materials. As the Master Plan Project is implemented, one or more of the following systems would be utilized for environmental performance certification.

- U.S. Green Building Council (USGBC) Leadership in Energy and Environmental Design (LEED) for Healthcare Rating System / Green Guide for Healthcare: Campus Buildings are designed to meet the requirements of the USGBC's LEED for Healthcare Silver Certification.
- LEED Application Guide for Multiple Buildings and On-Campus Building Projects: Utilize to take advantage of economies of scale and the unique challenges and opportunities inherent in Campus projects.
- Living Building Challenge: Achieve a majority of "petals" of the International Living Building Institute's Living Building Challenge 2.0.
- 2030 Challenge: Goals of each project to meet the 2030 Challenge relative to reduction requirements for the year constructed.
- Targeting 100!: Utilize tools and approaches from research to meet the 2030 Challenge for the Hospital.

In addition to the above, new construction associated with the Project would be designed with infrastructure in compliance with the County's Low Impact Development (LID) requirements for stormwater management.

The Project would be located in close proximity to existing and future public transit stops, including existing Torrance Transit System bus routes (e.g., routes 1, 3, and Rapid 3) with stops on South Vermont Street and West Carson Street, and Los Angeles Metro bus routes (e.g., routes 205 and 550) with stops on South

Vermont Street, which would result in reduced vehicle trips and VMT. In addition, the western two-thirds of the Campus is designated as a Transit Overlay District (TOD) due to proximity to the Metro Transit Station on Carson Street approximately 0.10 miles to the east, adjacent to the Harbor Freeway. The Project would provide an on-site pedestrian network that integrates the Campus with Carson Street activity and with transit-oriented development along Vermont Avenue and Carson Street The pedestrian network would provide improved circulation and ingress/egress through the site and form a continuous circulation system, allowing staff and guests to reach their destinations more efficiently. Sidewalk connections to the public transit system would continue to be provided, and on-site sidewalks would be added along the primary routes on the Campus between the main parking areas and the New Hospital Tower and Outpatient buildings. Several north/south walks and promenades would connect the center of the Campus with the public edge along Carson Street, while a comprehensive network of walks and trails would direct pedestrians east/west through the Campus. The planned pedestrian circulation system would allow for direct access between parking areas and facilities, with a secondary system connecting courtyards and plazas. As such, the Project would result in a reduction in transportation-related energy efficiency compared to the existing Campus.

(2) Project Design Features

The Project would achieve the applicable objectives of the Los Angeles County General Plan Framework Element, SCAG Regional Transportation Plan, and SCAQMD Air Quality Management Plan for establishing a regional land use pattern that promotes sustainability. The Project would support pedestrian activity on the Campus, and incorporate energy efficient and water efficient measures.

The Project would be designed to meet the standards for LEED Silver Certification by the USGBC through the incorporation of green building techniques and other sustainability features. A sustainability program would be prepared and monitored by a LEED-accredited design consultant to provide guidance in project design, construction and operations; and to provide performance monitoring during Project operations to reconcile design and energy performance and enhance energy savings. The Project would also be designed to comply with the Los Angeles County Green Building Standards Code. Project Design Features would be incorporated into the bid document requirements for the design and construction of future development projects under the Master Plan Project, and implemented to enhance energy efficiency and meet County sustainability requirements. These measures are provided in Section 4.B, Air Quality, and are repeated below for convenience:

PDF-AQ-1, Green Building Measures: The Master Plan Project would be designed and operate to meet or exceed the applicable green building, energy, water, and waste requirements of the State of California Green Building Standards Code and the Los Angeles County Green Building Ordinance and meet the standards of the USGBC LEED Silver Certification level or its equivalent. Green building measures would include, but are not limited to the following:

- The Project would implement a construction waste management plan to recycle and/or salvage nonhazardous construction debris that meets or exceeds the County's adopted Construction and Demolition Debris Recycling and Reuse ordinance.
- The Project would be designed to optimize energy performance and reduce building energy cost by 5 percent or more for new construction and 3 percent or more for

major renovations compared to ASHRAE 90.1-2010, Appendix G and the Title 24 (2013) Building Standards Code.

