

City of El Cajon 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 El Cajon

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Acknowledgements and Program Contacts

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Chris Premyk

Matt Lyer

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Program Contacts

Energy Roadmap Program Coordinator

Susan Freedman, SANDAG, Susan.Freedman@sandag.org, (619) 699-7387

iCommute Program

Kimberly Weinstein, SANDAG, Kimberly.Weinstein@sandag.org, (619) 699-0725

SDG&E® Energy Efficiency Programs

Josh Brock, JBrock@semprautilities.com, (858) 636-5733

Building Energy Audits

John Woolsey, EFM Solutions, john.woolsey@efm-solutions.com, (951) 200-3178

San Diego Regional Clean Cities Coalition

Kevin Wood, California Center for Sustainable Energy, Kevin.Wood@energycenter.org, (858) 244-7295

The following SANDAG staff had primary responsibility for the preparation of this document.

Susan Freedman, Senior Regional Energy Planner

Allison King, Regional Energy/Climate Planner

Introduction

This energy management plan, or “Energy Roadmap,” prepared by SANDAG in consultation with city staff, provides a framework for El Cajon 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 El Cajon 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, alternative fuels, and transportation demand management strategies to save energy and reduce greenhouse gas (GHG) emissions,
- The latest information on critical subjects like financing energy efficiency projects, emerging technology demonstrations, 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 Energy Roadmap also recognizes steps the City has taken to become more sustainable. Through Energy Efficiency and Conservation Block Grants (EECBG), El Cajon retrofitted streetlights and updated lighting and HVAC at municipal facilities.

The Energy Roadmap identifies measures that El Cajon could include in a climate action plan. El Cajon already completed a GHG inventory of city-operated and community-wide emissions through its participation in the San Diego Regional Climate Protection Initiative, spearheaded by ICLEI- Local Governments for Sustainability.

By building on its existing energy-saving efforts and taking advantage of some or all of the opportunities identified herein, El Cajon can 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 in El Cajon.

The El Cajon website can be a portal for local residents and businesses to access energy-saving programs and rebates.

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. The city 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 five distinct opportunities for El Cajon to lead by example with its buildings and facilities, vehicles, and energy usage practices:

1. Save Energy in City Buildings and Facilities
2. Demonstrate Emerging Energy Technologies
3. Green the City Vehicle Fleet
4. Develop Employee Knowledge of Energy efficiency
5. 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.

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:

1. Leverage Planning and Development Authority
 - a. Smart growth development policies
 - b. Energy-efficient building upgrades
 - c. Clean and efficient transportation options
2. Market Energy Programs to Residents, Schools, and Local Businesses
3. 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, as part of a climate action plan
- Integrating sustainability, energy efficiency, or GHG reduction measures into a climate action plan, 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
- Promoting energy efficiency programs through city communications such as newsletters, email, and website
- Training of employees that deal with energy issues
- Offering commuter information and alternative transportation incentives as part of the city's employee benefits package
- Staying on top of the latest developments, programs, and trends in energy efficiency
- Applying and qualifying for future funding opportunities related to energy efficiency

*Handouts on green jobs
and training opportunities
can be located at
City Hall.*

About the Energy Roadmap Program

The Energy Roadmap Program is a partnership between the San Diego Association of Governments (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. The table below provides a timeline of the city's Energy Roadmap efforts.

El Cajon Energy Roadmap Timeline				
Summer 2012	Fall 2012	Winter-Spring 2012	Summer 2013	Summer 2013 until Dec. 2014
Energy Roadmap Program launch	Report cards for city buildings	Energy audit and rate review	City's Energy Roadmap completed	City eligible for continued Roadmap assistance
City staff provide input and direction	Further building studies begin	Fleet and fuels review	Presentation to City Council	
SANDAG drafts Roadmap chapters for city staff review				
				

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 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. All strategies are available on the SANDAG website at www.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 California 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, El Cajon 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:

El Cajon could save over \$25,000 each year from energy-efficiency upgrades identified at municipal sites.

- Free site assessments provided to the City,
- Rate change recommendations that lower municipal utility bills,
- Energy-saving opportunities identified at each site, and
- Costs and payback to the City to undertake the energy-saving projects.

