

City of Poway Energy Roadmap



Prepared through the SANDAG
Energy Roadmap Program

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This Program is a collaboration between SANDAG and San Diego Gas & Electric®



Energy Roadmap for the City of Poway

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Introduction

This energy management plan, or “Energy Roadmap,” prepared by the San Diego Association of Governments (SANDAG) in consultation with city staff, provides a framework for the City of Poway (City) to identify ways to save energy in government operations and in the community, resulting in municipal cost savings and benefits to the environment. These wide-ranging, cost-effective opportunities to save electricity, natural gas, and transportation fuel include:

The Poway Energy Roadmap charts a path to saving energy in government operations and in the community.

- No-cost expert technical assistance, such as free energy audits of government buildings,
- Help identifying and applying for energy efficiency rebates and innovative programs like zero-percent on-bill financing,
- Energy-saving resources for cutting-edge topics like general plan updates, electric vehicles, and transportation demand management strategies, and
- The latest information on critical subjects like financing energy efficiency projects, alternative fuels, and residential retrofit programs.

California’s Vision for Local Governments

By 2020, California’s local governments will be leaders in using energy efficiency to reduce energy use and global warming emissions both in their own facilities and throughout their communities.

California Long-Term Energy Efficiency Strategic Plan

The City has already undertaken a number of actions related to energy efficiency and sustainability. In 2008-2009, the City participated in the SANDAG pilot program that helped develop the Energy Roadmap Program. The City received free energy audits and a report detailing economic, environmental, and energy costs and savings for energy-saving upgrades at municipal sites. Due to changing technologies and rebate amounts, the City received additional audits in 2010. In 2014, two types of energy auditing services were provided at no cost to the City: 1) Preliminary energy assessments, called “Energy Report Cards,” of sites determined by city personnel, and 2) More in-depth Energy Audits (Phase 2) for a subset of government buildings based on their Energy Report Cards and personnel input.

Energy Report Cards are designed to produce energy and greenhouse gas (GHG) emission baselines for each city site, and to evaluate which sites should undergo more comprehensive Energy Audits (Phase 2). The goal of Phase 2 audits is to identify potential savings for energy conservation measures (ECMs) and estimate energy savings and the associated project economics.

Poway participated in SANDAG's energy roadmap pilot and received free energy audits in 2008, 2010, and 2014.

GHG emissions are quantified in units of metric tons of CO₂ equivalent (MT CO₂e/yr.) for regional direct combustion and indirect energy use. Calculations are based on constants and methods used by the Energy Star Portfolio Manager. In cases where collected data will not reliably predict savings or where savings is estimated to be too small, an ECM will be presented as an additional measure and will not be included in the savings totals. A third type of measure that will be presented is a cost savings measure. These measures typically do not reduce energy consumption, but will likely lower operating costs. The most common examples are electricity rate changes.

The City has already undertaken a number of actions related to energy reduction and sustainability. The City also encourages green building practices, waste reduction and diversion, and smart growth policies in its community. Through the Energy Efficiency and Conservation Block Grant (EECBG) program, Poway was awarded nearly \$213,000 that helped the City complete several energy efficiency projects, and offered residential rebates for pool pumps and air conditioning (AC) upgrades.

By building on its existing energy-saving efforts and taking advantage of some or all of the opportunities identified herein, Poway can continue to demonstrate leadership in energy efficiency and work toward greater sustainability in municipal operations and throughout the community – saving money for taxpayers, households, and businesses, keeping the air clean, supporting green jobs, and improving quality of life for everyone.

Section I. Saving Energy in City Government Operations

City government can be a significant user of energy in its own buildings, facilities, and equipment. City employees also play a role through their commute choices, equipment usage, and use of government vehicles. These and other energy-using activities required to operate city government provide the City with an opportunity to lead by example. The City can improve energy efficiency, and in the process, spend fewer taxpayer dollars on utilities and gasoline, contribute to cleaner air, and reduce GHG emissions. Poway also can develop staff knowledge of energy efficiency and use its operations to showcase emerging energy-efficient technologies.

The section on saving energy in government operations identifies four distinct opportunities for Poway to lead by example with its buildings and facilities, vehicles, and energy usage practices:

1. **Save Energy in City Buildings and Facilities**
2. **Green the City Vehicle Fleet**
3. **Develop Employee Knowledge of Energy Efficiency**
4. **Promote Commuter Benefits to City Employees**

Section II. Saving Energy in the Community

Looking beyond its own operations, city government can play an important role in influencing the energy attitudes and actions of local residents and businesses. Opportunities for influence vary widely, from public education to adopting policies and implementing programs to save energy.

Poway has helped its residents reduce their energy bills through rebates on pool pumps and AC upgrades.

Energy use can be a major expense for households and businesses, and it is a predominant source of air pollution and GHG emissions. Saving energy benefits the environment, puts money in the pockets of households and businesses, and supports growing economic opportunities including well-paying green jobs.

This section of the Energy Roadmap identifies the following opportunities to lead the community with innovative programs for energy efficiency and sustainability:

5. **Leverage Planning and Development Authority**
 - a. Smart growth development policies
 - b. Energy efficient building upgrades
 - c. Clean and efficient transportation options
6. **Market Energy Programs to Local Residents, Schools, and Businesses**
7. **Support Green Jobs and Workforce Training**

Potential Uses of the Energy Roadmap

Examples of activities this Energy Roadmap could assist the City with include:

- Reducing government spending on energy use such as utilities and gasoline
- Developing or assisting to implement measures to reduce GHG emissions from government operations and community activities
- Integrating sustainability, energy efficiency, or GHG reduction measures into a general plan, specific plan, or zoning ordinance

- Using government operations to demonstrate the feasibility of energy-efficient and sustainable practices to local residents and businesses
- Managing the City vehicle fleet including new vehicle purchases
- Promoting energy efficiency programs through city communications such as email, the City’s website, and the Poway Today newsletter
- Training of employees that deal with energy issues
- Staying on top of the latest developments, programs, and trends in energy efficiency
- Applying and qualifying for future funding opportunities related to energy efficiency

About the Energy Roadmap Program

The Energy Roadmap Program is a collaboration between SANDAG and San Diego Gas & Electric® (SDG&E) that offers local jurisdictions assistance in making their buildings and processes energy-efficient, implementing state energy codes through access to training and workshops, and being a conduit to their constituents on programs that help reduce their energy bills as well as the environmental impact on the community as a whole.

The program provides free energy assessments of government buildings and online tools to monitor electricity, natural gas, and transportation fuel use. It provides continued access to experts that can assist jurisdictions in taking the next steps to implement building improvements, petroleum reduction measures, and community outreach.

Each participating jurisdiction receives a customized Energy Roadmap that offers a comprehensive framework for saving energy at city government facilities and in the community. Each Energy Roadmap is consistent with the SANDAG 2050 Regional Transportation Plan and its Sustainable Communities Strategy (2011); Regional Energy Strategy (2009), which serves as the San Diego region’s energy policy blueprint; and the Climate Action Strategy (2010), SANDAG’s first ever guide on climate change. The strategies are available on the SANDAG website at sandag.org/energy.

The Energy Roadmap Program was developed based on existing, successful SDG&E local government partnerships with the cities of Chula Vista and San Diego and the County of San Diego and pilot projects undertaken through the SANDAG Sustainable Region Program with the Center for Sustainable Energy for the cities of Carlsbad, Poway, and Solana Beach. The Energy Roadmap Program is funded primarily by California utility customers under the auspices of the California Public Utilities Commission. Transportation components are funded by SANDAG.

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Save Energy in City Buildings and Facilities

Energy is a major operating cost for local governments. By evaluating energy usage in city government buildings and facilities (“sites”) and identifying energy-saving opportunities, the City of Poway (City) can reduce its municipal energy-related operating costs and use the savings for other government services. The City also can set an example for residents by implementing reduction measures at the municipal level. This chapter highlights:

Poway could save over \$55,000 every year on utility costs from identified energy conservation measures.

- Free site assessments provided to the City,
- Energy-saving opportunities identified at each site, and
- Costs and payback to the City to undertake the energy-saving projects.

Energy Assessments

In 2014, two types of energy assessment services were provided at no cost to the City:

1) Preliminary energy assessments, called “Energy Report Cards,” of sites determined by municipal staff, and 2) More in-depth energy audits, called “Phase 2 Audits” for a subset of government buildings based on their Report Cards and direction from City staff.¹

Preliminary assessments were performed for 23 municipal sites listed below and Energy Report Cards were prepared for each. The Energy Report Cards are provided in **Appendix A**. These preliminary assessments established each site’s baseline energy use and benchmarked it against similar building types in the country.

Energy Report Cards for 23 Municipal Sites

▪ City Hall	▪ Arbolitos Park	▪ Aubrey Park
▪ Community Park	▪ Garden Road Park	▪ Hilleary Park
▪ Lake Poway Park	▪ Old Poway Park	▪ Silverset Park
▪ Starridge Park	▪ Valle Verde Park	▪ Fire Stations 1-3
▪ Poway Center for the Performing Arts	▪ Household Hazardous Waste Facility	▪ Camelback Pump Station
▪ Vehicle Maintenance Facility	▪ Public Services Administration Building	▪ Berglund Water Treatment Plant
▪ Sheriff Station	▪ Vehicle Storage	▪ Crew Lounge

¹ Energy assessments were previously provided to the City through the Energy Roadmap Program in 2010 as well as in 2008 through the predecessor to the Roadmap program, the SANDAG pilot Sustainable Region Program.

Benchmarking is a useful tool to judge a site's energy performance compared to the national or state averages. Two online tools were employed to help determine how "good" or "bad" a site was performing. The San Diego Gas & Electric® (SDG&E) *Energy Waves* program provided historical energy usage and will enable the City to continue monitoring energy consumption/site performance online. The U.S. Environmental Protection Agency's (EPAs) *Portfolio Manager* program identified how each site compared against national averages for similar facilities, and provided climate change information in carbon dioxide equivalent (CO₂E).

Poway's city buildings were found to perform better than the national average.

The preliminary energy assessments indicate that most Poway municipal sites are performing more efficiently than comparable buildings in California and the nation. The Phase 2 Energy Audits were to identify energy efficiency improvements in indoor/outdoor lighting; heating, ventilation and air conditioning (HVAC); building controls; and overall building operations and performance. These engineering assessments included utility rate review, recommended retrofit projects, and rebate programs and costs. No cost-effective HVAC improvements were identified at Poway's municipal sites, but outdoor lighting measures were identified for twelve buildings and parks that would reduce monthly utility bill costs. Eight sites could further lower their utility bills through indoor efficient lighting measures. The Phase 2 assessment is included as **Appendix B**.

EFM Solutions, an engineering firm and small business in San Diego, performed all site assessments on behalf of SANDAG and provided the City with project results in the form of the Energy Report Cards, Phase 2 energy audit findings, and a master spreadsheet of energy conservation measures identified.

Energy Audit Findings

Poway has the potential to realize nearly \$55,300 in annual operations savings on its utility bills by implementing the energy conservation measures (ECMs) identified through the energy engineering assessments. The potential energy, greenhouse gas, and bill savings by site are identified on the next page. Following that is a table with the expected economic costs and savings from implementing the ECMs.