- The Project would reduce indoor and outdoor water use by a minimum of 20 percent compared to baseline standards by installing water fixtures that exceed applicable standards. The reduction in potable water would be achieved through the installation of high-efficiency water faucets, high-efficiency toilets, flushless urinals, water-efficient irrigation systems, planting native or drought-tolerant plant species, using recycled water for landscaping, or other similar means.
- The Project would include lighting controls with occupancy sensors to take advantage of available natural light.
- The Project shall install cool roofs for heat island reduction and strive to meet the CALGreen Tier 1 Solar Reflectance Index (SRI) or equivalent.
- Project buildings shall be constructed with solar-ready rooftops that would allow for the future installation of on-site solar photovoltaic (PV) or solar water heating (SWH) systems. The building design documents shall show an allocated Solar Zone and the pathway for interconnecting the PV or SWH system with the building electrical or plumbing system. The Solar Zone is a section of the roof that has been specifically designated and reserved for the installation of a solar PV system, SWH system, and/or other solar generating system. The Solar Zone must be kept free from roof penetrations and have minimal shading.
- The Project would be design and operated with mechanically ventilated areas that would utilize air filtration media for outside and return air prior to occupancy that provides at least a Minimum Efficiency Reporting Value (MERV) of 15 as required for hospital inpatient care.
- To encourage carpooling and the use of electric vehicles by Project employees and visitors, the Applicant shall designate a minimum of eight (8) percent on on-site parking for carpool and/or alternative-fueled vehicles and shall pre-wire, or install conduit and panel capacity for, electric vehicle charging stations for a minimum of five (5) percent of on-site parking spaces.
- The Project shall incorporate appropriate bicycle infrastructure including bicycle parking and "end-of-trip" facilities in compliance with the applicable portions of the County's Healthy Design Ordinance (HDO) (Los Angeles County Code, Title 22, Section 22.52.1225).

d. Project Impacts

(1) Energy Consumption

Threshold EN-1: Would the Project result in wasteful, inefficient, and unnecessary consumption of energy during project construction, operation, maintenance and/or removal or preempt future energy development or future energy conservation?

Impact Statement EN-1: *Impacts regarding the wasteful, inefficient, and unnecessary consumption of energy during project construction, operation, maintenance and/or removal or preemption of future energy conservation would be less than significant. The Project would incorporate energy efficiency measures and comply with applicable measure to reduce energy consumption and would allow for future energy conservation.*

(a) Construction

(i) Anticipated Energy Consumption

As discussed in Chapter 2, Project Description, of the Draft EIR, the Master Plan Project would be constructed in overlapping phases over a period of approximately 15 years starting as early as late 2016 and 2030. Approximately 295,000 cubic yards of demolition debris would be exported from the site and 430,000 cubic yards of soil would be imported and exported from the site. Although the specific Master Plan projects to be constructed in each phase are subject to change over time as circumstances dictate, the proposed phasing serves to define the maximum construction activity at one time and the maximum developed floor area that can be constructed at one time for the purposes of evaluating the associated impacts on energy consumption, among other resources.

Based on the proposed development program and engineering estimates that form the basis of the construction-related impact analyses, it is estimated that a maximum of approximately 80,600 one-way truck trips would be required to haul the material to off-site reuse and disposal facilities over the 15 year construction period. It is conservatively estimated that a maximum of approximately 460,000 one-way vendor truck trips would be required to deliver building materials and supplies to the Campus over the 15 year construction period. According to the California Air Resources Board (CARB) on-road vehicle emissions model, EMFAC2014, heavy-duty trucks operating in the South Coast Air Basin would have an average fuel economy of 6.31 miles per gallon averaged over the 2016 through 2030 construction timeframe. Based on the information described above, construction of the Project would use a total of approximately 758,000 gallons of diesel fuel for haul truck and vendor delivery trips.[4] On an annual average basis, haul trucks and vendor delivery trips associated with construction would use approximately 50,600 gallons of diesel fuel per year.

Heavy-duty construction equipment associated with demolition, grading, utilities, paving, and building construction would include equipment such as excavators, graders, tractors/loaders/backhoes, dozers, scrapers, air compressors, cranes, forklifts, generators, pumps, welders, rollers, trenchers and pavers. The majority of the equipment would likely be diesel-fueled; however, smaller equipment, such as air compressors and forklifts may be electric-, gasoline-, or natural gas-fueled and tower cranes would likely be electric. For the purposes of this assessment, it is assumed equipment would be diesel-fueled, due to the speculative nature of specifying the amounts and types of non-diesel equipment that might be used, and the difficulties in calculating the energy which would be consumed by this non-diesel equipment. This also represents a worst-case scenario intended to represent the maximum potential energy use during construction. Based on the number and type of construction equipment that would be used during Project construction, and based on the estimated duration of construction activities, the Project would use approximately 971,400 gallons of diesel fuel for heavy-duty construction equipment.[5] On an annual average basis, heavy-duty construction equipment would use approximately 64,800 gallons of diesel fuel per year.

The number of construction workers that would be required would vary based on the phase of construction and activity taking place. The transportation fuel required by construction workers to travel to and from the

[4] *Fuel consumption is estimated based on fuel consumption factors in the EMFAC2014 on-road vehicle emissions model for heavy-heavy-duty construction trucks and trip distances in the California Emissions Estimator Model (CalEEMod).*

[5] *Fuel consumption is estimated based on fuel consumption factors in the OFFROAD2011 emissions model and the equipment horsepower and load factor ratings in CalEEMod.*

Project site would depend on the total number of worker trips estimated for the duration of construction activity. According to the EMFAC2014 model, passenger vehicles operating in the South Coast Air Basin would have an average fuel economy of 28.26 miles per gallon averaged over the 2016 through 2030 construction timeframe. Assuming construction worker automobiles have an average fuel economy consistent with the EMFAC2014 model and given the total vehicle miles traveled for construction workers, based on engineering estimates provided in the California Emissions Estimator Model (CalEEMod) used for the air quality and greenhouse gas emissions assessment, workers would travel a total of 96.9 million miles and would use approximately 3.43 million gallons of fuel (primarily gasoline) for construction worker trips. On an annual average basis, construction workers would use approximately 228,500 gallons of fuel (primarily gasoline) per year.

