4.15 ENERGY

4.15.1 INTRODUCTION

This section describes potential impacts related to energy demand of projects in the Planning Area associated with the proposed General Plan Update. To provide context for the impact analysis, this section begins with an environmental setting describing the existing conditions in the Planning Area focused on the three sources of energy that are most relevant to the project—namely, electricity and natural gas uses, and transportation fuel for vehicle trips. Next, the regulatory framework is described, which informs the selection of the significance thresholds used in the impact analysis. The regulatory framework also includes existing General Plan policies related to the impact analysis of this section. The section concludes with the applicable significance thresholds, the impacts of the proposed changes to adopted General Plan policies, recommended mitigation measures, and the significance conclusions. The analysis considers the primary uses of energy; the benefit of existing regulations that require energy-efficient construction and operation; the location, design, and allowable mix of uses that could be developed as a part of buildout of the General Plan relative to energy use; and the potential for the General Plan Update to result in the wasteful, inefficient, and unnecessary consumption of energy. Section 4.12, “Utilities and Service Systems,” addresses the degree to which the proposed General Plan Update would create physical environmental effects related to the construction or expansion of transmission facilities.

As part of the impact analysis, Notice of Preparation (NOP) comments were reviewed to help guide the analysis. However, there were no NOP comments on energy.

4.15.2 ENVIRONMENTAL SETTING

4.15.2.1 ENERGY SERVICES AND DEMANDS

Electrical Resources

California's total energy consumption is the second highest in the nation, but, in 2018, the state's per-capita energy consumption was the fourth-lowest, due in part to its mild climate and its energy efficiency programs (EIA 2020a). Electricity supply in California involves a complex grid of power plants and transmission lines location in the Western United States, Canada, and Mexico. In 2018, the total system power for California was 285,488 gigawatt-hours (GWh) of electricity, down 2 percent from 2017 (CEC 2019a). The overall decline observed in California's total system electric generation for 2018 is consistent with the trends observed in energy demand, which has been flat or slightly declining as energy efficiency programs have resulted in end-use energy savings and as customers install behind-the-meter energy systems that directly displace utility-supplied generation.

Within the city of Roseville, electrical service is provided by the City of Roseville Electric Department (Roseville Electric Utility). In 2018, Roseville Electric Utility served approximately 59,600 customers, nearly 97 percent of which were residential. Electricity consumption by Roseville Electric Utility users was approximately 1,155,296,800 kWh (CEC2019b). Demand for any given year is approximately 40 percent residential, 60 percent commercial, and a very small percentage municipal.

California’s electricity is generated through a combination of nuclear power plants; natural gas-fired power plants; renewable energy sources, such as wind, solar, geothermal, and small hydroelectric facilities; and additional energy purchased from other energy suppliers. The Roseville Electric Utility power mix is approximately 40
percent eligible renewable resources, 13 percent large hydroelectric, 22 percent natural gas, and 24 percent unspecified sources of power. As a point of comparison, the 2018 California power mix was made up of approximately 31 percent eligible renewable resources, 3 percent coal, 11 percent large hydroelectric, 35 percent natural gas, 9 percent nuclear, and 11 percent unspecified sources of power (CEC 2019c). In 2018, Roseville Electric Utility completed the construction and commissioning of the City’s first community solar project, which began providing power to participating customers in 2019 (City of Roseville 2019).

The City of Roseville operates the Utility Exploration Center as a learning center that includes programs to educate visitors on energy and water conservation, waste reduction, and watershed management. Roseville Electric Utility offers residential rebate programs for a wide range of measures to help residential customers reduce overall energy usage; rebate programs promote energy efficiency from HVAC systems, electric vehicles, window replacement, fans, shade trees, sunscreens, and pool pumps. In addition, Roseville Electric Utility provides home energy reports with neighbor energy usage comparisons and tips on how residents can reduce their personal energy usage. For residential and non-residential customers, Roseville Electric Utility provides environmental education, rebates, coordination with a facility manager to identify inefficiencies and improvement recommendations, and other similar programs to help reduce community-wide energy use associated with water, wastewater, and solid waste.

**Natural Gas Resources**

Natural gas service is provided by Pacific Gas and Electric Company (PG&E), one the largest combined natural gas and electrical energy companies in the United States. PG&E provides natural gas service to the City of Roseville through portions of its approximately 42,000 miles of natural gas distribution pipelines (PG&E 2019). PG&E’s gas transmission and distribution pipelines stretch from Eureka in the north to Bakersfield in the south, and from the Pacific Ocean in the west to the Sierra Nevada in the east. In 2018, natural gas consumption in the PG&E service area totaled approximately 4,794 million therms (CEC 2019d), less than 2 percent (95 million therms) of which was consumed by users in Placer County (CEC 2019e).

**Transportation Fuel**

Among the various types of energy sources, petroleum (diesel fuel) is the primary fuel consumed, in terms of construction and operational energy demand. The transportation end-use sector consumes the largest share of energy in California. Almost 40 percent of California’s energy consumption results from the transport of goods and people (U.S. Energy Information Administration 2020). In 2018, sales of diesel fuel to California end users was approximately 1,187,100 gallons per day (gpd) and sales of gasoline to California end users was approximately 455,900 gpd (CEC 2019f, 2019g).

While gasoline and diesel fuel remain the primary fuels fused for transportation in California, the types of transportation fuel have diversified in California and elsewhere. Historically, gasoline and diesel fuel accounted for nearly all demand; now, however, numerous options are available, including ethanol, natural gas, electricity, and hydrogen. California has provided incentives to increase the use of non-carbon-emitting vehicles, and, by the end of 2018, California drivers owned almost 500,000 electric and plug-in hybrid vehicles. In 2019, nearly one-fourth of the nation's electric vehicle charging stations were in California (U.S. Energy Information Administration 2020b). Roseville Electric offers new electric vehicle and charging incentives to both residential and commercial customers.
4.15.3 REGULATORY FRAMEWORK

4.15.3.1 FEDERAL PLANS, POLICIES, REGULATIONS AND LAWS


The Energy Policy Act of 1992 consists of 27 titles detailing various measures designed to lessen the nation's dependence on imported energy, provide incentives for clean and renewable energy, and promote energy conservation in buildings. Title III of the Act addresses alternative fuels. It gave the U.S. Department of Energy administrative power to regulate the minimum number of light-duty alternative fuel vehicles required in certain federal fleets beginning in fiscal year 1993. The primary goal of this program is to cut petroleum use in the United States by 2.5 billion gallons per year by 2020.