Potential Savings by Energy Conservation Measure					
Location	Energy Conservation Measure (ECM)	Estimated Annual Savings for City			
		Electricity (kWh)	Demand (kW)	Bill Savings	Greenhouse Gases (MTCO ₂ e)
City Hall	Indoor lighting (Ltg.)	24,050	12.0	\$ 4,137	7.9
	Outdoor Ltg.	38,750	8.8	\$ 6,665	12.8
	HVAC controls	4,233	4.0	\$ 6,322	25.0
Community Center	Indoor Ltg.	4,029	2.4	\$ 685	1.3
	Outdoor Ltg.	37,028	19.5	\$ 6,295	12.2
	Pool pump VFD	52,233	0.0	\$ 8,880	17.2
Fire Stations 1 – 3	Indoor Ltg.	5,026	2.3	\$ 819	1.7
	Outdoor Ltg.	8,471	1.9	\$ 1,353	2.8
Library	Indoor Ltg.	17,064	5.6	\$ 2,747	5.6
	Outdoor Ltg.	11,498	2.6	\$ 1,851	3.8
Poway Center for Performing Arts	Indoor Ltg.	4,216	4.1	\$ 1,013	1.4
	Outdoor Ltg.	4,148	0.9	\$ 997	1.4
Sheriff Station	Indoor Ltg.	5,221	1.1	\$ 1,066	1.7
	Outdoor Ltg.	2,365	0.5	\$ 483	0.8
Public Works Administration	Indoor Ltg.	1,440	0.8	\$ 250	0.5
	Outdoor Ltg.	946	0.2	\$ 165	0.3
Vehicle Storage	Indoor Ltg.	454	0.3	\$ 80	0.2
	Outdoor Ltg.	2,365	0.5	\$ 416	0.8
Arbolitos Park	Outdoor Ltg.	416	0.1	\$ 70	0.1
Aubrey Park	Outdoor Ltg.	25,798	5.9	\$ 4,154	8.5
	Rate Change	0.0	0.0	\$ 2,783	0.0
Garden Road Park	Outdoor Ltg.	1,419	0.3	\$ 240	0.5
Hilleary Park	Outdoor Ltg.	2,335	0.5	\$ 397	0.8
Lake Poway Park	Outdoor Ltg.	1,559	0.4	\$ 251	0.5
Historic Poway Park	Outdoor Ltg.	11,108	2.5	\$ 1,930	3.7
Silverset Park	Outdoor Ltg.	5,247	1.2	\$ 887	1.7
Starridge Park	Outdoor Ltg.	1,419	0.3	\$ 241	0.5
Valle Verde Park	Outdoor Ltg.	718	0.2	\$ 121	0.2
Total Annual Savings:		273,556	79.3	\$ 55,297	113.9

Notes: HVAC = heating, ventilation, and air conditioning (AC) | VFD = variable frequency drive

Labels: kWh = kilowatt hours | kW = kilowatt | MT CO₂e = metric tons carbon dioxide equivalent

Economic Considerations for the Energy Conservation Measures

Location	Energy Conservation Measure (ECM)	Gross Project Cost	Cost Covered by SDG&E Incentives	Net Project Cost	Simple Payback (years)
City Hall	Indoor lighting (Ltg.)	\$ 32,106	\$ 2,763	\$ 29,341	7.1
	Outdoor Ltg.	\$ 51,850	\$ 11,740	\$ 40,110	6.0
	HVAC controls	\$ 160,000	\$ 0.0	\$ 160,000	25.3
Community Center	Indoor Ltg.	\$ 8,324	\$ 516	\$ 7,808	11.4
	Outdoor Ltg.	\$ 65,550	\$ 5,075	\$ 60,475	9.6
	Pool pump VFD	\$ 17,500	\$ 4,179	\$ 13,321	1.5
Fire Stations 1 – 3	Indoor Ltg.	\$ 8,959	\$ 508	\$ 8,451	10.3
	Outdoor Ltg.	\$ 10,200	\$ 1,590	\$ 8,610	6.4
Library	Indoor Ltg.	\$ 25,305	\$ 1,130	\$ 24,175	8.8
	Outdoor Ltg.	\$ 11,200	\$ 1,750	\$ 9,450	5.1
Poway Center for Performing Arts	Indoor Ltg.	\$ 4,444	\$ 1,274	\$ 3,170	3.1
	Outdoor Ltg.	\$ 4,200	\$ 650	\$ 3,550	3.6
Sheriff Station	Indoor Ltg.	\$ 3,248	\$ 225	\$ 3,023	2.8
	Outdoor Ltg.	\$ 3,500	\$ 500	\$ 3,000	6.2
Public Works Administration	Indoor Ltg.	\$ 2,162	\$ 167	\$ 1,995	8.0
	Outdoor Ltg.	\$ 1,400	\$ 200	\$ 1,200	7.3
Vehicle Storage	Indoor Ltg.	\$ 1,332	\$ 72	\$ 1,260	15.8
	Outdoor Ltg.	\$ 3,500	\$ 500	\$ 3,000	7.2
Arbolitos Park	Outdoor Ltg.	\$ 400	\$ 80	\$ 320	4.6
Aubrey Park	Outdoor Ltg.	\$ 24,800	\$ 4,960	\$ 19,840	4.8
	Rate Change	\$ 0.0	\$ 0.0	\$ 0.0	N/A
Garden Road Park	Outdoor Ltg.	\$ 2,100	\$ 300	\$ 1,800	7.5
Hilleary Park	Outdoor Ltg.	\$ 3,250	\$ 650	\$ 2,600	6.6
Lake Poway Park	Outdoor Ltg.	\$ 1,200	\$ 200	\$ 1,000	4.0
Historic Poway Park	Outdoor Ltg.	\$ 9,150	\$ 1,540	\$ 7,610	3.9
Silverset Park	Outdoor Ltg.	\$ 7,450	\$ 1,350	\$ 6,100	6.9
Starridge Park	Outdoor Ltg.	\$ 2,100	\$ 300	\$ 1,800	7.5
Valle Verde Park	Outdoor Ltg.	\$ 1,000	\$ 200	\$ 800	6.6
Total Annual Savings:		\$ 466,230	\$ 42,421	\$ 423,809	7.7

Notes: Gross and net installation and equipment costs are estimated and do not replace product specifications and contractor bids. Aubrey Park assessment performed by Trane.

Finance Options for Municipal Energy Projects

SDG&E provides rebates, incentives, and financing options to pay for all or part of the costs of energy conservation measures. In addition, low-interest loans are available from the California Energy Commission (CEC), and the U. S. Department of Energy may offer grants through its Energy Efficiency and Conservation Block Grants program.

San Diego Gas & Electric® Rebates and Incentives

As part of the energy audit findings, EFM Solutions identified the appropriate SDG&E rebates and incentives² for each municipal site. Generally, programs that apply to commercial businesses also apply to public agencies. To review all of SDG&E's rebate and incentive programs, see Chapter 6 of this Energy Roadmap or visit sdge.com/business/rebatesincentives/.

The Energy Roadmap program can provide Poway with project management support for retrofit projects and financing programs.

Zero-Percent Interest On-Bill Financing from SDG&E

The SDG&E On-Bill Financing (OBF) program³ provides zero-percent financing for the installation of energy efficiency improvements. OBF could enable the City to avoid paying upfront capital costs associated with the purchase and installation of efficiency measures.

Through OBF, SDG&E provides interest-free, unsecured financing to qualified commercial and taxpayer-funded customers. Financed equipment must qualify for a rebate or incentive from SDG&E's rebate/incentive program(s). EFM Solutions and the City's SDG&E account representative can meet with City staff to discuss OBF. The program for public agencies includes:

- Zero-percent financing on qualifying measures for up to ten years
- Offsets to energy-efficient upgrade costs
- Loan amounts that range from a minimum of \$5,000 up to \$250,000 per meter
- Loan installments that are added to monthly SDG&E bills

Low-Interest Loans from the California Energy Commission

The Energy Efficiency Financing Program provides financing for local governments, schools, and hospitals through low-interest loans for feasibility studies and installation of energy-saving measures. As of November 2014, terms included an interest rate of 1 percent fixed, a maximum loan of \$3 million per application, and a maximum loan term of 20 years. Again, EFM Solutions can assist Poway with applying for this loan, if needed. For more program information, contact the CEC's Special Projects Office, (916) 654-4104, email: pubprog@energy.state.ca.us, or energy.ca.gov/efficiency/financing.

² SDG&E programs are funded by California utility customers and administered by SDG&E under the auspices of the California Public Utilities Commission. Rebates and incentives are provided on a first-come, first-served basis until program funds are no longer available.

³ The OBF program is funded by California utility customers and administered by SDG&E under the auspices of the California Public Utilities Commission. The OBF program may be modified or terminated without prior notice and is provided to qualified customers on a first-come, first-served basis until program funds are no longer available. Eligibility requirements apply.

Post-assessment assistance in identifying energy project financing and implementation is a service provided to Poway through the Energy Roadmap Program. Contact your Energy Roadmap coordinator for further assistance.

Project Implementation Strategy to Reduce Utility Bills and Increase Energy Efficiency

1. Determine whether to pursue energy efficiency projects that qualify for OBF and/or have an immediate payback for the City.
2. Use the SANDAG independent energy engineering contractors to assist with developing equipment specifications and documentation for financing.
3. Seek approval from SDG&E to use its OBF Program (zero-percent interest loans) to cover upfront costs for energy upgrades.
4. Monitor site performance to ensure energy and cost savings are achieved.

The Energy Roadmap team can assist Poway with these implementation steps over the duration of the Roadmap Program (until December 2016).

Poway's Municipal Energy Policies

The City encourages and supports affordable housing. As energy costs can represent a significant cost in a family budget, the City's philosophy is to make their affordable housing projects as energy-efficient as possible. In 2007, the 56-unit Solara project was recognized as the first apartment complex in California to be fully powered by the sun. In 2009, the City Council approved the 77-unit Brighton Place affordable housing project that generates between 85 to 90 percent of its energy from solar panels. The City's goal is to compel future affordable housing projects to be equally energy-efficient.



Solara Apartments, Poway CA

Green the City Vehicle Fleet

The City of Poway (City) maintains a fleet of more than 100 vehicles. These vehicles range from sedans and pick-up trucks to fire engines and other heavy-duty trucks. As older vehicles and high-usage vehicles reach retirement, the City can achieve transportation-related energy savings and emission reductions through actions that promote fuel conservation, efficiency, and an increased use of clean, alternative fuels in its vehicle fleet.

The City of Poway has adopted practices to ensure the greatest fleet efficiency possible.

The City is committed to maintaining a sustainable community and is changing its operations to conserve resources. The City has recognized that fleet operations contribute significantly to its total energy use, and has adopted practices to ensure the greatest fleet efficiency possible. As part of this effort, the City is working on reducing petroleum usage and improving fleet fuel economy through driving practices and vehicle replacement. Also, the City's use of low sulfur fuel has been put into place to meet the California Air Resources Board (CARB) regulations to significantly improve air quality by reducing emissions of hydrocarbons as well as particulate matter. This Roadmap chapter offers tools and information that can support Poway's efforts to uphold efficient fleet operations and meet its environmental goals through the use of advanced technology and alternative fuel vehicles.

California Goals for Transportation Fuels

California has adopted several transportation fuel laws and goals, and the California Energy Commission (CEC) has been the responsible agency for the targets shown in the *California Goals for Transportation Fuels* table. In order to meet these goals, the state allocates grant funds through the Assembly Bill (Nunez, 2007) (AB 118) Program to help address barriers to the production and deployment of alternative fuels, vehicles, and infrastructure. Millions of dollars are available annually through 2024, for which the City and local businesses can apply. Additional information is provided later in this section.

California Goals for Transportation Fuels

Objective	State Goals and Milestones
Petroleum Reduction	Reduce petroleum fuel use to 15% below 2003 levels by 2020
Alternative Fuel Use	Increase alternative fuel use to 20% of on-road fuel demand by 2020 and 30% by 2030
In-State Biofuels Use	Increase biofuel use to one billion gasoline gallons equivalent (GGE) by 2010, 1.6 billion GGE by 2020, and two billion GGE by 2050
In-State Biofuels Production	In-state production of 20% of biofuels used in California by 2010, 40% by 2020, 75% by 2050
Electric Vehicles in State Fleets	10% of light-duty fleet purchases must be zero-emissions vehicles (ZEV) by 2015, and 25% by 2020
Zero-Emission Vehicles	1.5 million ZEVs (plug-in electric or hydrogen fuel cell vehicles) will be on California roads by 2025

Poway's Fleet

The Poway fleet supports the provision of essential public services such as fire protection, street services, park maintenance, and wastewater operations. Vehicles are replaced on regular schedules. Vehicle replacements offer the City the chance to adopt more efficient vehicles.