In 2014, California consumed a total of 343,568 thousand barrels of gasoline for transportation, which is equivalent to a total annual consumption of 14.4 billion gallons by the transportation sector.[6] For diesel, California consumed a total of 79,756 thousand barrels for transportation, which is equivalent to a total annual consumption of 3.3 billion gallons by the transportation sector.[7]

Based on the conservatively estimated fuel usage amounts presented above, construction of the Project would use approximately 228,500 gallons of gasoline and 115,400 gallons of diesel on an annual average basis, assuming worker automobiles are gasoline fueled and heavy-duty construction equipment is primarily diesel-fueled. To put these numbers into perspective, the estimated annual average construction fuel usage would represent a very small fraction of the state's annual fuel usage (about 0.002 percent of the statewide annual gasoline consumption and 0.003 percent of the statewide annual diesel consumption).

Electricity used during construction to provide temporary power for lighting and electronic equipment (e.g., computers, etc.) and to power certain construction equipment would generally not result in a substantial increase in on-site electricity use. Certain heavy-duty construction could be electric or alternatively fueled, such as tower cranes, based on commercial availability. The Project would utilize electric or alternatively fueled equipment as available and as feasible. Electricity use during construction would be variable depending on lighting needs and the use of electric-powered equipment and would be temporary for the duration of construction activities. In addition, the electricity supply for buildings and facilities that would be demolished would be shut off as a safety measure. Therefore, it is expected that construction electricity use would be offset by the shutting off of the electricity supply in buildings to be demolished during construction. Thus, electricity use during construction would generally be considered as negligible.

As discussed in Chapter 2, Project Description, of the Draft EIR, the Harbor-UCLA Medical Center Master Plan Project proposes the development of up to 250,000 square feet of new biomedical research facilities (the Bioscience Tech Park) on the western end of the Medical Center Campus. Approximately 50 percent, or approximately 125,000 square feet, is assumed to be constructed by the year 2023, with the remainder constructed by 2030.

---

[6] *U.S. Energy Information Administration, Table F3: Motor Gasoline Consumption, Price, and Expenditure Estimates, 2014, http://www.eia.gov/state/seds/data.cfm?incfile=/state/seds/sep_fuel/html/fuel_mg.html&sid=US. Accessed March 2016.*

[7] *U.S. Energy Information Administration, Table F3: Motor Gasoline Consumption, Price, and Expenditure Estimates, 2012, http://www.eia.gov/state/seds/data.cfm?incfile=/state/seds/sep_fuel/html/fuel_use_df.html&sid=US. Accessed March 2016.*

Based on the proposed development program and engineering estimates that form the basis of the construction-related impact analyses, it is estimated that a maximum of approximately 7,700 one-way truck trips would be required over the construction period. Based on the number of truck trips described above, construction would use a total of approximately 8,400 gallons of diesel fuel for truck trips.[8] On an annual average basis, haul trucks and vendor delivery trips associated with construction would use approximately 560 gallons of diesel fuel per year (averaged over the assumed 15-year Master Plan Project duration).

Based on the number and type of construction equipment that would be used during construction, and based on the estimated duration of construction activities, approximately 73,900 gallons of diesel fuel would be used for heavy-duty construction equipment.[9] On an annual average basis, heavy-duty construction equipment would use approximately 4,900 gallons of diesel fuel per year (averaged over the 15-year Master Plan Project duration).

With respect to construction workers, energy consumption is based on the transportation fuel required by construction workers to travel to and from the site. According to the EMFAC2014 model, passenger vehicles operating in the South Coast Air Basin would have an average fuel economy of 28.26 miles per gallon averaged over the 2016 through 2030 construction timeframe. Assuming construction worker automobiles have an average fuel economy consistent with the EMFAC2014 model and given the total vehicle miles traveled for construction workers, based on engineering estimates provided in CalEEMod, which is used for the air quality and greenhouse gas emissions assessment, workers would travel a total of 504,670 miles and would use approximately 17,900 gallons of fuel (primarily gasoline) for construction worker trips. On an annual average basis, construction workers would use approximately 1,200 gallons of fuel (primarily gasoline) per year (averaged over the 15-year Master Plan Project duration).