El Cajon’s Municipal Energy Policies

The site assessments performed through the Energy Roadmap Program (Program) can assist the City in achieving their energy performance goals. In fact, El Cajon has already undergone several energy saving projects prior to this Program. The City established a strategic effort to replace aging linear fluorescent lamps with new generation, higher efficiency fluorescent fixtures or other cutting edge technologies such as LED fixtures. Progress toward this goal is seen throughout the City, in facilities such as City Hall where cutting edge LED fixtures were installed. The City is also interested in providing energy efficient solutions for the swimming pools they maintain. The Energy Roadmap Program has looked at these and other potential solutions to assist El Cajon in their pursuit of energy efficiency.

Energy Assessments Performed

In 2012, 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 with direction from City staff.

Energy Report Cards were prepared for nineteen municipal sites (listed below) mid- 2012. Each Energy Report Card is included in **Appendix A**. These preliminary assessments

established each site's baseline energy use and benchmarked it against similar building types in the country.

- Fire Department Headquarters
- Ronald Regan Community Center
- East County Performing Arts Center
- Public Works Office
- Fire Station 9 & Training Facility
- Hillside Recreation Center
- Renette Recreation Center
- Bostonia Recreation Center
- Fire Station 8
- Kennedy Recreation Center
- Fletcher Hills Pool & Recreation Center
- Administrative Services and Fleet Maintenance Building
- Fletcher Hills Sports Park

Benchmarking is a useful tool to understand a site's energy performance compared to the national or state averages. This is a new requirement for participation in San Diego Gas & Electric (SDG&E) rebate and incentive programs. Two online tools were employed to help determine how "good" or "bad" a site was performing. SDG&E's *Energy Waves* program provided historical energy usage data and will enable the City to continue monitoring energy consumption/site performance online. The U.S. Environmental Protection Agency's (EPA) *Portfolio Manager* Program identified how each site compared against national averages for similar facilities, and provided greenhouse gas (GHG) emissions information in carbon dioxide equivalent (CO₂E). This is helpful as the State of California is beginning to track GHG emissions and is putting forward goals for all State facilities and local governments to reduce these gases.

Technology advances allow for efficiency improvement at city facilities.

The preliminary energy assessments indicate that about half of the municipal sites in El Cajon are performing normally or more efficient than the comparable facilities in California and the nation. Either in response to a specific issue discovered through the site assessment process, or as instructed by City staff, six sites were identified in a Priority Site List (**Appendix B**) to be further evaluated in the form of comprehensive energy audits, referred to as Phase 2 Energy Audits (Phase 2).

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. The Phase 2 energy audit findings are summarized below and are included as **Appendices C and D**.

Even with the City's early efforts, technology advancements continue to offer opportunities to increase building efficiency. The sites that underwent Phase 2 audits are summarized below, followed by tables showing the energy efficiency measures by site, potential costs, savings, and associated GHG emissions.

- Fire Station 8
- Fire Station 9 & Training Facility
- East County Performing Arts Center (ECPAC)
- Bostonia Recreation Center
- Kennedy Recreation Center
- Fletcher Hills Recreation Center & Pool

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, rate analyses, Phase 2 energy audit findings, and a master spreadsheet of identified energy conservation measures.

Energy Audit Findings

The City of El Cajon has already undertaken many energy efficiency improvements. Initial focus was placed on City Hall, where fluorescent lighting was upgraded early in 2012. The city has carried out an effort to replace aging interior fluorescent lighting with newer generation, more efficient fluorescent and LED lighting. El Cajon hosts an innovative interior LED installation that showcases this technology. Nearly all of the city's facilities have undergone interior lighting upgrades as well. However, technology advances allow further energy conservation opportunities as described in the charts following this section. Over \$25,000 in potential dollar savings and over 146,000 kWh in electrical savings have been identified for El Cajon. These projects have a combined simple payback of approximately four years. This is a reasonable payback period that will also qualify the City for SDG&E's On Bill Finance Program. Details on this cash-flow neutral zero-percent financing offer are provided later in this chapter.