When replacing vehicles, City staff evaluates vehicle duty requirements and selects the most efficient vehicle that can do the job. The City currently operates the smallest trucks available for regular duty and has replaced or retrofitted many of its heavy-duty diesel vehicles to meet the most stringent emissions standards. It also operates hybrid compact sport utility vehicles (SUVs). Equally, outdated lawn maintenance equipment is replaced with machines that meet the state's new emission requirements, or with battery powered equipment where determined applicable for the job.

Online Fleet Planning Tools

The U.S. Department of Energy's (U.S. DOE) Petroleum Reduction Planning Tool (afdc.energy.gov/afdc/prep/), at the Alternative Fuels and Advanced Vehicles Data Center, could supplement Poway's current fleet management system by evaluating and calculating petroleum reductions through three categories of reduction measures including efficiency (e.g., fuel economy, idling reductions), conservation (e.g., vehicle miles travelled reductions), and alternative fuels (e.g., vehicles that run on electricity, compressed natural gas [CNG]). A petroleum reduction goal (e.g., 10% savings) can be set and the free online tool can identify potential savings based on the fleet information entered and petroleum reduction measures selected. The Vehicle Cost Calculator (afdc.energy.gov/calc/) uses basic information on driving habits to calculate total cost of ownership and emissions for makes and models of most vehicles, including alternative fuel and advanced technology vehicles.

Argonne National Laboratory, one of the U.S. DOE labs, has developed a more advanced model called the Alternative Fuel Life-Cycle Environmental and Economic Transportation (AFLEET) Tool (greet.es.anl.gov/afleet) for fleets to estimate petroleum use, greenhouse gas (GHG) emissions, air pollutant emissions, and total cost of ownership of light-duty and heavy-duty vehicles using a spreadsheet format. The AFLEET tool allows comparisons between vehicles using different fuel technologies and is customizable with fleet-specific inputs.

The FuelEconomy.gov website is a partnership between U.S. DOE and the U.S. Environmental Protection Agency (EPA). It serves as the official U.S. government source for fuel economy information, and allows users to compare the efficiency of all vehicle models in production since 1984. It contains information on the energy and environmental performance of vehicles as well as tools to improve fuel economy.

When considering a new fleet vehicle purchase, the Cool Fleets website (coolfleets.com) has a free online calculator that can help the City identify the most cost-effective vehicle with the best environmental performance. It provides helpful information on a variety of indicators, including costs and GHG emissions. The user can compare each vehicle to itself or other models using different variables such as the lease term and average annual mileage scenarios. The user chooses the applicable fuel cost for their location and selects vehicles individually or by category.

Poway also can reduce fuel use by encouraging employees to use fleet vehicles efficiently. This includes trip planning, efficient driving habits, and routine maintenance. Specific tips are described in **Appendix D**.

Alternative Fuels for Fleet Applications

Alternative fuel and vehicle selection may depend on several factors including:

- Vehicle cost
- Availability and proximity of refueling infrastructure
- Availability of grants and tax credits
- Whether new purchase or retrofit/conversion is being considered
- Vehicle maintenance

Descriptions of each type of alternative fuel and information on the availability of alternative fuel vehicles for a variety of fleet applications are provided in **Appendix D**. Opportunities for vehicle replacement specific to Poway's fleet are described next.

Vehicle Replacement: Alternative Fuel Options for Poway

SANDAG partnered with the Center for Sustainable Energy (CSE) to provide an assessment tailored to the City's fleet and vehicle replacement protocols. CSE conducted the following analysis with information provided by City Fleet Management staff to identify suitable vehicles for replacement and analyze potential savings.

CNG or propane vehicles could offer savings of \$400 to \$3,500 a year based on fleet vehicle usage seen in Poway.

The City vehicles contain a range of light- and medium-duty trucks and utility vehicles. As older vehicles and high-usage vehicles reach retirement, selecting high-efficiency or alternative fuel vehicles as replacements will provide the City with cost savings and emission reductions. The City operates several light-duty trucks, which could be replaced with compressed natural gas (CNG) vehicles. The following table shows fuel costs and petroleum displacement from converting vehicles to CNG or propane (liquid petroleum gas-LPG). CNG and propane options were selected based on vehicle availability and the potential for large fuel cost savings. Based on current fuel prices¹, CNG and propane cost \$1.50 and \$0.77 less respectively than gasoline on a per gallon of gasoline equivalent (GGE) basis. This assessment found that the small price differential between regular gas and propane means that investments in propane vehicles and fueling infrastructure will not lead to monetary benefits for the City at this time.

The following *Potential Vehicle Replacements and Savings* table identifies an alternative fuel replacement option that could be suitable for the pick-up and medium-duty trucks, SUVs, and passenger vehicles in Poway's vehicle fleet. The assessment identifies potential fuel and cost savings on an annual and lifetime basis using mileage information. CSE identified vehicles based on high annual mileage and fuel consumption.

¹ Fuel prices used in this analysis are from the U.S. DOE January 2014 Clean Cities Alternative Fuel Price Report <afdc.energy.gov/uploads/publication/alternative_fuel_price_report_january_2014.pdf>

Potential Vehicle Replacements and Savings						
Vehicle Model	Fuel Tech ¹	Annual Mileage	Gallons Fuel Reduced/ Displaced ²	Total Cost Savings per year ³	Years to Payback w/ incentives ⁴	Yearly GHG Savings (MTCO ₂ e)
Compressed Natural Gas Vehicles						
2003 GMC 3500HD	CNG	2,400	301	\$424	11.8	0.7
2012 Ford 450	CNG	4,600	511	\$728	6.9	1.1
1997 GMC 3500HD	CNG	9,000	1,140	\$1,607	3	2.5
2001 GMC 1500	CNG	13,000	1,081	\$1,589	3.2	2.4
2005 Chevrolet Utility 2500	CNG	14,670	2,096	\$3,534	1.4	6.3
Propane Vehicles						
1997 GMC 3500HD	Propane	9,000	1,140	\$550	18.8	1.3
2005 Chevrolet Utility 2500	Propane	14,600	2,096	\$838	12.9	2.0
Notes: 1. CNG = compressed natural gas; Propane = liquid petroleum gas = LPG 2. Reducing/displacing the use of petroleum-based fuels is a goal of state policy and the federal Energy Policy Act and Energy Independence and Security Act. 3. Includes maintenance and fuel cost savings 4. CEC Gaseous Vehicle Buydown Program incentives are limited and may not be available at time of vehicle purchase Source: Center for Sustainable Energy						

As displayed in the table above, CNG and propane are cleaner fuel options for the City, and CNG is the most cost-effective. The payback is faster for high fuel-use vehicles. For example, a vehicle using 500 gallons of fuel per year would save around \$700, but a vehicle using 1,000 gallons of fuel per year would save approximately \$1,500. CNG and propane vehicles can cost between \$10,000 and \$15,000 more than their gasoline- or diesel-fueled counterparts before rebates, but the state offers incentives to address incremental cost differences. Large trucks, some of the biggest consumers of fuel, could realize substantial fuel savings, which would offset higher purchase costs within a few years when combined with state incentives.

The majority of Poway's light-duty sedans are Ford Crown Victoria Police Patrol Units. Ford has discontinued the Crown Victoria and instead offers a more fuel-efficient Special Service Police Sedan. The following table shows potential savings to the City from replacing 1999 and 2001 Crown Victoria units with 2014 Special Service Police Sedans.

The City has more than 20 vehicles from model year 2000 or earlier. These older vehicles have low fuel economy and likely require frequent and costly maintenance.

Replacing older vehicles with newer, more fuel-efficient models can lead to significant reductions on maintenance costs and fuel consumption.

Potential Police Vehicle Replacements and Annual Savings					
Vehicle Model	Annual Mileage	MPG	Gallons Fuel Reduced/ Displaced ²	Annual Fuel Cost Savings	Annual GHG Savings (MTCO ₂ e)
Replacing 1999 Ford Crown Victoria (MPG 16)					
2014 Ford Special Service Police	9,400	24	197	\$713	1.7
2014 Ford Fusion	9,400	42	591	\$1,807	4.6
Replacing 2001 Ford Crown Victoria (MPG 17)					
2014 Ford Special Service Police	20,900	24	359	\$1,301	3.2
2014 Ford Fusion	20,900	42	733	\$2,760	6.4
Replacing 2009 Ford Crown Victoria (MPG 19)					
2014 Ford Special Service Police	5,900	24	65	\$264	0.6
2014 Ford Fusion	5,900	42	170	\$645	1.5
Source: Center for Sustainable Energy and fueleconomy.com					

As part of this assessment, CSE included the mid-sized Ford Fusion hybrid as another potential replacement vehicle for Crown Victoria sedans. The replacement of older Ford Crown Victoria sedans with the Fusion hybrid sedans could reduce fuel costs by \$300 to almost \$2,000 a year. However, the payback periods may be two to six years due to the higher cost of hybrids over traditional vehicles.

Biodiesel could be used in existing diesel vehicles and can be made from a variety of vegetable oils and fats. Biodiesel from waste vegetable oil is some of the lowest carbon fuel currently available. Blends of up to 5 percent biodiesel are compatible with all diesel vehicles, while blends of up to B20 (20% biodiesel/80% diesel) can be used in most vehicles, although some special handling and maintenance requirements must be followed. The use of locally produced B20 from waste vegetable oil would reduce GHG emissions 15 to 18 percent. The following table shows the potential GHG emissions reduction from the use of B20 or B5 in a heavy-duty vehicle and fleet-wide.

Biodiesel Emissions Reduction Potential		
	Gallons	GHG Emissions reduced (MTCO ₂)
Dump Truck B5	500	0.2
Dump Truck B20	500	0.9
Fleet-wide B5	8,352	3.4
Fleet-wide B20	8,352	15.4

Fuel Availability in Poway

Additional fueling infrastructure throughout the region is needed for greater use of alternative fuel vehicles. In particular, for the vehicle replacements described above, Poway would need additional electricity, biodiesel, CNG, and/or propane infrastructure. Biodiesel can be blended onsite with the City's diesel storage tanks. Electric vehicle (EV) chargers can be installed for fleet vehicle use. Available refueling sites for all alternative fuel options near Poway are identified in the *Summary of Alternative Fuel Infrastructure Availability* table. In addition, **Appendix D** contains details on each location and the typical costs of installing each type of fueling infrastructure.

Summary of Alternative Fuel Infrastructure Availability		
Fuel	Existing Fueling/Charging Sites within Ten Miles of Poway's Fleet Maintenance Yard ¹	Availability of Production-Distribution Infrastructure
Electricity	There are a number of public charging locations in and near Poway.	Existing electricity grid and distributed energy sources.
Biodiesel	No fueling sites in or near Poway. Biodiesel blends could be provided to City tanks.	Storage tanks available. Local producer is New Leaf Biofuel.
CNG	One public access station in Poway.	Existing NG pipeline network.
Propane (LPG)	One public access station in Poway.	Existing distribution by multiple vendors.
E85	No fueling sites in or near Poway.	Storage and distribution facilities needed in order to scale-up consumption.
LNG	No fueling sites in or near the City.	Existing technology, but more terminals needed.
Hydrogen	No fueling sites in or near the City.	Significant investment required.

Note: 1. Site names, addresses, and distances are provided in **Appendix D**.

Source: afdc.energy.gov/afdc/locator/stations/

The infrastructure for alternative fuels is currently limited in the region, but public and private efforts are being made to expand it. As more fueling infrastructure becomes available, alternative fuel vehicles could be more seriously considered. The San Diego Regional Clean Cities Coalition, along with its members, have committed to addressing the need for more fueling choices across the region. The coalition can provide more information on alternative fuel infrastructure and vehicles in the region.