Energy Policy Act of 2005

The Energy Policy Act of 2005, which was intended to establish a comprehensive, long-term energy policy, is implemented by the U.S. Department of Energy. The Act addresses energy production in the U.S., including oil, gas, coal, and alternative forms of energy, as well as energy efficiency and tax incentives. Energy efficiency and tax incentive programs include credits for the construction of new energy-efficient houses, production or purchase of energy-efficient appliances, and loan guarantees for entities that develop or use innovative technologies that avoid the production of greenhouse gases (GHG). To reduce national energy consumption, the Act also directed the National Highway Traffic Safety Administration (NHTSA) within the U.S. Department of Transportation (USDOT) to establish the Corporate Average Fuel Economy (CAFE) program. Under the CAFE program, NHTSA prescribes and enforces average fuel economy standards for passenger cars and light trucks sold in the United States.


The Energy Independence and Security Act of 2007 (EISA) was intended to increase U.S. energy security, develop renewable fuel production, and improve vehicle fuel economy. The EISA amended the EPCA to introduce more aggressive requirements. The three key provisions strengthened the CAFE Standards, the federal Renewable Fuel Standard, and the federal energy efficiency standards for appliances and lighting.

On August 2, 2018, USDOT and the U.S. Environmental Protection Agency (EPA) proposed the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule. The SAFE Vehicles Rule would amend the existing NHTSA CAFE standards and the existing EPA tailpipe carbon dioxide emissions standards for passenger cars and light trucks and establish new standards covering model years 2021 through 2026. The proposed rule would retain the model year 2020 standards for both programs through model year 2026. In response to the proposed SAVE Vehicles Rule, on July 25, 2019 the California Air Resources Board (CARB), Ford, Volkswagen, Honda, and BMW announced a voluntary framework agreement to set fuel economy and carbon dioxide limits at levels between the existing federal standards and the standards proposed by the SAFE Vehicles Rule. Under the framework, the auto companies’ party to the voluntary agreement would only sell cars in the United States that meet these levels.
4.15.3.2 STATE PLANS, POLICIES, REGULATIONS AND LAWS

**Senate Bills 1078 and 107, Executive Orders S-14-08 and S-21-09, and Senate Bill 350**

State legislation has established increasingly stringent renewable portfolio standard (RPS) requirements for California’s utility companies. RPS-eligible energy sources include wind, solar, geothermal, biomass, and small-scale hydro projects.

SB 1078 (Chapter 516, Statutes of 2002) required 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.

Executive Order S-14-08 expanded the state’s Renewable Portfolio Standard to 33 percent renewable power by 2020. Executive Order S-21-09 directs ARB under its AB 32 authority to enact regulations to help the state meet its Renewable Portfolio Standard goal of 33 percent renewable energy by 2020. The 33 percent-by-2020 goal and requirements were codified in April 2011 with SB X1-2. This new Renewable Portfolio Standard applies to all electricity retailers in the state, including publicly owned utilities, investor-owned utilities, electricity service providers, and community choice aggregators. SB 350 (2015) increased the renewable-source requirement to 50 percent by 2030, which was further increased under SB 100 in 2018 to 60 percent by 2030 and requiring all the State’s electricity to come from carbon-free resources by 2045.

These requirements reduce the carbon content of electricity generation associated with both existing and new development, including that within the Planning Area.

**Advanced Clean Cars Program/Zero Emission Vehicle Program (AB 1493)**

AB 1493, also known as the Pavley regulations, required CARB to adopt regulations by January 1, 2005, that would result in the achievement of the “maximum feasible” reduction in GHG emissions from vehicles used in the state primarily for noncommercial, personal transportation. In 2009, the EPA Administrator granted a CAA waiver of preemption to California, allowing the state to implement its own GHG emissions standards for motor vehicles. California agencies worked with federal agencies to conduct joint rulemaking to approve a new emissions-control program for model years 2017–2025.

The program was implemented through a single package of standards called Advanced Clean Cars (California Code of Regulations [CCR] Title 13, Sections 1962.1 and 1962.2), inclusive of the Low-Emission Vehicle III amendments, the Zero-Emission Vehicle program, and the Clean Fuels Outlet regulation.

As described above under Federal Regulations, the SAFE Vehicles Rule Part One: One National Program was effective November 26, 2019. Through this ruling, EPA withdrew California’s waiver of preemption and NHTSA finalized regulatory text related to preemption. California and 22 other states have filed suit to challenge the NHTSA preemptive regulations and California filed suit to challenge EPA’s waiver rescission. Thus, the future status of these programs is currently speculative.

**California Code of Regulations, Title 20 and Title 24**

New buildings constructed in California must comply with the standards contained in California Code of Regulations (CCR) Title 20, Building Energy Regulations, and Title 24, Energy Conservation Standards. Title 20
standards range from power plant procedures and siting to energy efficiency standards for appliances, ensuring reliable energy sources are provided and diversified through energy efficiency and renewable energy resources. Title 24 requires the design of building shells and building components to conserve energy. The 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 2016 (24 CCR 6). The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods.

On July 17, 2008, the California Building Standards Commission adopted the nation’s first green building standards. The California Green Building Standards Code (Part 11, Title 24), commonly known as CALGreen, was adopted as part of the California Building Standards Code (24 CCR). The code was last updated in 2019, effective January 1, 2020. Part 11 establishes mandatory standards, including planning and designing for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water efficiency and conservation, material conservation and resource efficiency, and environmental quality.