Based on the estimated fuel usage amounts presented above, construction of the Bioscience Tech Park would use approximately 1,200 gallons of gasoline and 5,460 gallons of diesel on an annual average basis, assuming worker automobiles are gasoline fueled and heavy-duty construction equipment is primarily diesel-fueled (averaged over the 15-year Master Plan Project duration). To put these numbers into perspective, the estimated annual average construction fuel usage would represent a very small fraction of the state's annual fuel usage (about 0.000008 percent of the statewide annual gasoline consumption and 0.0002 percent of the statewide annual diesel consumption).

Electricity used during construction to provide temporary power for lighting and electronic equipment (e.g., computers, etc.) and to power certain construction equipment would generally not result in a substantial increase in on-site electricity use. It is expected that construction electricity use would be offset by the shutting off of the electricity supply in buildings to be demolished during construction. Thus, electricity use during construction would generally be considered as negligible.

---

[8] *Fuel consumption is estimated based on fuel consumption factors in the EMFAC2014 on-road vehicle emissions model for heavy-heavy-duty construction trucks and trip distances in the California Emissions Estimator Model (CalEEMod).*

[9] *Fuel consumption is estimated based on fuel consumption factors in the OFFROAD2011 emissions model and the equipment horsepower and load factor ratings in CalEEMod.*

(ii) Regulatory Compliance

The Project would utilize construction contractors who demonstrate compliance with applicable CARB regulations governing the accelerated retrofitting, repowering, or replacement of heavy duty diesel on- and off-road equipment. As discussed in Section 4.B., *Air Quality*, of this Draft EIR, CARB has adopted an Airborne Toxic Control Measure to limit heavy-duty diesel motor vehicle idling in order to reduce public exposure to diesel particulate matter and other toxic air contaminants. This measure prohibits diesel-fueled commercial vehicles greater than 10,000 pounds from idling for more than five minutes at any given time. CARB has also approved the Truck and Bus regulation (CARB Rules Division 3, Chapter 1, Section 2025, subsection (h)) to reduce NO_X, PM_{10}, and $PM_{2.5}$ emissions from existing diesel vehicles operating in California; this regulation will be phased in, with full implementation for large and medium fleets by 2023 and for small fleets by 2028. In addition to limiting exhaust from idling trucks, CARB recently promulgated emission standards for off-road diesel construction equipment of greater than 25 horsepower. The regulation aims to reduce emissions by requiring the installation of diesel soot filters and encouraging the retirement, replacement, or repower of older, dirtier engines with newer emission-controlled models. Implementation began January 1, 2014, and the compliance schedule requires that best available control technology turnovers or retrofits be fully implemented by 2023 for large and medium equipment fleets and by 2028 for small fleets.

While intended to reduce construction emissions, compliance with the above anti-idling and emissions regulations would also result in efficient use of construction-related energy and the minimization or elimination of wasteful and unnecessary consumption of energy. It is not possible to accurately quantify the amount of energy that construction of a project would save by complying with these regulations due to the difficulties in estimating idling times and technology turnovers in the absence of the regulations. Nonetheless, idling restrictions and the use of newer engines and equipment would result in less fuel combustion and energy consumption.

With respect to solid waste, the County of Los Angeles Construction and Demolition Debris Recycling and Reuse ordinance (Title 20, Division 4, Chapter 20.87) generally requires that at least 50 percent of construction and demolition debris be recycled or reused. The County is in the process of developing a roadmap to increase the target to 70 percent for mixed debris and 100 percent for asphalt and concrete.[10] Overall, the County has proposed long-term disposal reduction targets of 80 percent diversion from landfills by 2025 and 95 percent by 2045. The Project would utilize construction contractors in compliance with applicable County waste-reduction ordinances. Through compliance with applicable County regulations and contracting with approved waste haulers, the Project would meet or exceed the required level of waste recycling and reuse rate for construction and demolition debris.

Construction of the Bioscience Tech Park would also utilize construction contractors who demonstrate compliance with applicable CARB regulations and applicable County waste-reduction ordinances. Compliance with the above anti-idling and emissions regulations and waste-reduction ordinances would result in efficient use of construction-related energy and the minimization or elimination of wasteful and unnecessary consumption of energy.

[10] *County of Los Angeles, Department of Public Works, Roadmap to a Sustainable Waste Management Future,(2014).*

(iii) Conclusion

Construction would utilize energy for necessary on-site activities and to transport buildings materials, soil, and debris to and from the Campus. The amount of energy used would not represent a substantial fraction of the available energy supply in terms of equipment and transportation fuels. Furthermore, compliance with the previously discussed anti-idling and emissions regulations would result in a more efficient use of construction-related energy and the minimization or elimination of wasteful and unnecessary consumption of energy. The Project would also meet or exceed the County's waste diversion targets as specified in PDF-AQ-1. Idling restrictions, the use of newer engines and equipment, and diverting waste would result in less fuel combustion and energy consumption. The Project would also utilize newer equipment that meet stringent emissions standards and provide opportunities for future energy efficiency by using electric or alternatively-fueled equipment as available and feasible. Therefore, construction of the Project would not result in the wasteful, inefficient, and unnecessary consumption of energy and would not preempt future energy conservation. As a result, impacts would be less than significant.