State Grants and Rebates

The CEC and CARB offer grants and rebates for alternative fuels and advanced technologies. Funding is allocated annually and the FY 2014-2015 budget for the CEC Alternative and Renewable Fuel and Vehicle Technology Program (energy.ca.gov/altfuels) is about \$100 million. CARB manages about \$30 million in projects through the Air Quality Improvement Program. CARB FY 2014-2015 funding plan includes about \$200 million in Low Carbon Transportation (arb.ca.gov/msprog/aqip/aqip.htm). The 2013 passage of AB 8 (Perea, 2013) extended funding for the Carl Moyer Program, the local diesel emission reduction programs, and the Alternative and Renewable Fuel and Vehicle Technology Program until 2024. These programs accelerate the turnover of older vehicles and equipment, and invest in the development and deployment of advanced clean emissions technology. Additionally, AB 8 allocates \$20 million in funding toward the installation of hydrogen fueling infrastructure and supports the deployment of hydrogen fuel cell vehicles.

The CEC has allocated \$10 million in funding for light-, medium-, and heavy-duty vehicles that use NG as well as \$5.2 million for light- and medium-duty vehicles that use propane. NG trucks are gaining increased market share due to their lower fuel costs, ability to reduce GHG emissions by 15-20 percent and decrease NO_x emissions. Incentive amounts are displayed below in the table *CEC Gaseous Vehicle Buydown Incentives*.

CEC Gaseous Vehicle Buydown Incentives		
Gross Vehicle Weight in Pounds (lbs.)	Natural Gas	Propane
Up to 8,500	\$3,000	\$3,000
8,501 – 14,000	\$8,000	\$6,000
14,001 – 26,000	\$20,000	\$10,000
26,001 & greater	\$26,000 ¹	NA
	\$32,000 ²	NA

Notes:

1. With fuel tank capacity less than 190 Diesel Gallon Equivalent (DGE)
2. With fuel tank capacity of at least 190 DGE

CSE manages the CARB Clean Vehicle Rebate Project (CVRP) (energycenter.org/cvrp), which provides rebates of up to \$2,500 for light-duty battery electric and plug-in hybrid vehicle (PHEV) purchases. CSE received approximately \$50 million in funding for

FY 2014-2015 and this funding will boost rebate funds to more than \$100 million. The *CVRP Rebate Amounts for Light-Duty Vehicles* table summarizes the available incentives.

CVRP Rebate Amounts for Light-Duty Vehicles

Vehicle Class	Maximum Incentive
Zero-Emission Vehicles: Hydrogen Fuel Cell	\$5,000
Zero-Emission Vehicles: Battery Electric	\$2,500
Plug-in Hybrid Electric Vehicles (PHEV)	\$1,500
Zero-Emission Motorcycles (ZEM)	\$900
Neighborhood Electric Vehicles (NEV)	\$900

Note:

Eligible vehicles and associated rebate amounts are subject to change. Visit the CVRP program site for eligible vehicle models and associated rebates.

More than \$9 million is available as rebates for commercial vehicles including trucks and buses through the CARB Hybrid Truck and Bus Voucher Incentive Project (HVIP) (californiahvip.org). A summary of the incentives available is provided in the *HVIP Voucher Amounts for Trucks and Buses* tables that follow. In addition to the rebates described in the tables, the first three vouchers redeemed by a fleet per funding year are eligible to receive the following extra voucher amounts:

- \$2,000 per vehicle if below 8,500 lbs.,
- \$5,000 per vehicle if 8,501 to 10,000 lbs., and
- \$10,000 per vehicle if over 10,000 lbs.

HVIP Voucher Amounts for *Zero-Emissions* Trucks & Busses

Gross Vehicle Weight (in pounds)	
5,001 – 8,500 lbs	\$12,000
8,501 – 10,000 lbs	\$18,000
10,001 – 14,000 lbs	\$30,000
14,001 – 19,500 lbs	\$35,000
19,501 – 26,000 lbs	\$40,000
> 26,000 lbs	\$45,000

HVIP Voucher Amounts for *Hybrid* Trucks & Busses

Gross Vehicle Weight (in pounds)	
6,001 – 8,500 lbs (plug-in hybrids only)	\$8,000
8,500 – 10,000 lbs (plug-in hybrids only)	\$10,000
10,001 – 19,500 lbs	\$15,000
19,501 – 33,000 lbs	\$20,000
33,001 – 38,000 lbs	\$25,000
> 38,000 lbs	\$30,000

Regional Plug-In Electric Vehicle Planning

Plug-in electric vehicle (PEV) adoption is increasing rapidly by consumers as well as fleets. The San Diego region was selected to take part in the largest PEV rollout in United States history, through the EV Project (theevproject.com). In the San Diego region, work towards increasing PEV infrastructure through the EV Project began in 2011 and continued through 2013, with more than 450 public charging stations installed. SANDAG and SDG&E were local project partners and provided in-kind assistance.

As a result of the project, many public sites throughout the region were identified as potential locations for PEV charging stations including restaurants, community and regional shopping centers, larger venue entertainment centers, transportation corridors, schools, hotels, airports, convenience retail, and retail shopping. A number of public chargers were installed in or near Poway. Two charging stations are located on Poway Road, the City's main commercial corridor.

Most major automobile manufacturers have now introduced PEVs. Since December 2010, the Nissan Leaf and Chevrolet Volt have been available in San Diego. Additional plug-in vehicles are available from BMW, Fiat, Ford, Honda, Mitsubishi, Toyota, Tesla, and other manufacturers. There are more than 7,000 EVs on the road in the region, with that number increasing by approximately 100 per month. Regional infrastructure also continues to grow. NRG's eVgo subsidiary has recently installed a direct current fast charge station near Poway as well as others along major regional transportation corridors.

The San Diego region currently has over 500 public PEV chargers and 7,000 EVs on the road.

San Diego Regional Electric Vehicle Infrastructure Working Group

Through a grant from the CEC, SANDAG established the San Diego Regional Electric Vehicle Infrastructure Working Group (REVI) to develop a readiness plan for the

San Diego region. The REVI met for two years starting in March 2012, in order to share experiences, address regional barriers to PEV infrastructure, and discuss potential best practices for incorporation into a PEV readiness plan.

The [San Diego Regional Plug-in Electric Vehicle Readiness Plan](#) was accepted by the SANDAG Board of Directors as a regional guide for use by local governments, public agencies, and others to support PEV adoption and EV charging station deployment throughout the region.

San Diego Regional Alternative Fuel Readiness Project

With a new CEC grant, SANDAG is expanding upon previous EV and infrastructure planning efforts to other alternative fuels including CNG, propane, ethanol, biodiesel, and hydrogen, beginning in summer 2014. SANDAG will be working with the San Diego Regional Clean Cities Coalition to develop a San Diego Regional Alternative Fuel Readiness Plan to address barriers and provide support for greater deployment of alternative fuel vehicles and infrastructure in the San Diego region. The project will consist of an assessment to identify the key needs in the San Diego region followed by toolkits to provide resources and best practices to assist stakeholders in overcoming barriers and preparing for alternative fuel deployment.

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Develop Employee Knowledge of Energy Efficiency

Overview

Developing employee knowledge of energy efficiency is another way for the City of Poway (City) to promote energy savings in city government operations and throughout the community. This chapter identifies free educational seminars and trainings available to city employees through the San Diego Gas & Electric® (SDG&E) Energy Innovation Center (EIC), located in Clairemont Mesa. Energy code training for planners, permit checkers, and building inspectors is taught regularly.

Free energy code training is available for Poway's Building Inspectors and Plan Examiners through the Energy Roadmap program. Additional training opportunities for city employees are shown on the next page.

In addition to the EIC, local colleges and universities host educational programs and professional certifications in energy management. If City staff is interested in training opportunities, your Energy Roadmap coordinator can help facilitate participation and assist with related enrollment costs.

Getting Started

As a first step in identifying educational, training, and certification opportunities, the City is asked to identify the following:

- Staff positions or employees that could benefit from energy-related workshops and trainings such as those listed in this section
- Other workshops or trainings of interest (even if not listed here)
- Workshops or trainings that Poway may be interested in hosting at a city facility

SDG&E conducts hundreds of expert-facilitated seminars on a broad spectrum of energy topics at the EIC. Workshop costs are covered by California utility customers under the auspices of the California Public Utilities Commission unless otherwise posted. An RSVP is generally requested for workshops to ensure that adequate space and food are provided. For more information, contact seminars@sdge.com.

The following table identifies quarterly workshops offered at the EIC as well as energy-related training and certification programs that could benefit city employees.

Training and Certification Programs		Audience
LEED Professional Credentials	The Leadership in Energy and Environmental Design® (LEED) designation acknowledges expertise in green planning, design, construction, operations, neighborhood development, and other sustainable practices. SDG&E will cover the cost of appropriate city employees to undergo training for a LEED Professional Credential.	City administration, planning, facilities, public works, environmental services
Title 24 Trainings	Title 24 Building Energy Efficiency Standards are updated about every three years. Residential and non-residential courses explore code changes and address questions.	Code inspectors, planning and/or facilities staff
Building Code Inspector Training	SDG&E offers free inspector training for city employees. Curriculum includes equipment identification and compliance, residential and commercial California Energy Code documentation and compliance, building plan verification for energy efficiency standards, and 2010 California Green Building Code.	Code inspectors, planning staff
Building Operator Certification (BOC)	SDG&E offers BOC Level 1 and 2 trainings and certifications to City staff at a reduced rate. BOC is a nationally recognized training and certification program offering improved job skills and more comfortable energy-efficient facilities. The training is led by experienced, professional instructors.	Facilities, public works staff
Certified Energy Manager (CEM)	Certification is through the Association of Energy Engineers. CEM distinguishes high levels of competency and proficiency in energy management, demonstrating expertise in several areas ranging from standards, air quality, energy audits, lighting, procurement, and financing.	Facilities, public works staff
NATE Certification Exam (HVAC)	SDG&E and the Institute of Heating and Air Conditioning Industries, Inc. co-sponsor seminars designed to help experienced HVAC professionals prepare for successfully completing the North American Technician Excellence (NATE) Certification Exam.	Facilities, public works staff
Free Educational Seminars		Audience
Building Performance and Monitoring	- Energy management systems - SDG&E's kWickview energy management tool - Energy Star Portfolio Manager - Benchmarking tools - Building information modeling	Facilities, public works
General Energy Workshops	- Energy efficiency 101 - Electricity 101 - Basics of solar, basics of solar water heating	Layperson
Best Practices and Programs	- ENERGY STAR best practices - Rebate programs	Planning, public works, city administration
Online Workshop Calendar	To view upcoming workshops, visit seminars.sdge.com .	

4

Promote Commuter Benefits to City Employees

The City of Poway (City) can achieve transportation-related energy savings by promoting a commuter program to its employees. Such programs provide alternative transportation choices to driving alone and incentives to do so. Support services from the SANDAG Transportation Demand Management (TDM) division, which oversees the iCommute program, are offered at no cost to Poway. Services are customized to address the specific needs of your city and its employees. Needs are initially identified through City staff direction, a survey of employee commute habits and preferences, and the mapping of employee commutes so that iCommute can recommend which commute choices make sense to promote.

Commuter programs can add points toward achieving Leadership in Environmental and Energy Design® (LEED) building certification.

Based on the initial needs assessment, the City could make informed decisions as to how it may like to promote biking, transit, carpools, and other choices to its employees. iCommute offers resources and tools to design and implement a customized commuter program, also known as a TDM program. Promoting commuter programs can be an easy and cost-effective way to reduce air pollution within the City. Ways that the City could take part are described in this section.