4.15.3.3 LOCAL PLANS, POLICIES, REGULATIONS AND LAWS

City of Roseville Community Design Guidelines

The Community Design Guidelines were originally adopted by the City to implement the goals and policies of the Community Form and Community Design components of the 2010 General Plan, and were intended to provide a clear and common understanding of the City’s expectations for the planning, design, and review of development proposals in Roseville. Two of the six design principles of the guidelines specifically address energy-related resources:

- Promote development that supports a variety of transportation modes and facilitates pedestrian mobility, convenience, and safety.
- Foster designs which result in the conservation and efficient use of natural resources.

Specifically, design guidelines are included that require green building design, including energy reducing design features, use of recycled materials, energy efficient lighting, and incorporation of renewable energy production such as solar panels, be considered in projects.

Existing City of Roseville General Plan

The following goals and policies are included in the existing General Plan and are relevant to energy use within the Planning Area (City of Roseville 2016).

- **Land Use - Community Form – Relationship to Transit, Pedestrian, Air Quality (RTPAQ) Policy 1:** Promote land use patterns that support a variety of transportation modes and accommodate pedestrian mobility.
- **Land Use - Community Form – Relationship to Transit, Pedestrian, Air Quality (RTPAQ) Policy 2:** Allow for land use patterns and mixed use development that integrate residential and non-residential land uses, such that residents may easily walk or bike to shopping, services, employment and leisure activities.
Land Use - Community Form – Relationship to Transit, Pedestrian, Air Quality (RTPAQ) Policy 3:
Concentrate higher intensity uses and appropriate support uses within close proximity of transit and bikeway corridors as identified in the Bicycle Master Plan. In addition, some component of public use such as parks, plazas, public buildings, community centers and/or libraries should be located within the corridors.

Land Use - Community Form – Relationship to Transit, Pedestrian, Air Quality (RTPAQ) Policy 4:
Promote and encourage the location of employee services such as childcare, restaurants, banking facilities, convenience markets, etc., within major employment centers for the purpose of reducing midday service-related vehicle trips.

Land Use - Community Form – Relationship to Transit, Pedestrian, Air Quality (RTPAQ) Policy 5:
Where feasible, improve existing development areas to create better pedestrian and transit accessibility.

Land Use - Community Form – Relationship to Transit, Pedestrian, Air Quality (RTPAQ) Policy 6:
Through City land use planning and development approvals, require that neighborhood serving uses (e.g. neighborhood commercial uses, day care, parks, schools, and other community facilities) be physically linked with adjacent residential neighborhoods.

Land Use - Community Form – Relationship to Transit, Pedestrian, Air Quality (RTPAQ) Policy 7:
Encourage alternative modes of transportation including pedestrian, bicycle, and transit usage.

Land Use - Community Form – Relationship to Transit, Pedestrian, Air Quality (RTPAQ) Policy 10:
Conserve energy and reduce air emissions by encouraging energy efficient building designs and transportation systems.

Land Use - Community Form – Downtown, Neighborhoods Policy 5:
Encourage infill development and rehabilitation that: upgrades the quality and enhances the character of existing areas; enhances public transit use and pedestrian access; efficiently utilizes and does not overburden existing services and infrastructure; and results in land use patterns and densities that provide the opportunity for the construction of household types affordable to all income groups.

Land Use - Community Form – Relationship to New Development Policy 1:
Require that new development areas and associated community-wide facilities (open space resources, parks, libraries, etc.) be linked and oriented to existing developed areas of the community through road networks, public transit systems, open space systems, bike way and pedestrian systems, and other physical connections.

Land Use - Community Form – Relationship to New Development Policy 2:
Promote land use patterns that result in the dispersion of secondary or satellite services including libraries, schools, parks, public meeting places and commercial uses throughout the community through the establishment of neighborhood centers.

Land Use - Community Form – Community Design Policy 2:
Continue to develop and apply design standards that result in efficient site and building designs, pedestrian friendly projects that stimulate the use of alternative modes of transportation, and the establishment of a functional relationship between adjacent developments.
► **Circulation - Level of Service Policy 5:** Enable the City to designate a Pedestrian District over a geographic area for the purpose of implementing measures that promote pedestrian walkability and reduce total vehicle miles travelled and resultant air pollution emissions that contribute to climate change. In these districts, the City recognizes that pedestrian travel takes a higher priority than automobile travel, which could reduce the vehicular level of service.

► **Circulation - Transportation Systems Management Policy 1:** Continue to enforce the City’s TSM ordinance and monitor its effectiveness.

► **Circulation - Transportation Systems Management Policy 2:** Work with appropriate agencies to develop measures to reduce vehicular travel demand and total vehicle miles traveled and meet air quality goals.

► **Circulation - Bikeway/Trails Policy 1:** Develop a comprehensive and safe system of recreational and commuter bicycle routes and trails that provides connections between the City’s major employment and housing areas and between its existing and planned bikeways.

► **Public Facilities - Electric Utility Goal 4:** Aggressively pursue cost-effective and environmentally safe alternative sources of energy and energy conservation measures.

► **Public Facilities - Electric Utility Policy 5:** Explore the feasibility of the development and participation in renewable energy resources.

► **Public Facilities - Electric Utility Policy 8:** Pursue reasonable and cost-effective energy efficiency, conservation, and load management programs pertinent to the electric utility system.

► **Public Facilities - Water and Energy Conservation Policy 1:** Develop and implement water conservation standards.

► **Public Facilities - Water and Energy Conservation Policy 2:** Implement various water conservation plans developed by the Environmental Utilities Department.

► **Public Facilities - Water and Energy Conservation Policy 3:** Explore potential uses of treated wastewater.

► **Public Facilities - Water and Energy Conservation Policy 5:** Develop and adopt a landscape ordinance that provides standards for the use of drought tolerant, xeriscape, and water-conserving landscape practices for both public and private projects.