Among the sites included in the energy assessments is the East County Performing Arts Center (ECPAC). The City has not used the ECPAC for the past few years but plans to bring it back online in the near future. The energy assessment revealed some relatively simple upgrade opportunities that make financial sense to pursue prior to bring the building back online. There may be more opportunities surrounding the HVAC system, but until the facility is brought online and hours of operation and system performance data are available, it is difficult to accurately evaluate that building system. It is recommended to operate this facility for a few months and evaluate the HVAC performance at a later date.

Potential Savings by Energy Conservation Measure

Location	Measure	Annual Savings for City			
		Electricity (kWh)	Demand (kW)	Bill Savings	GHG in metric tons (CO ₂ E)
Fire Station 8	Replace Outdoor Lights	3,254	0.74	\$337	1.07
	Replace 32w T8	1,106	0.49	\$231	0.36
	Subtotal	4,360	1.23	\$568	1.44
Fire Station 9	Replace Outdoor Lights	7,191	1.64	\$744	2.37
	Replace 32w T8	1,702	0.94	\$401	0.56
	Subtotal	8,893	2.58	\$1,146	2.93
Fletcher Pool	Pool Pump Timer	18,132	0	\$1,877	5.98
	Replace Outdoor Lights	1,336	0.31	\$138	0.44
	Replace 32w T8	343	0.32	\$113	0.11
	Subtotal	19,811	0.63	\$5,000	6.53
ECPAC	VFD CHW Pumps	15,510	0	\$2,482	5.12
	Replace T12	2,272	2.04	\$726	0.75
	Replace Halogens	18,637	8.74	\$2,982	6.15
	Replace Outdoor Lights	6,521	1.49	\$675	2.15
	Subtotal	42,940	12.26	\$6,865	14.16
Kennedy Rec	Replace 32w T8	943	0.90	\$313	0.31
	Replace Outdoor Lights	18,020	4.11	\$1,866	5.94
	Subtotal	18,964	5.01	\$2,179	6.26
Bostonia	Replace Outdoor Lights	9,834	2.25	\$1,018	3.24
Hillside	Replace Outdoor Lights	9,834	2.25	\$1,018	3.24
Renette	Replace Outdoor Lights	11,038	2.52	\$1,143	3.64
Community Center	Replace Outdoor Lights	4,560	1.04	\$472	1.50
Fire 6	Replace Outdoor Lights	16,228	3.71	\$1,680	5.35
	Subtotal	51,493	11.76	\$5,331	16.99
Fletcher Pool (Natural Gas)	Pool Cover	3,934 therms		\$2,504	20.93
	Solar Heat	577 therms		\$367	3.07
	Subtotal	4,511 therms		\$2,871	24.00
	Totals	146,461	33.47	\$21,088	72.31

Notes:

1. kWh = kilowatt hours, MTCO₂e = metric tons of carbon dioxide equivalent.
2. Energy assessments included HVAC systems, indoor and outdoor lighting, and building controls.
3. ECPAC = East County Performing Arts Center

Energy Conservation Measure Economics					
Location	Measure	Gross Project Implementation Cost	Total SDG&E Incentives	Net Project Cost	Simple Payback (years)
Fire Station 8	Replace Outdoor Lights	\$3,200	\$660	\$3,140	9.3
	Replace 32w T8	\$1,530	\$47	\$1,484	6.4
	Subtotal	\$4,730	\$707	\$3,364	8.1
Fire Station 9	Replace Outdoor Lights	\$5,250	\$1,470	\$3,780	5.1
	Replace 32w T8	\$4,340	\$156	\$4,184	10.4
	Subtotal	\$9,590	\$1,626	\$6,844	7.0
Fletcher Pool	Pool Cover	\$25,000	\$3,934	\$21,066	8.4
	Solar Heat	\$10,000	\$577	\$9,423	25.7
	Pool Pump Timer	\$1,200	\$600	\$600	0.3
	Replace Outdoor Lights	\$1,385	\$211	\$1,174	8.5
	Replace 32w T8	\$1,120	\$38	\$1,082	9.6
	Subtotal	\$38,705	\$5,360	\$33,345	6.7
ECPAC	VFD CHW Pumps	\$6,500	\$1,396	\$5,104	2.1
	Replace T12	\$2,295	\$561	\$1,734	2.4
	Replace Halogens	\$7,920	\$2,400	\$5,520	1.9
	Replace Outdoor Lights	\$4,390	\$1,088	\$3,303	4.9
	Subtotal	\$21,105	\$5,289	\$15,816	2.3
Kennedy Rec	Replace 32w T8	\$2,765	\$100	\$2,265	8.5
	Replace Outdoor Lights	\$12,730	\$3,260	\$13,370	7.2
	Subtotal	\$15,495	\$3,360	\$16,035	7.4
Bostonia	Replace Outdoor Lights	\$5,830	\$1,610	\$4,220	4.1
Hillside	Replace Outdoor Lights	\$5,830	\$1,610	\$4,220	4.1
Renette	Replace Outdoor Lights	\$19,250	\$2,800	\$16,450	14.4
Community Center	Replace Outdoor Lights	\$2,190	\$464	\$1,726	3.7
Fire Station 6	Replace Outdoor Lights	\$9,750	\$975	\$8,775	5.2
	Outdoor Light Subtotal	\$42,850	\$7,459	\$35,391	6.6
	Totals	\$136,975	\$23,801	\$113,174	5.4