(b) Operation and Maintenance

(i) Anticipated Energy Consumption

The Master Plan Project must comply with the portions of County's Green Building Standards, LID Code, and CCAP applicable to nonresidential healthcare facilities. The Project would incorporate Project Design Features in a manner to achieve the equivalent of USGBC LEED® Silver Certification. Additionally, physical and operational Project characteristics for which sufficient data are available to quantify the reductions from building energy and resource consumption have been included in the quantitative analysis, and include but are not limited to the following measures: optimizing energy performance and reduce building energy cost by 5 percent or more for new construction and 3 percent or more for major renovations; reducing indoor and outdoor water use by a minimum of 20 percent; and designating a minimum of eight (8) percent on on-site parking for carpool and/or alternative-fueled vehicles and pre-wiring, or installing conduit and panel capacity for, electric vehicle charging stations for a minimum of five (5) percent of on-site parking spaces. A sustainability program would be prepared and monitored by a LEED-accredited design consultant to provide guidance in project design, construction and operations; and to provide performance monitoring during Master Plan Project operations to reconcile design and energy performance and enhance energy savings.

The daily operation of the Project would generate demand for electricity, natural gas, and water supply, as well as generating wastewater requiring conveyance, treatment, and disposal off-site, and solid waste requiring disposal off-site. Based on engineering estimates used as the basis for GHG emissions calculations, the initial operational year of the Project would have an electricity demand of approximately 20.91 million kilowatt-hours (kWh), which is inclusive of approximately 3.56 million kWh for water supply and wastewater treatment.[11] To put this number into perspective, the value is compared to the Southern California Edison network demand, which is a regional utility provider for much of Southern California, including Los Angeles County. In 2015, Southern California Edison had total system sales of 87,544 million

[11] *Values are based on the Title 24(2013) standards. Compliance with future updated Title 24 standards in effect at the time of building permit issuance could result in reduce energy demand.*

kWh.[12] The Project represents approximately 0.02 percent of the Southern California Edison network demand for the 2015 year, which is a very small fraction of the Southern California Edison network.

Based on engineering estimates used as the basis for GHG emissions calculations, the initial operational year of the Project would have a natural gas demand of approximately 23.64 million kilo British thermal units (kBtu) per year.[13] To put this number into perspective, the value is compared to the Southern California Gas Company network demand, which is a regional utility provider for much of Southern California, including Los Angeles County. In 2015, the Southern California Gas Company had natural gas sales of approximately 291 billion cubic feet, equivalent to approximately 306 billion kBtu.[14] The Project represents approximately 0.008 percent of the Southern California Gas Company network demand for the 2015 year, which is a very small fraction of the Southern California Gas Company network.

As discussed in Section 4.E., *Greenhouse Gas Emissions*, of this Draft EIR, Executive Orders S-3-05 and B-30-15 are orders from the State's Executive Branch for the purpose of reducing statewide GHG emissions. These Executive Orders establish the goals to reduce GHG emissions to 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050. These goals have not yet been codified. However, in order to meet the 2030 and 2050 targets, aggressive technologies in the transportation and energy sectors, including electrification and the decarbonization of fuel, will be required. In its *Climate Change Scoping Plan*, CARB acknowledged that the "measures needed to meet the 2050 are too far in the future to define in detail."[15] Although the State has yet to identify specific technologies and measures, in particular for meeting the 2050 target, it is reasonable to conclude that the Project's post-2020 emissions trajectory, and associated energy use, is expected to follow a declining trend, consistent with Statewide efforts to meet these future year targets.

Based on engineering estimates used as the basis for GHG emissions calculations, full buildout of the Bioscience Tech Park would have an electricity demand of approximately 5.11 million kWh, which is inclusive of approximately 1.84 million kWh for water supply and wastewater treatment. This represents approximately 0.006 percent of the Southern California Edison network demand for the 2015 year, which is a very small fraction of the Southern California Edison network.

Based on engineering estimates used as the basis for GHG emissions calculations, full buildout of the Bioscience Tech Park would have a natural gas demand of approximately 4.38 million kBtu per year. This represents approximately 0.001 percent of the Southern California Gas Company network demand for the 2015 year, which is a very small fraction of the Southern California Gas Company network.

(ii) Alternative Energy Considerations

The use of energy provided by alternative (i.e., renewable) resources, off-site and on-site, to meet the Master Plan Project's operational demands is constrained by the energy portfolio mix managed by Southern

[12] *Edison International, Edison International and Southern California Edison 2015 Annual Report,(2016).*

[13] *Values are based on the Title 24(2013) standards. Compliance with future updated Title 24 standards in effect at the time of building permit issuance could result in reduce energy demand.*

[14] *Sempra Energy, 2015 Annual Report,(2016).*

[15] *California Air Resources Board, Climate Change Scoping Plan,(2008), page 117.*

California Edison, the service provider for the Project site, and limitations on the availability or feasibility of on-site energy generation.