► **Public Facilities - Water and Energy Conservation Policy 8:** Enforce energy requirements and encourage development and construction standards that promote energy efficiency and conservation.

► **Public Facilities - Water and Energy Conservation Policy 9:** Preserve scarce resources by undertaking major projects in energy conservation and land management, including increasing efficiency in the City’s electrical system.

► **Public Facilities - Water and Energy Conservation Policy 10:** Continue and expand energy efficiency and conservation programs to serve all utility users.
Air Quality Goal 3: Encourage the coordination and integration of all forms of public transport while reducing motor vehicle emissions through a decrease in the average daily trips and vehicle miles traveled and by increasing the commute vehicle occupancy rate by 50% to 1.5 or more persons per vehicle.

Air Quality Goal 5: Provide adequate pedestrian and bikeway facilities for present and future transportation needs.

Air Quality Goal 7: While recognizing that the automobile is the primary form of transportation, the City of Roseville should make a commitment to shift from the automobile to other modes of transportation.

Air Quality - Transportation and Circulation Policy 7: Encourage alternative modes of transportation including pedestrian, bicycle, and transit usage.

Air Quality - Energy Conservation Policy 10: Conserve energy and reduce air emissions by encouraging energy efficient building designs and transportation systems.

Housing - Residential Energy Efficiency and Conservation Goal 1: Continue efforts to encourage energy efficiency in housing construction and maintenance.


Housing - Residential Energy Efficiency and Conservation Policy 2: Roseville Electric shall continue to apply energy-efficient requirements to all residential construction.

Housing - Residential Energy Efficiency and Conservation Policy 6: Through City land use planning and development approvals, require that neighborhood serving uses (e.g., neighborhood commercial uses, day care, parks, schools, and other community facilities) be physically linked with adjacent residential neighborhoods.

Housing - Residential Energy Efficiency and Conservation Policy 7: Encourage alternative modes of transportation including pedestrian, bicycle, and transit usage.

Housing - Residential Energy Efficiency and Conservation Policy 10: Conserve energy and reduce air emissions by encouraging energy efficient building designs and transportation systems.

Adopted Specific Plans and Mitigation Measures

Currently, the City has adopted 14 Specific Plans. A Specific Plan is a comprehensive planning and zoning document that implements the General Plan by providing development and conservation standards for a defined geographic location within the Planning Area. Each Specific Plan contains guidelines for site, architectural, landscaping, lighting, roadway networks, pedestrian/bicycle paths, open space corridors, parks, and other aspects of design. Each adopted Specific Plan involved preparation of an EIR, some of which evaluated potential impacts related to energy. Impacts related to energy resources were found to be less than significant, and no mitigation measures were required. Copies of the adopted Specific Plans and their associated EIRs are available upon request from the City of Roseville Development Services Department, Planning Division.
4.15.4 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.15.4.1 METHODOLOGY

This proposed General Plan Update does not include any changes to land use designations, expansion of the City’s Planning Area, or other major physical changes to areas planned for development compared to the existing General Plan, but does include changes to goals, policies, and implementation measures, which are analyzed as a part of this EIR. This EIR analyzes buildout of the Planning Area consistent with the existing General Plan land use designations and compares this to the existing physical conditions, which constitute the baseline for determining whether potential impacts are significant.

Energy impacts were analyzed by assessing energy usage associated with construction and operation of projects developed as a part of buildout of the General Plan. Future energy demand was calculated consistent with the GHG emissions modeling, using the methodology described in Section 4.5 of this EIR, “Greenhouse Gas Emissions.” Detailed project inputs, assumptions, and calculations are provided in Appendix B. According to Appendix F of the State CEQA Guidelines, conserving energy may be achieved by decreasing overall per-capita energy consumption; decreasing reliance on fossil fuels such as coal, natural gas, and oil; and increasing reliance on renewable energy sources.

4.15.4.2 THRESHOLDS OF SIGNIFICANCE

Based on Appendix G of the CEQA Guidelines, an energy impact is considered significant if the proposed project would:

► Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy, during project construction or operation; or

► Conflict with or obstruct a State or local plan for renewable energy or energy efficiency.

4.15.4.3 ISSUES NOT DISCUSSED FURTHER

All issues related to energy resources are discussed in detail below.

4.15.4.4 IMPACT ANALYSIS

**IMPACT 4.15-1** Significant Environmental Impacts Due to the Wasteful, Inefficient, or Unnecessary Consumption of Energy Resources. Buildout of the General Plan would require energy in the forms of fossil fuels, natural gas, and electricity. A large body of existing regulations would have the effect of reducing energy demand and would reduce potential adverse environmental effects associated with energy demand. The proposed General Plan Update also includes many policies that promote additional energy conservation and savings and that would reduce peak demand and associated environmental effects. The impact is less than significant.

**Construction-Related Energy Consumption**

Buildout of the General Plan would involve consumption of construction-related energy in the form of electricity, natural gas, and fossil fuels (e.g., gasoline, diesel fuel). The primary energy demands during construction would
be associated with construction equipment and vehicle fueling. Energy in the form of fuel and electricity would be consumed during this period by construction vehicles and equipment operating on-site, trucks delivering equipment and supplies to the site, and construction workers driving to and from the site.

Table 4.15-1 presents the total fuel consumption anticipated for construction activities, shown both for the overall construction period and amortized over an assumed 30-year lifetime. Over the anticipated 16-year construction period, implementation of new development and public facilities and infrastructure required to serve new development would require approximately 8,678,646 gallons of diesel and 5,508,075 gallons of gasoline.1 Refer to Appendix B for detailed model inputs, assumptions and calculations.