How Commuter Programs Work

A commuter program can stand side-by-side with your agency's benefits package, helping to attract and retain talented staff as well as improve overall employee satisfaction. A custom program could include everything from helping connect employees who want to carpool or vanpool with one another, to offering flexible or telework schedules, to providing free or reduced-cost transit passes.

iCommute services are offered at no cost to the City. Other programs are inexpensive for the City to implement and some come with subsidies sponsored by SANDAG. For example, SANDAG provides a \$400 per month subsidy for qualifying vanpools. The Commuter Benefit Starter Kit for Employers, available at iCommuteSD.com, provides the City with the tools to

Commuter Program Benefits

By providing transportation choices for its employees, Poway can:

- Improve traffic flow, and reduce employee parking congestion
- Set an example for residents and businesses
- Reduce commuter-related expenses, and add commuter benefits to employee compensation packages at little or no cost
- Measure and reduce petroleum consumption and carbon footprint

get started, including an overview of program options, sample policies, promotional materials, and tax benefit information.

Benefits of Participation

Alternative transportation is good business. By promoting TDM programs, cities can:

- Measure and reduce their petroleum and carbon footprint
- Add commuter benefits to employee compensation packages at little or no cost
- Utilize tax benefits and provide cost savings on payroll taxes
- Reduce employee parking and/or workspace demand
- Enhance retention and recruitment
- Receive points toward LEED certification

Regional Programs

The following is a sampling of commuter programs that have been highlighted to illustrate how the City can reduce fuel consumption, greenhouse gas emissions, and vehicle miles traveled.

iCommuteSD

An easy way for the City to reduce fuel consumption and congestion is by encouraging carpools, vanpools, and bicycling. [iCommuteSD.com](https://www.icommutesd.com) enables Poway to set up a network so that City employees are matched with other City employees. The RideMatcher tool assists an employee in finding a carpool, vanpool, or bike buddy.

TripTracker is an easy and convenient way for an employee to record trips made by alternative modes of transportation. It calculates the number of gallons of fuel saved, monetary savings, pounds of carbon dioxide not emitted into the atmosphere, and miles an employee has not traveled alone. Logging trips also enters the employee into the iCommute monthly prize drawings. **Appendix E** includes a sample TripTracker report.

Guaranteed Ride Home

iCommute offers the Guaranteed Ride Home Program to make using alternative modes more feasible. Enrollment allows the use of a rental car or taxi in the case of a family emergency, unscheduled overtime, or if the commuter's rideshare partner becomes unavailable. Employees that carpool, vanpool, take a Premium Express Bus, or the COASTER three or more times per week are eligible. In addition, commuters that walk or bike 75 percent or more of their trip, three or more days per week are eligible. This program may be used up to three times per year and requires a \$3.00 co-pay per use.

Transit

Poway is served by the MTS transit system trolley and buses. Additional information on specific routes and timetables can be found at sdmts.com. Employees that use transit to commute are eligible for the pretax incentive.

Pretax Incentive

Employers can take advantage of employee and employer payroll tax savings offered through the Internal Revenue Service (IRS) Commuter Fringe Benefit Program (IRS Section 132). The IRS allows employers to offer employees the opportunity to set aside a portion of their pretax salary to pay for transit and vanpooling. Bicyclists can receive up to \$20 per month, but this cannot be combined with the transit or vanpool incentive. Employers benefit by not paying payroll taxes on that money, while in effect adding value to their employee's compensation package. Consult with your payroll department to take full advantage of this option.

Telework and Flexible Schedules

Teleworking is a convenient solution that enables employees to work from home or a remote location one or more days per week. Flexible schedules offer hours outside of the traditional 9 a.m. to 5 p.m. schedule. For example, employees can work a 4/10 (4 days per week, 10 hours per day) or other flexible schedule. The City currently operates under a 9/80 schedule. Teleworking and flexible schedules have been shown to help recruit and retain high performing employees, and help the employees become more productive and happier. The employee gains additional benefit from the reduction of commute-related expenses. Jobs that are most suited for teleworking are those that require reading, writing, researching, working with data, and talking on the phone, often referred to as "information-based jobs." **Appendix E** includes sample Telework policies.

Bicycling

Riding a bike is an excellent choice for commuting that will save employees money, reduce stress, and help the environment. iCommuteSD.com has resources and tools for commuters that help plan routes, provide safety information, track trips, find bike buddies, and learn about bike to work events. Bicycling is an excellent first or last mile solution if transit is out of walking distance and bikes are allowed on trolleys and buses. iCommute maintains bicycle lockers throughout San Diego County located at many transit stations and Park & Ride lots. The City also provides an extensive bike lane system that is designed to interconnect mass transit, employment, and residential sectors and activity centers within and outside the City. Poway also is a supporter of, and participates in, the annual Bike to Work program.

SchoolPool

SchoolPool is the iCommute ridematching service for parents of children who attend the same school. With this safe and secure service, you are matched with other parents in your neighborhood who are interested in sharing the driving responsibilities or would like to have their children bike or walk to school with other students and a parent leader. SchoolPool is available regionwide for all K-12 public and private schools. This program can reduce vehicle congestion around schools while helping the environment. SchoolPool also puts an emphasis on safety, as safety events are held at various schools throughout the year.

Getting Started

At any time, the City can request assistance from iCommute to develop a customized commuter benefit program to take full advantage of these no-to-low cost programs. The iCommute team can also help Poway engage its employees in learning about alternative transportation choices, and to establish municipal commuter policies.

Actions could include:

- Meet with iCommute to review no cost online tools and functionality of the iCommute website
- Survey staff on their current commute habits and preferences
- Formalize a commuter benefit policy that outlines the commuter benefits that the City can offer (samples available on [iCommuteSD.com](https://www.icommuteSD.com))
- Include commuter benefit information in new employee orientation packets and link to iCommute on your intranet site
- Participate in and promote iCommute annual events such as Rideshare Week, Bike to Work Day, and Walk and Bike to School Day. Join the Rideshare Week and Bike to Work Corporate Challenges to showcase your commitment to sustainable commute choices.

For more information on iCommute programs and services, and to download the Commuter Benefit Starter Kit for Employers, visit [iCommuteSD.com](https://www.icommuteSD.com) or contact Antoinette Meier at (619) 699-7381 or antoinette.meier@sandag.org.

Leverage Planning and Development Authority

Local governments can promote energy efficiency in their communities by leveraging their authority over local land use and development activity. This chapter addresses ways in which energy considerations can be integrated into local land use and transportation planning. These energy efficiency and/or petroleum reduction measures are consistent with regional and state energy policies, and fall under the following categories.

1. **Smart growth development policies**
2. **Energy efficient building upgrades**
3. **Clean and efficient transportation options**

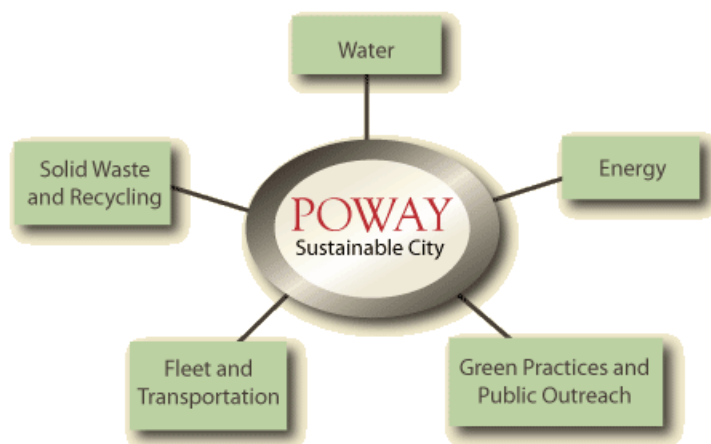
The Planning Role of Local and Regional Governments

Regional energy consumption is strongly related to urban form – i.e., the physical features and composition of the built environment. Local governments and SANDAG can influence the built environment, including the amount of energy consumed, through regulations, incentives, collaborative planning, and infrastructure investments that affect land use patterns, the transportation system, and other public facilities.

State law specifically vests local governments with authority over land use and development activities within their jurisdictions in accordance with their general plans and other policy documents that address land use, circulation (transportation), housing, public facilities, environmental management (open space, conservation, safety, scenic highways), and economic development. Local governments develop regulations and programs to implement their planning policies and goals.

Poway Sustainability Efforts

The City of Poway (City) is committed to developing and maintaining a green and sustainable future. The City is changing its operations to conserve resources and preserve the quality of life for all those who live, work, and play in its community.



The City partnered with the Local Governments for Sustainability in 2009 to collect data about city operations to estimate its greenhouse gas emissions (GHG). Using 2005 as the baseline, the information can be used for future comparisons. State law Assembly Bill 32 (Nunez, 2006) (AB 32) encourages local governments to reduce their GHG associated with city operations by 15 percent by 2020 as compared to 2005. GHG inventories establish a baseline of emissions data, which is a critical first step for any city interested in preparing a Climate Action Plan (CAP).

Sustainable Communities Strategy

Pursuant to Senate Bill 375 (Steinberg 2008) (SB 375), SANDAG and metropolitan planning organizations (MPOs) across the state are required to develop a Sustainable Communities Strategy (SCS) in order to reduce GHG emissions from passenger vehicles consistent with targets set by the California Air Resources Board (CARB). The following table, *GHG Reductions in the SANDAG Sustainable Communities Strategy*, presents the assigned CARB targets and the projected GHG reductions and vehicle miles traveled (VMT) reductions projected in the SCS. On October 28, 2011, SANDAG became the first MPO in the state to adopt a SCS as part of its 2050 Regional Transportation Plan (2050 RTP).

GHG Reductions in the SANDAG Sustainable Communities Strategy

Average Weekday Per Capita CO₂ and VMT Reductions for
Cars and Light Trucks from 2005

Target Year	CARB Target	GHG	VMT
2020	7%	14%	12%
2035	13%	13%	10%

Notes: CO₂ = carbon dioxide.

CARB identifies CO₂ as the GHG whose concentration is being most affected directly by human activities. CO₂ also serves as the reference to compare all other GHGs.

SANDAG, working closely with all local jurisdictions, is developing the next RTP/SCS for adoption by late 2015. This RTP/SCS, *San Diego Forward: The Regional Plan*, also will integrate an update to the Regional Comprehensive Plan (RCP 2004).

In addition to GHG reduction targets through VMT reductions, SB 375 provides an opportunity for streamlining the California Environmental Quality Act (CEQA) process for certain local redevelopment projects, if they are consistent with the SCS as either a “residential/mixed use project” or as a “Transit Priority Project” (TPP). Environmental review of a residential/mixed use project consistent with the SCS would not need to consider growth-inducing impacts or increases in GHG emissions from passenger cars and light trucks. For a TPP, the project would need to be at least 50 percent residential with a density of at least 20 units per acre and be within one-half mile of a major transit stop or a high-quality transit corridor included in the 2050 RTP. The Governor’s Office of

Planning and Research (OPR) plans to release a report on CEQA streamlining in 2014, which should provide guidance in this area, and **Appendix H** contains larger definitions for what could qualify for CEQA streamlining.

1. Smart Growth Development Policies

Smart growth can be defined as a compact, efficient, and environmentally sensitive pattern of development that provides people with additional travel, housing, and employment choices by focusing future growth away from rural areas and closer to existing and planned job centers and public facilities, while preserving open space and natural resources. Smart growth policies fit into the broader context of sustainability by guiding development to preserve access to natural resources. The principles of sustainability are based on achieving conservation goals and objectives in three broad areas: a prosperous economy, a healthy environment, and social equity. With the adoption of SB 375, the state is recognizing the influence that smart growth policies have on long-term sustainability. Although Poway currently does not have any qualifying existing transit at this time, the City has identified two smart growth opportunity areas that are discussed below. **Appendix H** includes full descriptions of both smart growth opportunity areas.