Notes.

1. Gross and net installation and equipment costs are estimated and do not replace product specifications and contractor bids.
2. ECPAC = East County Performing Arts Center

Findings at Municipal Pools

City staff had requested that special attention be taken when evaluating pool facilities in hopes of saving the department money. Variable frequency drives (VFDs) are a common and very useful means of lowering pool energy consumption. El Cajon could install VFDs on their pool pumps to achieve potential energy savings with simple payback periods estimated at two years. A VFD saves energy by resizing the pump motor to fit the power

needed at that time. In addition to the VFDs, pool cover and lighting opportunities exist at the pool facilities, although the payback periods are longer due to their short usage periods on an annual basis. At this time, SDG&E's On Bill Financing program (discussed at the end of this chapter) can support the completion of the lighting projects with no out-of-pocket cost to the City.

Implementation Strategy to Achieve Municipal Energy and Cost Savings

1. Pursue energy retrofit projects that qualify for on-bill financing and/or have an immediate payback.
2. Seek approval from SDG&E to use its On-Bill Financing Program (0% interest loans) to cover upfront costs for energy upgrades.
3. Undertake internal City processes to implement energy upgrade projects.
4. Monitor site performance to ensure energy and cost savings are achieved.

The Energy Roadmap team can assist El Cajon with these implementation steps over the duration of the Roadmap Program (until December 2014).

Finance Options for Energy Projects

SDG&E provides rebates, incentives, and financing options to pay for all or part of the costs of energy conservation measures. The SDG&E On-Bill Financing Program provides zero-percent financing for the installation of energy-efficiency improvements meeting certain criteria. Financial assistance also is available from other agencies like the California Energy Commission. Additionally, Energy-efficiency and Conservation Block Grants (EECBG) have been used by many jurisdictions to pay for the upfront costs of energy conservation measures.

No-cost assistance with rebates, incentives, and financing options is available to the City as part of the Energy Roadmap Program. Please contact your Energy Roadmap coordinator with requests for assistance or questions.

San Diego Gas & Electric® Rebates and Incentives

As part of the energy audit findings, EFM Solutions identified the appropriate SDG&E rebates and incentives¹ for each municipal site. Generally, programs that apply to commercial businesses also apply to public agencies. To review all of SDG&E's rebate

¹ 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.

and incentive programs, see chapter 7 of this Energy Roadmap or visit <http://www.sdge.com/energy-savings-solutions>.

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

Through its On-Bill Financing Program,² SDG&E provides interest-free, unsecured financing to qualified commercial and taxpayer-funded customers for the installation of energy-efficient upgrades. 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, Kraig Akers, have met with City staff and discussed On-Bill Financing. The program for public agencies includes:

- Zero-percent financing on qualifying measures for up to ten years
- Offsets to energy-efficient upgrade costs after rebates and incentives through SDG&E
- 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
- For more information, contact Kraig Akers at KWakers@semprautilities.com or visit <http://www.sdge.com/bill-financing>.