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Notes:
CO2 = carbon dioxide; CO2e = carbon dioxide equivalent; MT = metric tons
Sources:
a Modeled by AECOM in 2019
b U.S. Energy Information Administration 2016

1 These calculations are based on the CalEEMod emissions estimates for proposed construction activities and application of U.S. Energy Information Administration CO2 emissions coefficients (U.S. Energy Information Administration 2016) to estimate fuel consumption for each phase of construction activities.
Energy consumption would vary depending on the type of construction activities. For example, during construction equipment-intensive phases, such as site grading, daily fuel use would be higher than during less intensive phases, such as building construction. A General Plan is a long-term planning document, and exact buildout schedules cannot be determined. Therefore, for the purposes of this EIR, a maximum annual construction level was estimated. The maximum annual housing production experienced within the City since 2001 was 2,019 housing units (SACOG 2019). This is equivalent to eight percent of the remaining unbuilt Planning Area being developed per year. Conservatively, this figure was rounded up and it was assumed that up to 10 percent of the Planning Area could be developed annually. Although it is unlikely that the most intensive days of construction would occur concurrently, to conservatively estimate maximum potential fuel demands, it is assumed that these various construction activities could occur concurrently throughout the Planning Area during a year of maximum-potential development, resulting in higher daily and annual fuel use. Because of these conservative assumptions, actual construction-related energy consumption could be less than those estimated. If construction is delayed or occurs over a longer period, fuel use could be reduced because of a more modern and fuel efficient construction equipment fleet mix and a less intensive and overlapping construction schedule.

Fuel consumed during construction would be temporary in nature and would not represent a significant demand on available fuel, beyond normal construction fuel usage. There are no anticipated unusual characteristics that would necessitate the use of construction equipment that would be less energy-efficient than at comparable construction sites in the region or state.

### Building Operational Energy Consumption

Operation of land uses and infrastructure and facilities in the Planning Area would consume energy for multiple purposes including, but not limited to, building heating and cooling, refrigeration, lighting, electronics, office equipment and commercial machinery. As shown in Table 4.15-2, residential development, full buildout of the General Plan would result in approximately 539,230 MWh year year of electricity consumption and 1,605,307 million British thermal units per year of natural gas consumption. Non-residential land use would consume approximately 661,182 MWh year year of electricity consumption and 1,016,858 million British thermal units per year of natural gas. Converting all operational energy demand to a single unit, land use operations would consume approximately 21,177,214 million British thermal units per year at full buildout of the General Plan.

Projects in the Planning Area would be constructed to meet currently-applicable energy efficiency standards at the time of construction. In accordance with California Code of Regulations Title 20 and Title 24, development under the General Plan would be required to comply with the building energy requirements and California Building Standards Code, including CALGreen. This includes meeting energy standards for water and space heating and cooling equipment, insulation for doors, pipes, walls, and ceilings, and appliances, and other requirements. Improvements would also be eligible for rebates and other incentives from both the electric and gas providers for the Planning Area for the use of energy-efficient appliances and systems, which would further reduce the overall operational energy consumption associated with operations of improvements under the General Plan. Furthermore, the Roseville Electric Utility power mix is approximately 40 percent eligible renewable resources, ensuring that electricity consumption in the Planning Area relies heavily on renewable sources.

As discussed in the Regulatory Framework, energy efficiency requirements have and will continue to become more stringent over time. As a result, new projects would be more energy efficient than existing projects of the same type within the Planning Area that were constructed prior to the existence of energy efficiency standards or
under previous less stringent energy efficiency standards. Therefore, the operational-related energy consumption under the General Plan would tend to reduce per-capita energy use in association with new and revitalized building energy needs during the planning horizon, as well as reducing peak energy use.

Table 4.15-2 Estimated Annual Operational Energy Demand

<table>
<thead>
<tr>
<th>End Use</th>
<th>Energy Demand</th>
<th>Unit</th>
<th>Total Energy Consumption (MMBTU/Year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electricity</td>
<td>539,230</td>
<td>MWh/year</td>
<td>8,335,001</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>1,605,307</td>
<td>MMBTU/year</td>
<td>1,605,307</td>
</tr>
<tr>
<td>Subtotal</td>
<td></td>
<td></td>
<td>9,940,308</td>
</tr>
<tr>
<td>Non-Residential</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electricity</td>
<td>661,182</td>
<td>MWh/year</td>
<td>10,220,047</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>1,016,858</td>
<td>MMBTU/year</td>
<td>1,016,858</td>
</tr>
<tr>
<td>Subtotal</td>
<td></td>
<td></td>
<td>11,236,905</td>
</tr>
<tr>
<td><strong>Total Annual Land Use Operational Energy Demand</strong></td>
<td><strong>21,177,214</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: This analysis is based upon land use operational energy demands modeled in CalEEMod. These estimates assume diesel (heat content) is 5.8 MMBtu/barrel, that for vehicular gasoline there are 5.2 MMBtu/barrel that there are 42 gallons/barrel, and that the City of Roseville Electric Utility-provided electricity has an average heat content of 15.457 MMBTU/MWh factor of 365 days/year. This data is per U.S. Energy Information Administration and California Energy Commission. Source: Modeled by AECOM in 2019

**Operational Transportation Energy Consumption**

As noted previously, transportation is the largest energy consuming sector in California. The General Plan contemplates development in the Planning Area, including new growth areas, as well as a focus on infill locations. The total estimated VMT for the Planning Area in 2035, the planning horizon year for the General Plan, is 10,289,735 miles per day (Fehr & Peers 2020). Using estimates for the fuel consumption rates based on the average fleet in the region from EMFAC2017, this level of mobile operations would result in the consumption of approximately 91.6 million gallons of gasoline and 29.4 million gallons of diesel fuel per year. As a point of comparison to other energy consumption, this fuel consumption would equate to approximately 15,510,932 MMBTU per year.

It is important to note that the VMT estimate used to inform this estimate does not take into consideration mobile source emissions reductions that would result from implementation of the proposed General Plan Update’s revised policies related to infill development, vehicle miles traveled (VMT), transit service, bicycle and pedestrian access, and related topics. Therefore, this is considered a conservative estimate and actual fuel use with implementation of the proposed General Plan Update would likely be less than estimated here.