Potential Smart Growth Initiatives in Poway

The Corner at Poway Road and Community Road

This proposed smart growth area on Poway Road is located in the commercial center of Poway and includes property zoned Town Center, Mixed-Use, Community Business, Open Space – Recreation and Public Facilities. The proposed Town Center area includes the library, City Hall, an elementary school, Poway Community Park, retail and office uses, restaurants, and grocery stores as well as several for-rent affordable family housing and ownership townhouse developments. The City is proposing a mixed-use master planning effort that includes the western portion of the smart growth area on the south side of Poway Road that will revitalize the properties on Poway Road. This effort also may include a plan to renovate the Community Park. The mixed-use project as envisioned may include entertainment, creek restoration, green spaces, new shops, restaurants, view corridors, and pedestrian connections into Community Park from Poway Road; a pedestrian-friendly main street with retail on the first floor and residential above; market rate housing, as well as an affordable senior housing component and shared parking among the various land uses.

Area near Pomerado Hospital on Pomerado Road South of Bernardo Heights Parkway

This proposed special smart growth node encompasses the City's main core of medical and health care facilities. At the center of the node is Pomerado Hospital, which employs over 950 people. South of the hospital, Monte Vista Road supports six medical complexes, a Montessori School, and several residential care facilities. Another 120,000 square feet of medical office uses are located immediately to the north and west of the hospital. Within a quarter of a mile to the north, Gateway Park Drive supports over 290 active and assisted senior housing units. Another 50-100 workforce housing units are proposed on Monte Vista Road.

Transportation Demand Management

Transportation demand management (TDM) is the application of strategies to reduce single occupancy vehicle travel by encouraging alternative transportation options. Including TDM measures in the development review process may offer developers creative, affordable, and effective ways to reduce vehicle trips and their impacts. TDM measures also contribute toward Leadership in Energy and Environmental Design[®] certification.

The iCommute program offers free assistance to San Diego regional businesses and agencies in establishing and implementing customized TDM policies and programs that reduce traffic congestion, fuel use, air pollution, and GHG emissions. *Integrating Transportation Demand Management into the Planning and Development Process - A Reference for Cities* is a tool for local planners and available as part of the [Smart Growth Toolbox](#).

Active Transportation

Active transportation choices like biking and walking provide a healthier alternative to driving and reduce petroleum consumption and pollution locally. In addition, smart growth land use patterns, like those characterized in the SANDAG Smart Growth Concept Map, accommodate biking and walking as mobility choices. They typically contain a diverse mix of land uses, complemented by sidewalks, bike paths, a variety of housing types, and an interconnected and rich street grid that can slow and disperse vehicle traffic.

SANDAG's Active Transportation Grant Program encourages local jurisdictions to plan and build facilities that promote multiple travel choices for residents and connectivity to transit, schools, retail centers, parks, work, and other community gathering places. The grant program also encourages local jurisdictions to provide bicycle parking, education,

encouragement, and awareness programs that support pedestrian and bicycle infrastructure.

Parking Management

Parking management, reform, and pricing strategies are options to reduce the amount of driving and are primarily implemented at the local government level. Parking strategies can be effective in, and complement, smart growth areas with compact land use patterns and alternative travel options. Parking policies complement many TDM efforts, and normally have included incentives or disincentives for fewer spaces per unit of development (parking maximums rather than minimums), encourage shared parking among land uses (retail and office for example) and/or a fee per parking space. In the Poway Business Park, TDMs are required for businesses proposing to provide parking arrangements less than that required by City policy.

Funding for Smart Growth Planning

SANDAG manages the *TransNet* Smart Growth Incentive Program (SGIP), which funds transportation and transportation-related infrastructure improvements and planning efforts that support smart growth development. The SGIP awards 2 percent of the annual *TransNet* revenues to local governments through a competitive grant program. For more information on the SGIP, and upcoming funding cycles, visit sandag.org.

To reduce traffic congestion, emissions from the use of vehicles, and promote alternative forms of transportation such as walking and biking, Poway can apply for grant funds through the *TransNet* Bicycle and Pedestrian grant programs. Over the years, the City has received almost one million dollars in *TransNet* funds for in the development of its walking and bicycling programs. SANDAG allocates funds under the TDA and *TransNet* local sales tax program to support bicycle and pedestrian transportation projects through a competitive process annually.

As the City continues to undertake planning activities and evaluate goals and policies related to smart growth and active transportation; it can utilize the menu of sample policy measures provided in **Appendices H and I** as additional references. The measures reflect the goals of state agencies like the OPR and Office of the Attorney General.

2. Energy Efficient Building Upgrades

The *California Long-Term Energy Efficiency Strategic Plan*, the California Public Utilities Commission's (CPUC) framework for energy efficiency in the state, describes local governments' authorities and opportunities for promoting energy efficiency in new and existing buildings. In addition, local governments can promote residential programs like

Energy Upgrade California (EUC), which help homeowners undertake building retrofits that save energy and reduce monthly utility bills. The EUC program also provides local workforce training.

Appendix J provides a series of energy-related policy measures that reflect the goals of state agencies like the California Energy Commission (CEC), CPUC, and Office of the Attorney General. The appendix includes further information on EUC and financing mechanisms for energy efficient building retrofits.

Codes, Permits, and Compliance

Local governments are required to adopt and enforce building codes and regulate development activity within their jurisdictions. The *California Long-Term Energy Efficiency Strategic Plan* identifies the following areas where local government authority can impact energy use in new and existing buildings:

1. Ensuring compliance and enforcement of the Title 24 energy code for residential and commercial buildings.
2. Adopting and implementing voluntary and mandatory “reach” (enhanced energy efficiency) codes beyond Title 24’s energy requirements (and potentially other “green” requirements).
3. Supporting highly efficient projects that voluntarily exceed minimum energy codes through favorable fee structures, fast-tracked permitting, and other innovative and locally appropriate approaches.
4. Enacting ordinances with point-of-sale or other approaches that spur efficiency actions in existing, privately-owned buildings.
5. Applying efficiency-related “carrots” and “sticks” using local zoning and development authority.

If the City has interest in learning more about code, permit, and compliance options, the Energy Roadmap coordinator and San Diego Gas & Electric® (SDG&E) can provide assistance. For example, the City can receive free materials needed to consider adoption of voluntary reach codes, which go beyond the traditional minimum code requirements to make buildings more energy efficient.

Energy Upgrade California – Home Retrofit Programs

EUC (energyupgradeca.org) is a statewide umbrella under which all energy-saving building retrofit programs are housed. EUC promotes a “whole house” performance approach to energy efficiency that focuses on the elements within a home that affect energy use, how they interact, and how they influence health and safety. This approach is meant to provide a “one stop shop” of measures rather than targeting one building aspect at a time, such as lighting, air conditioners, or insulation.

To determine the best approach for improvements to an individual home, a home energy assessment is done. Some are known as “home energy ratings” or HERS. The assessment can pinpoint exactly what upgrades can be made, the costs, and the rebates or incentives that may apply. The home assessments and retrofit projects are performed by licensed building contractors that have been trained for the EUC program. (More information on workforce development programs is contained in Chapter 7.)

Locally, the Center for Sustainable Energy (CSE) is collaborating with SDG&E to coordinate EUC. Additionally, a collaborative of local public agencies has tasked CSE with continuing several local EUC programs through 2015 that were previously funded by ARRA grants to the City of Chula Vista, City of San Diego, and County of San Diego. The collaborative is referred to as the San Diego Regional Energy Partnership (SDREP) and it includes the above jurisdictions, along with SANDAG and the Port of San Diego. Together, SDREP dedicates grant funds to expand energy efficiency resources to all local jurisdictions in San Diego County. SANDAG’s contribution is to:

“Further develop and support regional Energy Upgrade California (EUC) implementation and the broader existing home retrofit market to facilitate “deep energy retrofits” (both in terms of high energy savings and untapped markets in existing residential buildings) for member jurisdictions.”

Poway residents can participate in EUC, and municipal staff is encouraged to participate in the planning of these programs through a regional Retrofit Advisory Council (RAC) managed by CSE. **Appendix J** includes details about the RAC and other regionwide SDREP projects in which the City may want to become involved.

Appendix J also provides a series of energy-related policy measures that reflect the goals of state agencies like the CEC, CPUC, and Office of the Attorney General. The appendix includes further information on EUC and financing mechanisms for energy-efficient building retrofits.

Property Assessed Clean Energy Finance Programs

In 2014, the Poway City Council is expected to consider participation in two new Property Assessed Clean Energy (PACE) Programs—the Home Energy Retrofit Opportunity program and the Figtree OnDemandPACE™ Financing program. These two programs operate in other cities in San Diego County and around the state. The voluntary programs are open to Poway residential and commercial property owners.

PACE allows property owners to pay for energy and water efficiency upgrades and renewable energy improvements without having to pay the costs upfront. Assembly

Bill 811 (Levine, 2008) (AB 811) and Senate Bill 555 (Hancock, 2011) (SB 555) serve as legislative authority for PACE operations. These two legislative actions enable the use of PACE as a financing tool, but provide slightly different structures. More information on PACE programs including which jurisdictions are participating is available in **Appendix J**.

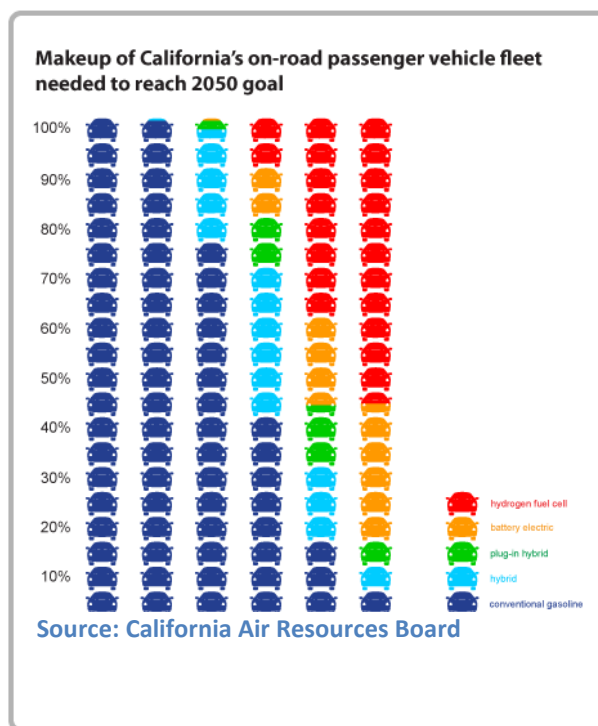
3. Planning for Clean Transportation Fuels

Planning for Alternative Fueling Infrastructure

As automakers offer greater numbers of vehicles powered by a variety of fuels, infrastructure must keep up to enable this market growth. For example, Cadillac, Chevrolet, Daimler, Fiat, Ford, Honda, Mitsubishi, Nissan, Tesla, and Toyota all offer plug-in electric vehicles (PEV) today. Also, Honda, Toyota, General Motors, Daimler, Hyundai, and Nissan have stated they plan to bring hydrogen fuel cell vehicles to market in the 2015-2017 timeframe.

In order to keep pace with the market and reach state petroleum reduction targets, regional planning and actions are necessary to incorporate alternative fuel infrastructure where little to none exist today. Some alternative fuel options for local planning are included in **Appendix I**.

The chart at right demonstrates how California's on-road passenger vehicle fleet is planned to change overtime. The state goal is for 95 percent of vehicles on California roadways to be powered by alternative fuels by 2050. Car, sport utility vehicle, and pick-up drivers will be using vehicles powered from natural gas, electricity, biofuels, and hydrogen fuel cells.



The deployment of alternative fuel infrastructure (e.g., fueling stations and EV chargers) will need to become a consideration when planning the region's transportation network. Requests for the siting of EV chargers and other fueling infrastructure will grow in the near future. Currently, the City of Poway is home to several types of alternative fueling (AF) stations. At this time, the Poway Unified School District has a compressed natural gas station, the

local U-Haul location has a propane fueling station, and several businesses including Walgreen's Pharmacy and the Nissan car dealerships have PEV charging stations.