Low-Interest Loans from 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 October 2012, terms included a fixed interest rate of one percent (1%), a maximum loan of \$3 million per application, and a maximum loan term of 15 years. EFM Solutions can assist El Cajon with applying for this loan. For more program information, contact the California Energy Commission's Special Projects Office, (916) 654-4104, email: pubprog@energy.state.ca.us, or www.energy.ca.gov/efficiency/financing.

Post-assessment assistance for identifying energy project financing and implementation opportunities is a service provided to the City of El Cajon through the Energy Roadmap Program. Contact your Energy Roadmap coordinator for further assistance.

² The On-Bill Financing (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.

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Demonstrate Emerging Energy Technologies

In addition to energy assessments and improving efficiency in city government facilities, El Cajon can save energy by using its operations to showcase emerging energy-efficient technologies through the SDG&E Emerging Technologies Program. The city can also encourage interested local businesses and residents to demonstrate an emerging energy efficiency technology.

If the city government or community members living in El Cajon want to host a demonstration, your Energy Roadmap coordinator can arrange for a meeting with SDG&E Emerging Technologies Program staff. SDG&E will provide all of the relevant information, including how to participate, eligible technologies, and any costs to the city or participating business or resident.

California's Vision on Research & Technology

Technology advancement related to energy use and demand will match—or even eclipse—the consumer electronics industry in innovation, time to market, and consumer acceptance.

California Long-Term Energy Efficiency Strategic Plan

The goal of the Emerging Technologies Program is to accelerate the adoption of advanced technologies that increase grid stability, reduce overall energy use, and reduce demand for energy at peak times. The technology demonstrations are short-term projects that provide SDG&E with necessary real-world applications of promising energy-saving technologies. These new technologies have not achieved market penetration, but their potential benefits make them worthwhile to test. Demonstrations are critical because they enable utilities like SDG&E to evaluate and determine which emerging technologies are viable and worth supporting for wider deployment.

The following table lists a variety of projects in lighting, air-conditioning, communications, and others that are being demonstrated through 2012. For more information, contact A.Y. Ahmed, SDG&E's emerging technologies program manager directly at AAhmed1@semprautilities.com, or your Energy Roadmap coordinator.

SDG&E Emerging Technologies Program: Technologies Eligible for Demonstration

City Government or Commercial Sites

Lighting	Addressable Electronic Ballast for HID Fixtures: Demonstration on three building types: distribution warehouse, gymnasium, and big-box retail. Advanced electronic ballast with high bay HID (high intensity discharge) fixture that permits day lighting, dimming, and demand response measures.
Air Conditioning	Aquachill Air Conditioner: For small commercial buildings. Advanced split system air conditioning (AC) that uses water cooled condenser, resulting in demand and energy savings (three, four, and five ton units; EER 14.0-14.5).
Refrigeration	VRF Conveni-Pack System: For supermarkets and mini-markets. Advanced refrigeration and space cooling technology in one combined unit that can be used for refrigeration cases, freezers, and space conditioning (three to five ton units).
Communications and Controls	Commercial Energy Control Systems: For medium and large commercial buildings that utilize refrigeration (refrigerant flow technology) and smart meter technology. Commercial Energy Management System: For a company that utilizes a wireless network and controllers to manage and optimize a building's energy systems. To be demonstrated at medium-size commercial building with multiple packaged roof-top units and large commercial building with central plant equipment.

Residential Sites

Air Conditioning	Aquachill Air Conditioner: For homes and multi-family apartment buildings. Advanced split system AC that uses water-cooled condenser, resulting in demand and energy savings (three, four, and five ton units; EER 14.0-14.5). VRF Mini-Split Air Conditioners: For residential single and multi-family homes. Advanced room AC that uses zoned cooling coils with air handlers and central compressor. Cooling capacity is varied and to be demonstrated in residences with one to four zones (two to five ton units).
Communications and Controls	Single Vendor Residential HAN Pilot: For single-family homes. Home Area Network (HAN) technology with in-home display, programmable communicating thermostat, appliance controllers, battery storage, and back-office operation; resulting in demand and energy savings. To be demonstrated at 28 homes. Residential Energy Management Technologies Evaluation: For single-family homes. Technologies can include home area network, in-home display, programmable communicating thermostat and appliance controllers; resulting in demand and energy savings. Based on evaluation of energy management systems from 150 companies, SDG&E will work with up to ten companies to test one to five systems each. Multi-Vendor HAN Pilot: HAN technologies that include IHD, PCT, load controllers from different vendors to be operated in a coordinated manner. Planned evaluation: test multi-vendor systems in 12 residential homes. Residential Zonal Controls: Convert central forced air heating, ventilation, and air conditioning (HVAC) systems into smart multi-zone HVAC systems. Senses conditions in each room, analyzes real-time and historical room-occupancy, and actuates vents in each room to regulate room temperature. Planned evaluation: test systems in 12 residential homes with single zone HVAC systems.