The following goals and policies related to energy conservation would be revised as a part of proposed General Plan Update, with additions shown in **bold, underlined** text and deletions shown in strikethrough text:

► **Policy LU2.1:** Promote land use development patterns that support a variety of transportation modes and accommodate pedestrian mobility.
Policy LU2.2: Allow for land use patterns and mixed-use development that integrates residential and non-residential land uses, such that residents may easily walk or bike to shopping, services, employment, and leisure activities.

Policy LU2.3: Concentrate higher-intensity uses and appropriate support uses in Pedestrian Districts and within close proximity of transit and bikeway corridors, as identified in the Transit Master Plans and Bicycle Master Plan. In addition, some component of public Public uses, such as parks, plazas, public buildings, community centers, schools, and/or libraries, should be located within Pedestrian Districts and transit and bikeway corridors easily accessible to the public.

Policy LU2.4: Promote and encourage the location of employee services, such as child care, restaurants, banking facilities, convenience markets, etc and other daily needs, within major employment centers for the purpose of reducing mid-day service related vehicle trips.

Policy LU2.5: Where feasible, improve existing development areas to create better pedestrian, bicycle, and transit accessibility.

Policy LU2.6: Through City land use planning and development approvals, require proposed that neighborhood-serving uses (e.g. neighborhood commercial uses, day care, parks, schools, and other community facilities and services) to be physically linked with adjacent residential neighborhoods through multi-modal transportation connections.

Policy LU3.4: Encourage infill development and rehabilitation reinvestment that:

- Upgrades the quality and enhances the character of existing areas;
- Enhances the mix of land uses in proximity to one another so that more households can access services, recreation, and jobs without the use of a car;
- Enhances pedestrian activity and public transit use, and pedestrian access;
- Efficiently utilizes and does not overburden existing services and infrastructure; and
- Results in land use patterns and densities that provide the opportunity for the construction of a variety of household housing types that are affordable to all income groups.

Policy LU7.2: Continue to develop and apply design standards that result in efficient site and building designs, pedestrian-friendly projects that stimulate the use of alternative modes of transportation, and the establishment of functional relationships between adjacent developments.

Policy LU8.9: Work aggressively to address traffic generated outside of Roseville by working in collaboration with neighboring jurisdictions, regional, state, and federal entities to ensure that traffic through Roseville is mitigated by regional solutions. Ensure that transportation solutions are supported by land use and design policies. The City will encourage changes in land use mix and community design that promote walking, biking, and transit, consistent with the Growth Management Visioning Committee’s Vision Statement.
Policy CIRC2.6: Prioritize investments in pedestrian, bicycle, and transit access in Pedestrian Districts.

Goal CIRC3: Promote a safe, convenient, and efficient transit system, utilizing both bus and rail modes, to enhance mobility; reduce congestion; reduce auto emissions, including emissions that contribute to climate change; improve the environment; and provide viable non-automotive means of transportation in and through Roseville.

Policy CIRC3.1: Pursue and support transit services within the community and region and pursue land use, design, and other mechanisms that promote the use of such services. Promote transit service that is convenient, cost-effective, and responsive to the challenges and opportunities of serving Roseville and surrounding communities, and explore opportunities for transit innovation and service improvements.

Policy CIRC3.6: Identify opportunities to increase the number and/or capacity of park-and-ride lots as needed, to increase transit and carpool/vanpool use.

Goal CIRC4: Reduce travel demand vehicle miles traveled on the City’s and regional roadway systems, while expanding mobility options for residents, employees, and visitors.

Policy CIRC4.1: Continue to enforce the City’s TSM ordinance and monitor its effectiveness. The City will review and condition projects, as appropriate, to reduce travel demand per capita and per employee by promoting increased density near transit, improving the quality of non-vehicular transportation options, providing incentives for non-vehicular travel, encouraging the mixing of complementary land uses in proximity to one another, and using other feasible methods.

Policy CIRC4.2: Work with appropriate agencies to develop implementation measures to reduce vehicular travel demand and total vehicle miles traveled and meet air quality goals.

Policy CIRC4.3: Specific Plan Amendments and land use development projects not included in a Specific Plan shall be evaluated for consistency with the City’s VMT Impact Standards.

Policy CIRC4.4: If the evaluation required by CIRC4.3 finds a Specific Plan Amendment or land use development project not included in an adopted Specific Plan is inconsistent with thresholds established within the City’s VMT Impact Standards, on-site land use, transportation, and urban design-related VMT-reducing features should be prioritized to demonstrate consistency. If feasible on-site features cannot achieve the VMT threshold, Specific Plan Amendments and land use development projects outside Specific Plan Areas may demonstrate equivalent consistency through off-site actions or fair-share fee contributions, or if consistency cannot be achieved, shall implement all feasible measures.

Policy CIRC4.5: Policy CIRC4.3 does not apply to projects that propose residential or office uses in Transit Priority Areas or low-VMT areas. Low-VMT areas are those shown by the General Plan travel demand model or the SCS travel demand model to have per-capita, per-employee, or per-service-population VMT rates that are at least 15 percent less than the baseline citywide or regional rate.

Policy CIRC4.6: Promote and incentivize Infill development, particularly affordable housing development, through assistance in obtaining outside grant funding and reductions or deferrals in impact fees.
► Policy CIRC5.1: Develop a comprehensive and safe system of recreational and commuter bicycle routes and trails that provides connections between the City’s major employment destinations (including employment) and housing areas and between its existing and planned bikeways.

Goal CIRC6.1: Increase the percentage of pedestrian trips in Roseville.

► Policy CIRC6.1: Establish and maintain a safe and continuous pedestrian network that provides connections between residential areas and commercial retail and services, employment, public services, parks, and public transit.

► Policy CIRC6.2: Promote development patterns that encourage people to walk to destinations.

► Policy PF4.6: Pursue reasonable and cost-effective energy efficiency, conservation, and management programs that provide benefits to the community pertinent to the electric utility system.