Southern California Edison is required to commit to the use of renewable energy sources for compliance with the Renewables Portfolio Standard. Southern California Edison is required to meet the requirement to procure at least 33 percent of their energy portfolio from renewable sources by 2020 through the procurement of energy from eligible renewable resources, to be implemented as fiscal constraints, renewable energy pricing, system integration limits, and transmission constraints permit. SB 350 (Chapter 547, Statues of 2015) further increased the Renewables Portfolio Standard to 50 percent by 2030. The legislation also included interim targets of 40 percent by 2024 and 45 percent by 2027. Eligible renewable resources are defined in the Renewable Portfolio Standard to include biodiesel; biomass; hydroelectric and small hydro (30 Mega Watts [MW] or less); Los Angeles Aqueduct hydro power plants; digester gas; fuel cells; geothermal; landfill gas; municipal solid waste; ocean thermal, ocean wave, and tidal current technologies; renewable derived biogas; multi-fuel facilities using renewable fuels; solar photovoltaic; solar thermal electric; wind; and other renewables that may be defined later. In 2014, Southern California Edison served approximately 23.2 percent of its retail electricity sales with renewable power.[16] This represents the available off-site renewable sources of energy that would meet Project demand.

With respect to on-site renewable energy sources, because of the Project's location, there are no local sources of energy from the following sources: biodiesel, biomass hydroelectric and small hydro, digester gas, fuel cells, geothermal energy, landfill gas, municipal solid waste, ocean thermal, ocean wave, and tidal current technologies, or multi-fuel facilities using renewable fuels.

Solar and wind power represent variable-energy, or intermittent, resources that are generally used to augment, but not replace, natural gas-fired (or other non-renewable fuel) energy power generation, since reliability of energy availability and transmission is necessary to meet demand, which is constant.

Wind-powered energy is not feasible on the Project site due to the lack of sufficient wind in the Los Angeles basin. The California Energy Commission (CEC) studied the State's high wind resource potential. Based on a map of California's wind resource potential, the Project site is not identified as an area with wind resource potential. Wind resource areas with winds above 12 mph within Los Angeles County are located in relatively remote areas in the northwestern portion of the County.

Similarly, solar energy is highly variable in the Los Angeles area, particularly in proximity to the coastline where there is increased cloud cover and an intermittent marine layer, and is therefore not cost-effective or reliable as a primary source of energy. The CEC has identified areas within the State with high potential for viable solar, wind, and geothermal energy production. The CEC rated California's solar potential by county using insolation values available to typical photovoltaic system configurations, as provided by the National Renewable Energy Laboratory. Although Los Angeles as a County has a relatively high photovoltaic potential of 3,912,346 megawatt-hours (MWh)/day, inland counties such as Inyo (10,047,177 MWh/day), Riverside (7,811,694 MWh/day), and San Bernardino (25,338,276 MWh/day) are more suitable for large-scale solar power generation. In addition, most of the high potential areas of greater than 6 KWh/sqm/day in Los

[16] *California Public Utilities Commission, California Renewables Portfolio Standard, http://www.cpuc.ca.gov/renewables/. Accessed April 2016.*

Angeles County are concentrated in the northeastern corner of the county around Lancaster, approximately 60 miles to the north of the Project site. These facts alone do not preclude its use in the Project area or on the Project site. The Project would support the County's CCAP to promote solar installations by incorporating building design elements that includes solar ready rooftops for solar collectors or photovoltaic panels. As such, the Project would promote solar electrical systems. It is not possible to accurately quantify the energy savings from the use of solar collectors or photovoltaic panels since it is unknown the extent that such equipment would be required to be installed.

The Bioscience Tech Park would also utilize renewable energy as part of Southern California Edison requirement to use renewable energy sources for compliance with the Renewables Portfolio Standard. With respect to on-site renewable energy sources, there are no local sources of energy from the following sources: biodiesel, biomass hydroelectric and small hydro, digester gas, fuel cells, geothermal energy, landfill gas, municipal solid waste, ocean thermal, ocean wave, and tidal current technologies, or multi-fuel facilities using renewable fuels. Wind-powered energy is not feasible on the Project site due to the lack of sufficient wind in the Los Angeles basin as discussed previously. Similarly, solar energy is highly variable in the Los Angeles area, particularly in proximity to the coastline where there is increased cloud cover and an intermittent marine layer, and is therefore not cost-effective or reliable as a primary source of energy. Nonetheless, solar energy would be promoted consistent with the County's CCAP by incorporating building design elements that includes solar ready rooftops for solar collectors or photovoltaic panels.