Recognizing state direction and a general lack of AF infrastructure, the SANDAG Board included several Recommended Actions in the 2050 RTP/SCS (2011) to begin planning for an increase in AF vehicles. Specifically, SCS Actions 21, 22, and 24 addressed alternative fuels and infrastructure.

- 21. Support planning and infrastructure development for alternative fueling stations and plug-in electric vehicle (EV) chargers.
- 22. Develop or facilitate a regional approach to long-term planning for alternative fuel infrastructure that includes the continued development of public-private strategic alliances.
- 24. Integrate AF considerations into the development of the regional transportation network by, for example, integrating infrastructure for EV charging into regional Park & Ride lots and transit stations.

Support for AF infrastructure can help attract private investment associated with alternative transportation to the region. The San Diego Regional Clean Cities Coalition, along with its members including the County, SANDAG, local cities, Airport Authority, Port of San Diego, and CCSE have committed to addressing the need for more fueling choices across the region. The SANDAG *Sustainable Communities Strategy* and *Regional Energy Strategy* both support the planning for PEV charging and AF infrastructure.

Refuel: San Diego Regional Alternative Fuel Coordinating Council

In 2014, SANDAG began work on a regional AF readiness planning project. A coordinating council named Refuel was established to provide input into a regional readiness plan that addresses barriers to siting and installing AF stations. All local governments are encouraged to participate in Refuel and plan development. Best practice materials also will be developed over the course of the two-year project.

Plug-in Electric Vehicles and Charging Stations

SANDAG received a \$200,000 Energy Commission grant in 2012 to work with local governments and stakeholders to prepare a regional readiness plan for EVs. Subsequently, SANDAG received a \$300,000 grant to expand the EV planning effort to the Refuel Council described above. The San Diego Regional EV Readiness Plan was accepted by the SANDAG Board in January 2014. Factsheets and best practices on permitting EV chargers, parking accessibility, types of chargers, and other topics are provided in **Appendix K**.

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Market Energy Programs to Local Residents, Schools, and Businesses

This chapter provides information on educational resources available to residences, businesses, schools, and the general public in the San Diego region. It also provides internet links to existing energy and water efficiency programs, renewable programs, and fuel-saving resources. The City could serve as a conduit to its constituents about these resources by including them on the municipal website or in the Poway Today Newsletter.

California's Vision for Marketing, Education, and Outreach

Californians will be engaged as partners in the state's energy efficiency, demand-side management, and clean energy efforts by becoming fully informed of the importance of energy efficiency and their opportunities to act.

California Long-Term Energy Efficiency Strategic Plan

Other possible outreach mechanisms that the City could use include:

- Making available factsheets and pamphlets at City venues such as the permit desk, parks and recreation areas, libraries, and City Hall. San Diego Gas & Electric® (SDG&E), Center for Sustainable Energy (CSE), and SANDAG iCommute can provide materials about programs and services that the City can use.
- Inviting SDG&E, SANDAG iCommute, and/or CCSE to host an information booth on energy-saving programs or commuter programs at community events.
- Helping to coordinate presentations by SDG&E and/or SANDAG iCommute to community organizations such as a neighborhood planning group or local chamber of commerce.

San Diego Gas & Electric Energy Innovation Center

In January 2012, SDG&E opened the Energy Innovation Center (EIC), which was designed to be one of San Diego's first LEED® (Leadership in Energy & Environmental Design) Platinum buildings open to the public. The EIC is a community resource to explore the latest green technologies and learn about energy efficiency. It hosts trainings and

workshops and includes a Food Service Demonstration Kitchen. The EIC is at 4760 Clairemont Mesa Boulevard, San Diego, California 92117. Contact (800) 411-7343 or sdge.com/eic.



iCommute Programs for the Community

In addition to supporting the city-employee commuter programs identified in Chapter 4, SANDAG's iCommute program is a resource for residents and local businesses about alternatives to driving alone. To increase awareness of this resource, the City could:

- Provide information on commuting resources at City Hall, the library, other sites, and/or online. Information could include links to the 511 transit trip planner, online ridematching service, and online cost-of-commute calculator.
- Participate in annual events and campaigns that encourage commute alternatives to driving alone such as Bike to Work Day, Dump the Pump, Rideshare Week, Walk and Bike to School Day:
 - Adopt proclamations and celebrate these events in your community
 - Participate in the Bike to Work and Rideshare Week Corporate Challenges to demonstrate your commitment to sustainable commute choices
 - Host a Bike to Work Day pit stop(s)
- Recognize and/or honor local commuters and employers who have demonstrated a commitment to sustainable commute choices.

SANDAG SchoolPool Program

SchoolPool is iCommute's free ridematching service for parents of children who attend the same school anywhere in the region. With this safe and secure service, parents are matched with other parents in their neighborhood who are interested in sharing the driving responsibilities or would like to have their kids bike or walk to school with other students and a parent leader. Poway could:

- Encourage the school district and/or individual schools to enroll in SchoolPool, a secure online ridematching service administered by SANDAG for parents with children in kindergarten through 12th grade. SchoolPool can be a transportation solution for parents who live in districts where school bus services have been cut.

Through SchoolPool, parents can receive a free helmet for each child who bikes and a free baseball cap for each child who walks. All children who bike or walk can receive reflective backpacks, and safety vests are provided for parent leaders.

- SchoolPool enables parents of children who attend the same school and live in the same neighborhood to share responsibilities of getting their children to and from school.
- SchoolPool helps parents connect their children with bike buddies and “walking school buses” – groups that ride their bikes or walk to school together with one or more adults.
- Parents who use SchoolPool to find bike buddies and walking school buses can receive a free helmet for each child who bikes and a free baseball cap for each child who walks. All children who either bike or walk can receive reflective backpacks. Safety vests are provided for parent leaders.

Comprehensive Energy Program Websites

Residential Energy-Saving Programs	sdge.com/residential
Commercial Energy-Saving Programs	sdge.com/business
Online Calendar of Workshops and Trainings	seminars.sdge.com
Tax Incentives Assistance Project (Available Energy Tax Credits)	energytaxincentives.org

Low-Income Assistance Programs

Residential Rate Assistance	sdge.com/residential/assistance/assistServCare.html
The Energy Team Program	sdge.com/energy-savings-assistance-program
Multi-Family Affordable Solar Housing	energycenter.org/index.php/incentive-programs/multifamily-affordable-solar-housing

Energy and Water Efficiency Programs

WECalc Home Water-Energy-Climate Calculator	Free online tool that estimates home water-related energy use and associated greenhouse gas emissions. wecalc.org
WaterSmart San Diego County	watersmartsd.org

Renewable Energy Programs

Self-Generation Incentive Program	energycenter.org/index.php/incentive-programs/self-generation-incentive-program
California Solar Initiative (CSI)	energycenter.org/index.php/incentive-programs/california-solar-initiative
CSI Thermal Program (Solar Water Heating)	energycenter.org/index.php/incentive-programs/solar-water-heating
Net Energy Metering	sdge.com/nem

Business and Commercial Programs

Direct Install Program	sdge.com/save-money/direct-savings-direct-install
Technical Assistance and Technology Incentives	sdge.com/tati
Summer Saver	sdge.com/vendor/summersaver
On-Bill Financing	sdge.com/obf

Energy Savings Bid	sdge.com/bid
Savings by Design	sdge.com/clean-energy/savings-design/savings-design

Transportation and Petroleum Reduction Programs

Clean Vehicle Rebate Project	energycenter.org/cvrp
SANDAG iCommute	icommutesd.com
SDG&E Clean Transportation	sdge.com/cleantransportation
SANDAG SchoolPool Program	icommutesd.com/Schoolpool

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Support Green Jobs and Workforce Training

The City of Poway can increase local awareness of workshops, training, and employment resources available to its constituents. It can make this information more widely available by including it on its website and/or providing handouts at local libraries and City Hall.

California's Vision for Workforce Education and Training

By 2020, California's workforce is trained and fully engaged to provide the human capital necessary to achieve California's economic, energy efficiency, and demand-side management potential.

California Long-Term Energy Efficiency Strategic Plan

Training and Education Resources

Sample Green Job Fields	Sample Green Jobs
Building retrofitting	Electricians; heating, ventilation, and air conditioning installers; carpenters; construction workers and
Mass transit-freight rail	managers; home builders; roofers; building inspectors;
Smart grid	engineers (civil, mechanical, environmental, electrical);
Wind power	welders; metal fabricators; assemblers; transit and truck
Solar power	drivers; dispatchers; software engineers; technicians;
Advanced biofuels	machinists; power line installers and repairers; iron and
Alternative transportation	steel workers; sheet metal workers; equipment
vehicles and infrastructure	operators; chemists; chemical technicians; agricultural
	workers; farm product purchasers; and agricultural
	inspectors



San Diego Miramar College's Advanced Transportation Technology & Energy Center

Advanced Transportation Technology & Energy (ATTE) Centers were created as a means for keeping California competitive as a national leader in advanced transportation and energy technologies, and to transform the workforce in the rapidly developing, technology-driven transportation and energy industries. San Diego Miramar College's ATTE Center is the regional center for San Diego County.

Courses, assistance, and outreach programs are tailored to the needs of regional employers and employees in California. The ATTE Center provides students, technicians, faculty, public, and other initiative centers with the education, training, and resources they need to effectively learn, teach, and work with advanced transportation and energy technologies, including:

- Electric, hybrid, and hydrogen fuel cell programs
- Gaseous fuel programs for light and/or heavy duty vehicles
- Intelligent transportation systems programs
- Railroad operation programs
- Light rail maintenance aeronautics and flight
- Technology programs and energy programs
- Motorcycle maintenance programs
- Automotive clean-air car emissions programs

The Miramar College ATTE Center is located at 10440 Black Mountain Road, San Diego, California 92126. For more information about the ATTE Center, call (619) 388-7673.

California Community Colleges Regional Consortium

“My Workforce Connection” connects industry sector employers, community college career technical program providers, and students with a regional-based framework that simplifies and clarifies partnerships, which result in a stronger regional economy and reduces the jobs skills gap. Those interested will find information about customized curriculum and training for industry employees, as well as new programs, workforce training, and funding opportunities at community colleges in the San Diego-Imperial Region. For more information, visit myworkforceconnection.org.



San Diego State University Green Industry Certificate Programs

The College of Extended Studies at San Diego State University (SDSU) offers two certificate programs related to green industry: Professional Certificate in Green Energy Management and Professional Certificate in Green Development and Property Management. The first program is designed to provide students with knowledge necessary for a career in energy management and renewable energy technology. The courses emphasize an energy overview, energy-efficient technologies, solar alternatives, sustainable back-up heating systems and renewable energy options, energy audits, converting to renewable energy, green sales strategies and concepts, the newest legislation, and new trends. SDSU and the San Diego Workforce Partnership are working together on many certificate programs and enrollees may be eligible for tuition assistance through the Workforce Partnership. See below for more on the Workforce Partnership. For more information on the SDSU Extended Studies programs, call (619) 594-3297, email green.ces@mail.sdsu.edu, or visit ces.sdsu.edu.

The San Diego Workforce Partnership

The San Diego Workforce Partnership (sandiegowork.com) works with public and private agencies, local businesses, and educational institutions to create workforce solutions for the San Diego region. It provides services for employers and job seekers, online access to workforce training and resource, and has ten One-Stop Career Centers located throughout San Diego County. The Workforce Partnership serves as this region's Workforce Investment Board.

The nearest One-Stop Career Center to Poway is the East County Career Center, located at 924 East Main Street, El Cajon, California 92021. More information can be found at eccc.guhsd.net.

San Diego Gas & Electric® Energy Innovation Center

The Energy Innovation Center (EIC) also hosts a variety of workshops and includes a Food Service Demonstration Kitchen that hosts free seminars on energy-efficient cooking, equipment, lighting, and food safety. The EIC is located at 4760 Clairemont Mesa Boulevard, San Diego, California 92117. Contact (800) 411-7343 or visit sdge.com/eic.