Goal PF9.1: Preserve scarce resources by recognizing the importance of efficiency conservation in water and energy management.

Goal PF9.2: Balance conservation efficiency efforts with water and energy supplies for the maximum benefit of Roseville’s residents.

► Policy PF9.1: Develop and implement water conservation efficiency standards.

► Policy PF9.5: Develop and implement public education programs designed to increase public participation in energy, water conservation efficiency, and recycled water use.

► Policy PF9.8: Preserve scarce natural resources by undertaking major projects in energy conservation and load management, including increasing efficiency in the City’s electrical system.

► Policy PF9.9: Continue and expand energy efficiency and conservation programs to serve all utility users.

Goal AQ1.3: Encourage the coordination Coordinate and integration of all forms of public transport to, while reducing motor vehicle emissions, through a decrease in the average daily vehicular trips and vehicle miles traveled, while encouraging an increase in, and by increasing the commute vehicle occupancy rate by 50% to 1.5 or more persons per vehicle.

Goal AQ1.4: Increase the capacity of the pedestrian, bicycle, and transit transportation systems and promote and the share of City owned vehicular transportation that uses less-polluting fuels, such as electricity, including the roadway system and alternate modes of transportation.

Goal AQ1.5: Provide adequate pedestrian and bikeway bicycle facilities for present and future transportation needs.

Goal AQ1.6: Promote a well-designed and efficient light rail and transit system.

Goal AQ1.7: While recognizing that the automobile is the primary form of transportation, the City of Roseville should make a commitment to shift from the automobile to other modes of transportation. Improve transit.
biking, bicycle, and pedestrian access to lessen dependence on automobile travel and reduce household transportation costs.

► **Policy AQ1.12**: Develop transportation systems that minimize vehicle delay and reduce vehicle emissions by improving the desirability of walking, bicycling, and public transportation relative to vehicular travel and air pollution.

► **Policy AQ1.16**: Encourage and implement land use policies that maintain and improve air quality and expand opportunities for transit-oriented development, which allows residents to significantly reduce vehicular transportation and associated air pollutant emissions.

► **Policy AQ1.17**: Conserve energy and reduce air pollutant emissions by encouraging energy efficient building designs and transportation systems and promoting energy efficiency retrofits of existing structures.

► **Policy AQ1.18**: Promote building and transportation energy efficiency in new residential and commercial development through encouraging and incentivizing implementation measures early in the design and development process.

► **Policy AQ1.19**: Encourage energy efficiency by identifying potential cost savings, resource, and health benefits.

The proposed General Plan Update policy changes listed above would result in improved energy efficiency by providing greater clarity related to the City’s intent to encourage infill development and mixing of land uses, which allows non-vehicular transportation (and therefore less fuel consumption; the transportation sector is the highest user of energy). General Plan revisions also relate to improving public transit options and bicycle and pedestrian facilities to encourage a shift away from vehicular travel. The proposed General Plan Update policy changes and the new policies listed above would reduce vehicular travel demand (vehicle miles traveled, or VMT) and associated energy demand. Policy revisions also emphasize the City’s interest in promoting energy efficient building design and retrofits. None of the changes to goals or policies would have any adverse environmental impacts.

**Conclusion**

Energy would be consumed during all phases of construction and operations under buildout of the General Plan. EPA and ARB have developed a body of regulations, programs, and strategies that address energy use from construction and land use development projects. See Section 4.15.2, “Regulatory Framework,” for a description of regulations that would help reduce GHG emissions associated with the General Plan Update. Those regulations that pertain to reduction of VMT and improvements in building energy efficiencies would have the most substantial effect on reducing future energy consumption within the Planning Area. As fuel efficiency of vehicles improves over time, transportation energy efficiency would improve. In addition, as energy efficiency standards for buildings increase over time, consistent with the trend following each review and update of CALGreen, the energy efficiency of new development in the Planning Area would likely improve compared to existing development and infrastructure.
Implementation of existing General Plan Community Form – Downtown Neighborhoods Policy 2, Community Form - Relationship to Transit, Pedestrian, Air Quality (RTPAQ) Policy 1, Bikeways/Trails Goal 1 and Policy 2, and Air Quality General Policy 4 (listed previously in the Regulatory Framework section, and which have been renumbered for the proposed General Plan Update), as well as revised proposed General Plan Update Policies LU2.1–2.6 and 3.4, 7.2, and 8.10; Goal CIRC3 and Policies 2.6, 3.1, and 3.6; Goal CIRC4 and Policies CIRC4.1–4.7; Policy CIRC5.1; Goal CIRC6.1 and Policies CIRC6.1 and 6.2; Goal PF9.1 and 9.2 and Policies PF9.1, 9.4, 9.5, 9.8, and 9.9; Goals AQ1.3–1.9 and Policies AQ1.1, 1.3, 1.6, 1.9–1.19 and 1.22 listed above, combined with current laws, regulations, and policies, would reduce energy consumption within the Planning Area. The extensive body of regulatory requirements would increase energy efficiency, reduce peak energy demand, and therefore reduce actual adverse physical environmental effects associated with energy use. In addition, the proposed General Plan Update contains several policies that would promote energy efficiency and reduce peak energy demand in new development and promote increased energy efficiencies in existing development, including retrofits of existing structures.

As noted previously, transportation is the largest energy consuming sector in California. Therefore, the transportation fuel demand-reducing features of the proposed General Plan Update are important for consideration in an assessment of energy efficiency. As described in Section 4.4, “Air Quality,” proposed General Plan Update Policy AQ1.3 would result in reduced vehicle emissions during construction activities, thereby reducing construction-related fuel consumption. Buildout of the General Plan would include development in the western portion of the Planning Area, as well as a focus on development in infill locations. Land uses developed in infill, mixed-use, and/or transit accessible areas would reduce VMT by allowing residents to use alternatives to vehicular travel, and reducing trip distances to access destinations such as grocery stores and amenities such as parks. This is demonstrated in the Transportation chapter of this EIR (Chapter 4.3), which includes Table 4.3-7 listing average VMT in each of the City’s Specific Plans. Areas near the City’s downtown and core, where infill development would occur, have the lowest VMT per capita and therefore would have relatively higher transportation energy efficiency.