(iii) Energy Conservation: Regulatory Compliance

The California Energy Commission first adopted the Energy Efficiency Standards for Residential and Nonresidential Buildings (California Code of Regulations, Title 24, Part 6) in 1978 in response to a legislative mandate to reduce energy consumption in the state. Part 11 of the Title 24 Building Standards Code is referred to as the California Green Building Standards Code. The purpose of the California Green Building Standards Code is to "improve public health, safety and general welfare by enhancing the design and construction of buildings through the use of building concepts having a positive environmental impact and encouraging sustainable construction practices in the following categories: (1) Planning and design; (2) Energy efficiency; (3) Water efficiency and conservation; (4) Material conservation and resource efficiency; and (5) Environmental air quality." As of January 1, 2011, the CALGreen Code is mandatory for all new buildings constructed in the state. The CALGreen Code establishes mandatory measures for new residential and non-residential buildings, which includes requirements for energy efficiency, water conservation, material conservation, planning and design and overall environmental quality.[17] The CALGreen Code was most recently updated in 2013 to include new mandatory measures for residential as well as nonresidential uses; the new measures took effect on January 1, 2014 (the energy provisions took effect on July 1, 2014).[18] The Project would comply with or exceed the applicable provisions of Title 24 and the California Green Buildings Standards in affect at the time of building permit issuance. According to the CEC, the Title 24 (2013) standards use 25 percent less energy for lighting, heating, cooling, ventilation, and water heating than the 2008 Title 24 (2008) standards. It is expected that future updates to the Title 24 standards would result in increased energy efficiency. However, it is not possible to accurately predict the increased level of energy efficiency associated with future updates to the Title 24 standards; therefore, the energy estimates provided

[17] *California Building Standards Commission, 2010 California Green Building Standards Code, (2010).*

[18] *California Energy Commission, Building Standards Information Bulletin 13-07, December 18, 2013.*

in this Draft EIR represent the current Title 24 (2013) standards. It is reasonable to conclude that the Master Plan Project would achieve greater levels of energy efficiency than provided herein.

With respect to solid waste, the Project is required to comply with applicable regulations, including those pertaining to waste reduction and recycling. Waste haulers serving the Project site would divert Project-generated municipal waste in accordance with applicable County ordinances as well as future updates to the County ordinances in effect at the time of construction and operations.

The Bioscience Tech Park would comply with or exceed the applicable portions of the Title 24 standards in affect at the time of building permit issuance. As discussed previously, future updates to the Title 24 standards would result in increased energy efficiency. The energy estimates provided in this Draft EIR represent the current Title 24 (2013) standards. Although it is not possible to accurately predict the increased level of energy efficiency associated with future updates to the Title 24 standards, it is reasonable to conclude that the Bioscience Tech Park would achieve greater levels of energy efficiency than provided herein. Similar to the Master Plan Project, solid waste disposal would comply with the applicable County ordinances as well as future updates to the County ordinances in effect at the time of construction and operations.

(iv) Transportation Estimated Energy Consumption

Operation of the Project would result in transportation energy use primarily from Campus employees, patients, and visitors traveling to and from the Project site. Transportation fuels, primarily gasoline and diesel, would be provided by local or regional suppliers and vendors. As discussed previously, in 2014, California consumed a total of 14.4 billion gallons of gasoline and 3.3 billion gallons of diesel in the transportation sector.[19, 20] Project-related vehicles would require a fraction of a percent of the total state's transportation fuel consumption. According to the EMFAC2014 model, the vehicle fleet average fuel economy in the South Coast Air Basin in 2030 is predicted to be 31.67 miles per gallon for gasoline and 13.38 miles per gallon for diesel with gasoline vehicles accounting for 85.1 percent of the total VMT and diesel vehicles accounting for 8.2 percent of the total VMT. Electric vehicles are predicted to account for 6.7 percent of the total VMT.

Based on the Project's estimated vehicle miles traveled of 75.93 million miles per year, and assuming the Project's mix of vehicle types is similar to the Basin-wide fleet average, approximately 2.04 million gallons of gasoline and 465,400 gallons of diesel fuel would be required in a year. This would represent about 0.01 percent of the statewide gasoline consumption and about 0.01 percent of the statewide diesel consumption, which represents a very small fraction of the state's annual fuel usage. As stated in Section 4.E., *Greenhouse Gas Emissions*, the Project would include pre-installation or installation of electric vehicle supply equipment (EVSE) consistent with the County's CCAP, which would eliminate infrastructure roadblocks for Campus employees, patients, and visitors that purchase electric or electric-hybrid vehicles. As a result, the Project would support statewide efforts to improve transportation energy efficiency and reduce wasteful or inefficient transportation energy consumption with respect to private automobiles.