Statewide Resources for Training and Education



Grid Alternatives

Grid Alternative (gridalternatives.org) offers volunteer opportunities to gain hands-on solar experience and network with others interested in renewable energy, the environment, and our communities.



Solar Training Institute

The Solar Training Institute (trainingforsolar.com) provides accelerated training classes for contractors, electricians, engineers, solar energy entrepreneurs, sales people, and anyone who is considering a career change to the growing solar industry.



California Community Colleges Economic and Workforce Development

The California Community Colleges Economic and Workforce Development (CCCEWD) program provides industry-specific workforce education, training, and consulting services to help California businesses compete. CCCEWD (cccewd.net) is the state program from which the local Advanced Transportation Technology and Energy Center, San Diego Workforce Partnership, and One-Stop Career Centers stem.

Looking Forward

This Energy Roadmap provides a framework for the City of Poway (City) to save energy in its government operations and the community at large. The Roadmap measures identified in each chapter can serve as a “jumping off” point for the City if it wishes to undertake any of the projects or policies. The Roadmap can support continued sustainability efforts, climate action planning, and community outreach.

Through 2016, SANDAG can provide technical support to Poway to assist the City with implementation of its Energy Roadmap. Additionally, the City is able to apply for funding opportunities and/or other support from several programs listed here.

Energy-Saving Funding Opportunities

Local Government Partnerships with San Diego Gas & Electric®

The SANDAG Energy Roadmap Program is primarily funded through a local government energy efficiency partnership (LGP) with San Diego Gas & Electric (SDG&E). The utility manages several LGPs in the region for jurisdictions and other public agencies. The duration is typically three years and they are approved by the California Public Utilities Commission (CPUC).

Prior to the start of new program cycles, SDG&E announces a request for abstracts for future LGP programs. The next program cycle, which will be determined by the CPUC, will likely begin in January 2016. Using its Energy Roadmap as a guide, the City can decide if it would like to propose to SDG&E its own LGP, have SANDAG continue to serve as the mechanism to provide member agencies with energy efficiency services, or take another course of action.

LGPs have three focus areas:

1. Identify energy efficiency savings in municipal sites,
2. Utilize core energy efficiency programs, and
3. Engage the community on energy efficiency.

The County of San Diego, City of Chula Vista, City of San Diego, and Port of San Diego also have their own LGPs with SDG&E. Examples of programs funded through these partnerships include:

- Municipal facility retrofits for energy efficiency improvements,
- Strengthened building energy codes and code enforcement,
- Land use planning and design,
- Education and outreach,
- Green building, permit expedite, and fee reduction programs,
- Peer-to-peer best practices and networking,
- Staff training programs, and
- Energy plan development.

Emerging Cities Program with San Diego Gas & Electric

SDG&E has developed a smaller grant program that cities can apply to for funding to implement specific components of their Energy Roadmaps that cannot be funded through the SANDAG LGP. The program is available through 2016, and your Energy Roadmap coordinator can arrange a meeting with the appropriate SDG&E program staff to learn about this grant opportunity. In 2014, four cities with Energy Roadmaps received grants from SDG&E. Activities funded include:

- Expansion of a green business program
- Assessment of Property Assessed Clean Energy programs for City consideration
- Greenhouse gas (GHG) inventory
- Energy chapters for a Climate Action Plan
- Energy-related implementation measures for an adopted Climate Action Plan



State Energy Program Grants and Energy Efficiency and Conservation Block Grants

The U.S. Department of Energy (DOE) and California Energy Commission (CEC) release State Energy Program solicitations that support transportation, residential, commercial, agricultural, industrial, institutional energy efficiency, and renewable energy programs.

Both agencies also release Energy Efficiency and Conservation Block Grants (EECBG) solicitations. The EECBG provides local government grants to reduce fossil fuel emissions, reduce total energy use, and improve energy efficiency and conservation in the transportation and building sectors. Grants originate from the U.S. DOE and are released from both the Energy Commission and the U.S. DOE. For program opportunities, visit energy.ca.gov/contracts/index.html.



Clean Vehicle Rebate Project

The Clean Vehicle Rebate Project is funded by the California Air Resources Board (CARB) and administered statewide by the Center for Sustainable Energy (CSE). A total of \$45.2 million has been appropriated for FY 2009-2013 to promote the production and use of zero-emission vehicles (ZEV), including electric, plug-in hybrid electric (PHEV), and fuel cell vehicles. Rebates of up to \$2,500 per light-duty vehicle are available for individuals and business owners who purchase or lease new eligible ZEVs or PHEVs. The program received funds for 2014 and is expected to be funded in future years. For more information, visit energycenter.org/cvrp.



California Energy Commission Alternative and Renewable Fuel and Vehicle Technology Program

Assembly Bill 118 (Nunez, 2007) (AB 118): Alternative and Renewable Fuel and Vehicle Technology Program (ARFVTP) authorized the CEC to develop and deploy alternative and renewable fuels and advanced transportation technologies to help attain the state's climate change policies. The program runs through 2024 and the CEC has an annual program budget of approximately \$100 million to support projects that:

- Develop and improve alternative and renewable low-carbon fuels
- Optimize alternative and renewable fuels for existing and developing engine technologies
- Produce alternative and renewable low-carbon fuels in California
- Decrease, on a full fuel cycle basis, the overall impact and carbon footprint of alternative and renewable fuels and increase sustainability
- Expand fuel infrastructure, fueling stations, and equipment
- Improve light-, medium-, and heavy-duty vehicle technologies
- Retrofit medium- and heavy-duty on-road and non-road vehicle fleets
- Expand infrastructure connected with existing fleets, public transit, and transportation corridors
- Establish workforce training programs, conduct public education and promotion, and create technology centers

Additional information on the ARFVTP and associated investment plan can be found on the CEC website: energy.ca.gov/altfuels.



TransNet: Smart Growth Incentive Program and Active Transportation Grants

The *TransNet* Smart Growth Incentive Program (SGIP) funds transportation-related infrastructure improvements and planning efforts that support smart growth development. The SGIP awards 2 percent of the annual *TransNet* revenues for the next 40 years to local governments through a competitive grant program to support projects that will help better coordinate transportation and land use in the San Diego region. The City has successfully applied for and received SGIP grants. For more information on the SGIP, and upcoming funding cycles, visit sandag.org.

The goal of the Active Transportation Grant Program is to encourage local jurisdictions to plan and build facilities that promote multiple travel choices for residents and connectivity to transit, schools, retail centers, parks, work, and other community gathering places. More information on current funding opportunities is available at sandag.org.

Non-Financial Resources for Local Governments

National and state educational campaigns like ENERGY STAR or the Beacon Program can bring wide-scale recognition to a city for its sustainability efforts. Other programs identified here can serve as technical resources on a variety of subjects.



ENERGY STAR Government Partnerships

In addition to appliance labeling, the ENERGY STAR program seeks partnerships with local businesses, congregations, industries, schools, and others. By becoming a Government ENERGY STAR Partner, a local government can receive recognition nationally and can co-brand local energy-saving initiatives with ENERGY STAR. More information is available at energystar.gov.

The U.S. Environmental Protection Agency (EPA) and U.S. DOE also host an annual ENERGY STAR Awards ceremony to honor organizations that have made outstanding contributions to protecting the environment through energy efficiency.

For more information on government partnerships, visit energystar.gov/index.cfm?c=government.bus_government.

WaterSense® WaterSense Promotional Partners

The EPA also promotes water conservation efforts through its WaterSense program that helps consumers identify water efficient products and programs that meet EPA's water efficiency and performance criteria. Products carrying the WaterSense label perform

well, help save money, and encourage innovation in manufacturing. More information is available at epa.gov/watersense.

Local governments, utilities, and other organizations can become WaterSense Promotional Partners to help provide outreach on water efficiency measures. Jurisdictions can receive recognition nationally and can co-brand local water-saving initiatives with WaterSense as a promotional partner. For more information on promotional partners, visit epa.gov/watersense/partners/promotional.html.



The Beacon Award

The Institute for Local Governments' California Climate Action Network has created the [Beacon Award Program](#) to recognize cities and counties that reduce GHG emissions and save energy. To receive a silver, gold, or platinum Beacon Award, jurisdictions must achieve measurable GHG reductions and energy savings in agency facilities, and achieve measurable GHG reductions and promote energy conservation activities in the community.



Department of Energy Clean Cities Program

Clean Cities advances the nation's economic, environmental, and energy security by supporting local actions to reduce petroleum consumption in transportation. A national network of nearly 100 Clean Cities coalitions brings together stakeholders in the public and private sectors to deploy alternative and renewable fuels, idle-reduction measures, fuel economy improvements, and emerging transportation technologies. A variety of Clean Cities tools and resources are available on the U.S. DOE website (eere.energy.gov/cleancities). The local affiliate of the U.S. DOE Clean Cities program is the San Diego Regional Clean Cities Coalition at sdcleancities.org.

San Diego Gas & Electric

As described in previous chapters, SDG&E (sdge.com) manages a variety of energy-saving programs that:

- Promote energy efficiency, demand response and conservation programs, services and resources
- Provide energy education and outreach to the community through its Energy Innovation Center



Center for Sustainable Energy

CSE (energycenter.org) works with local governments on several initiatives including:

- The San Diego Regional Retrofit Advisory Committee, that includes several local jurisdictions, SANDAG, and SDG&E
- The Energy Upgrade California program



Energy Policy Initiatives Center

The Energy Policy Initiatives Center (EPIC) is a nonprofit academic and research center of the University of San Diego, School of Law that studies energy policy issues affecting the San Diego region and California. EPIC serves as a source of legal and policy expertise, and provides information on the development of sustainable solutions that meet the region's future energy needs. For more information, contact (619) 260-4589 or visit sandiego.edu/epic.



San Diego Association of Governments

SANDAG Energy and Climate Change Planning Program staff is knowledgeable about federal, state, regional, and local issues and can be a resource for jurisdictions after their Energy Roadmaps are completed. For more information on SANDAG energy and climate change planning, contact Susan Freedman at (619) 699-7387, susan.freedman@sandag.org or visit sandag.org/energy.



SANDAG iCommute Program

The SANDAG iCommute team can assist local governments with staff commuter programs, transportation demand management ordinances, online tools, and outreach on alternative transportation options for the commute. Contact Antoinette Meier at (619) 699-7381, antionette.meier@sandag.org or visit icommutesd.com.



Statewide Energy Efficiency Best Practices Coordinator

The CPUC created this position to help local governments with energy efficiency programs and policies. Like SANDAG is available to you locally, the Best Practices coordinator is a statewide resource that develops and distributes best practices case studies, provides information and examples of energy efficiency policies and programs, provides materials that may help local governments implement climate action plans, and serves as a resource to help local government energy programs achieve success. Joseph Oldham serves as the Statewide Local Government Energy Efficiency Best Practices Coordinator through 2015. He is located at the [Local Government Commission](#) (LGC) and can be reached at (559) 797-6034 or email: joldham@lgc.org.

Statewide Energy Efficiency Collaborative

The Statewide Energy Efficiency Collaborative (SEEC) was formed in 2010 as an alliance to help cities and counties reduce GHG emissions and save energy. SEEC (californiaseec.org) serves as a statewide local government partnership and is an alliance among the Local Government Commission, ICLEI – Local Governments for Sustainability, the Institute for Local Government, and California’s four investor-owned utilities, including SDG&E. Resources provided by these agencies are described below.

- Local Government Commission provides free webinars, holds an annual statewide conference, and provides peer-to-peer networking opportunities
- ICLEI is conducting a series of workshops and trainings for local governments on taking key steps to reduce GHG emissions
- Institute for Local Governments’ California Climate Action Network is providing recognition for cities and counties through the Beacon Award

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www.sandag.org/energy

This Program is a collaboration between SANDAG and San Diego Gas & Electric®