Buildout of the General Plan also includes employment-generating developments that would attract some vehicular trips by customers, as well as employees that may commute from areas within or outside the Planning Area. The City’s Land Use Map is designed to promote a range of housing opportunities and employment opportunities within the Planning Area so that more households would have the opportunity to reside near their workplace, and also promotes regional transit systems that would support multi-modal commutes to and from employment opportunities within the Planning Area.

Policies throughout the proposed General Plan Update, as identified above, would promote energy efficiency in buildings and transportation systems. Implementation of the proposed General Plan Update in accordance with these goals and policies would encourage transportation and energy efficiencies within the Planning Area that would increase energy efficiency over time within the Planning Area. Therefore, implementation of the proposed General Plan Update would not develop land uses and patterns that cause wasteful, inefficient, and unnecessary consumption of energy. This impact is less than significant. The actual physical effects of energy use (air pollutant emissions, greenhouse gas emissions, etc.) are addressed throughout this EIR.

Implementation of Mitigation Measure 4.4-2, as detailed in Section 4.4, “Air Quality,” and Mitigation Measure 4.5-1, as detailed in Section 4.5, “Greenhouse Gas Emissions,” would further reduce construction and operational energy consumption. Mitigation Measure 4.4-2 would result in reduced area, energy, and mobile source.
emissions, several of which related actions would reduce fuel and energy demand of operations under the General Plan Update. Mitigation Measure 4.5-1 would require the implementation of measures to minimize GHG emissions. There is substantial overlap between GHG emissions reductions achieved and overall reduced energy consumption due to reduced fuel demand and energy and water conservation. Therefore, implementation of Mitigation Measure 4.5-1 would also ensure that implementation of the General Plan Update would develop more energy efficient land uses and development patterns, and impacts would be less than significant.

Mitigation Measure

No mitigation is required.

**IMPACT 4.15-2**  Conflict with or Obstruct a State or Local Plan for Renewable Energy or Energy Efficiency. Buildout of the proposed General Plan Update would not conflict with or obstruct a State or local plan for increasing renewable energy or energy efficiency. Policies and implementation measures in the proposed General Plan Update include actions to increase the use and implementation of renewable energy resources. The impact is less than significant.

As described above in the discussion of Impact 4.15-1, implementation of the proposed General Plan Update would result in the development of new land uses that would induce new demand for electricity and natural gas. However, design and construction of new and retrofit buildings would be required to comply with the most recently adopted California Energy Code and California Green Building Standards Code (CalGreen), which are expected to become increasingly more stringent over time to further the State’s renewable energy and GHG reduction goals. In addition, design of new and retrofit construction within the Planning Area would be reviewed by the City of Roseville for consistency with the City’s Community Design Guidelines, which includes requirements for consideration of energy efficiency measures and incorporation of renewable energy production features in the design of projects.

The following proposed General Plan Update goals and policies related to energy conservation in Roseville are proposed for revision, with additions shown in **bold, underlined** text and deletions shown in strikethrough text:

- **Policy LU7.2**: Continue to develop and apply design standards that result in efficient site and building designs, pedestrian-friendly projects that stimulate the use of alternative modes of transportation, and the establishment of functional relationships between adjacent developments.

- **Policy PF4.4**: Comply with federal, state, and local greenhouse gas reduction targets, including the renewable portfolio standards and carbon-free electricity requirements.

- **Policy PF4.6**: Pursue reasonable and cost-effective energy efficiency, conservation, and load management programs that provide benefits to the community, pertinent to the electric utility system.

- **Policy PF9.1**: Develop and implement water conservation efficiency standards.

- **Policy PF9.4**: Develop and adopt a landscape ordinance that provides implement standards for the use of drought tolerant, and water-conserving efficient landscape practices for both public and private projects.
Policy PF9.5: Develop and implement public education programs designed to increase public participation in energy, water conservation, and recycled water use.

Policy PF9.8: Preserve scarce natural resources by undertaking major projects in energy conservation and load management, including increasing efficiency in the City’s electrical system.

Policy PF9.9: Continue and expand energy efficiency and conservation programs to serve all utility users.

Policy AQ1.15: Promote and incentivize low-emissions vehicles and associated charging infrastructure. Pursue funding from state programs and other sources to facilitate local purchase and use of electric vehicles.

Policy AQ1.17: Conserve energy and reduce air pollutant emissions by encouraging energy efficient building designs and transportation systems and promoting energy efficiency retrofits of existing structures.

Policy AQ1.18: Promote building and transportation energy efficiency in new residential and commercial development through encouraging and incentivizing implementation measures early in the design and development process.

Policy AQ1.19: Encourage energy efficiency by identifying potential cost savings, resource, and health benefits.

The proposed General Plan Update policy changes listed above would result in improved energy efficiency, and would not result in any adverse environmental impacts.

Conclusion

State plans and policies for renewable energy and energy efficiency include the California Energy Code and California Green Building Standards Code (CalGreen). Development under the proposed General Plan Update would be required to comply with these policies per the California Code of Regulations. Locally, project designs would be subject to review with consideration for the City of Roseville’s Community Design Guidelines. Proposed General Plan Update Policies LU7.2, PF4.4, 4.6, 9.1, 9.4, 9.5, 9.8, and 9.8, AQ1.15, and AQ1.17-1.19 also encourage energy efficient design standards and transportation systems, promote energy efficiency retrofits of existing structures, promote energy efficiency and conservation programs associated with utilities, and require compliance with federal, state, and local energy-related regulations, all of which are consistent with the aforementioned plans and policies to promote renewable energy and energy efficiency. Implementation of the proposed General Plan Update would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency. Therefore, this impact is less than significant.

Mitigation Measure

No mitigation is required.
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