---

[19] *U.S. Energy Information Administration, Table F3: Motor Gasoline Consumption, Price, and Expenditure Estimates, 2014, http://www.eia.gov/state/seds/data.cfm?incfile=/state/seds/sep_fuel/html/fuel_mg.html&sid=US. Accessed March 2016.*

[20] *U.S. Energy Information Administration, Table F3: Motor Gasoline Consumption, Price, and Expenditure Estimates, 2012, http://www.eia.gov/state/seds/data.cfm?incfile=/state/seds/sep_fuel/html/fuel_use_df.html&sid=US. Accessed March 2016.*

Alternative-fueled, electric, and hybrid vehicles, to the extent these types of vehicles would be utilized by Campus employees, patients, and visitors, would reduce the Project's consumption of gasoline and diesel; however, the effect may be minimal in current vehicle market. According to the EMFAC2014 model, electric vehicles are predicted to account for 6.7 percent of the total VMT in 2030 in the South Coast Air Basin. Campus employees, patients, and visitors that utilize alternative-fueled (electric) vehicles would be expected to result in fuel savings up to about 6.7 percent. Based on the estimate above, this would translate to a fuel savings of up to about 160,600 gallons of fuel (primarily gasoline, assuming electric vehicles replace gasoline-fueled passenger vehicles) per year.

Operation of the Bioscience Tech Park would result in an estimated vehicle miles traveled of 8.43 million miles per year. Assuming the Project's mix of vehicle types is similar to the Basin-wide fleet average, approximately 226,500 gallons of gasoline and 51,700 gallons of diesel fuel would be required in a year. This represents about 0.002 percent of the statewide gasoline consumption and about 0.002 percent of the statewide diesel consumption, which represents a very small fraction of the state's annual fuel usage.

Bioscience Tech Park employees and visitors that utilize alternative-fueled (electric) vehicles would be expected to result in fuel savings up to about 6.7 percent. Based on the estimate above, this would translate to a fuel savings of up to about 17,800 gallons of fuel (primarily gasoline, assuming electric vehicles replace gasoline-fueled passenger vehicles) per year.

(v) Conclusion

Operation of the Project would utilize energy for necessary on-site activities and off-site transportation associated with Campus employees, patients, and visitors traveling to and from the site. The amount of energy used would not represent a substantial fraction of the available energy supply in terms of equipment and transportation fuels. Furthermore, the Project would meet or exceed energy standards by incorporating green building measures consistent with County policy that requires LEED Silver-level certification and the County's CCAP. Overall, the Master Plan Project would replace aging facilities and infrastructure with new ones providing considerably higher efficiency in terms of energy and water demands; as such, while the Project would increase the overall intensity of land uses on the Medical Center Campus, it would use less energy per square foot of development compared to existing conditions. The Project would also provide opportunities for future energy efficiency by promoting solar power and electric or alternatively-fueled vehicles. Therefore, operation of the Project would not result in the wasteful, inefficient, and unnecessary consumption of energy and would not preempt future energy conservation. As a result, impacts would be less than significant.

e. Cumulative Impacts

Under CEQA, individually small project-level contributions to environmental impacts may be potentially considerable in the aggregate or cumulative level. A cumulatively considerable impact is the impact of a project in addition to the related projects. In the case of energy, the proximity of the project to other energy-demanding projects or activities is typically not directly relevant to the determination of a cumulative impact. Energy is generally regulated on regional, state, federal, or even global scales. Currently, no established non-speculative method exists to assess the cumulative energy impact of a proposed independent development project.

As discussed previously, the State has adopted numerous regulations to improve energy efficiency from a variety of sectors including residential, commercial, and industrial buildings, transportation, utility providers, and others. Individual projects located within the State would be required to comply with these regulations. End-users of energy would be required to incorporate mandated building strategies and techniques to ensure energy use from building systems meet established efficiency targets. Transportation energy end-users would be required to utilize vehicles that meet increasingly stringent fuel economy standards. Utility providers would be required to provide an increasing fraction of energy from renewable sources in accordance with the State's Renewables Portfolio Standard. Compliance with these regulations would ensure cumulative projects achieve improved energy efficiency and minimize the wasteful and inefficient use of energy.

At the local level, the County of Los Angeles has adopted a Green Building Standards Code and Low Impact Development Ordinance that includes mandatory efficiency measures more stringent than State requirements, further improving energy efficiency for projects in the County. The County's CCAP includes additional measures that would reduce the wasteful and inefficient use of energy by requiring a reduction in GHG emissions, which is inherently related to energy use. While a quantitative metric has not been established to evaluate cumulative energy impacts, because the County has adopted standards that would improve energy efficiency beyond State requirements applicable to all projects located in the County, it is determined that energy impacts would not be cumulatively considerable.

4. MITIGATION MEASURES

The Project would result in less than significant impacts with respect to the wasteful, inefficient, and unnecessary consumption of energy during project construction, operation, maintenance and/or removal or preemption of future energy conservation. Therefore, no mitigation measures would be required.

5. LEVEL OF SIGNIFICANCE AFTER MITIGATION

Impacts would be less than significant and no mitigation measures would be required.