Green the City Vehicle Fleet

The City of El Cajon maintains a fleet of approximately more than 250 vehicles and over 50 pieces of other equipment. These vehicles range from sedans and pick-up trucks to fire engines and other heavy-duty trucks. The City can achieve transportation-related energy savings through actions that promote fuel conservation, efficiency, and an increased use of clean, alternative fuels in its vehicle fleet.

The City of El Cajon has adopted practices to ensure the fleet is operated as efficiently as possible.

El Cajon has recognized that fleet operations contribute significantly to its total energy use and budget and has adopted practices to ensure the fleet is operated as efficiently as possible. As part of this effort, the City performs full suite of preventative maintenance on each vehicle. This ensures that vehicles are running at maximum efficiency, and minimizes costly repairs as vehicles age. The City currently operates one dual-fuel Compressed Natural Gas vehicle. This Roadmap chapter offers tools and information that can support El Cajon's efforts to maintain efficient fleet operations and meet its environmental goals through the use of advanced technology and alternative fuel vehicles.

California Goals for Transportation Fuels

The State of California has adopted several transportation fuel laws and goals, and the California Energy Commission has been the responsible agency for the targets shown in the *California Goals for Transportation Fuels* table on the following page. In order to meet these goals the state allocates grant funds through the 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 2015, 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 percent below 2003 levels by 2020
Alternative Fuel Use	Increase alternative fuel use to 20 percent of on-road fuel demand by 2020 and 30 percent 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 percent of biofuels used in California by 2010, 40 percent by 2020, 75 percent by 2050

El Cajon's Fleet

The City of El Cajon's Fleet's fleet supports the provision of essential public services such as police and fire protection, street services, park maintenance, and wastewater operations. Due to the relatively small size of the City, vehicles accrue mileage slowly and are replaced infrequently. 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, including the Ford Ranger and GMC Sonoma. The City also uses Ford Escape Hybrids for its building department. The City does not currently track fuel usage on a per vehicle basis. Closer tracking of vehicle mileage and fuel usage could allow the City to better assess the performance of individual vehicles and identify when actions are needed to reduce fuel consumption. Advanced technology or alternative fuel vehicles could help the City further reduce its fuel consumption and emissions.

Online Fleet Planning Tools

The U.S. Department of Energy's Petroleum Reduction Planning Tool (www.afdc.energy.gov/afdc/prep/), at the Alternative Fuels and Advanced Vehicles Data Center, could supplement El Cajon'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., VMT reductions), and alternative fuels (e.g., vehicles that run on electricity, compressed natural gas). A petroleum reduction goal (e.g., 10 percent 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 FuelEconomy.gov website is a partnership between DOE and the U.S. Environmental Protection Agency. 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. The Vehicle Cost Calculator (www.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.

When considering a new fleet vehicle purchase, the Cool Fleets Web site (www.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.

El Cajon 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 replacements specific to El Cajon's fleet are described below.

Vehicle Replacement: Alternative Fuel Options for El Cajon

SANDAG partnered with the California Center for Sustainable Energy (CCSE) to provide an assessment tailored to El Cajon's fleet and vehicle replacement protocols. The following *Potential Vehicle Replacements and Savings* table identifies conventional, advanced technology, alternative fuel replacement options that could be suitable for vehicles in the city's fleet. The table identifies potential fuel and cost savings on an annual basis using mileage estimates provided by the City. Not all City vehicles have mileage as high as in the example, but would still accrue savings over their lifetimes.

Potential Vehicle Replacements and Savings

Vehicle Model	Fuel Tech ¹	Annual Mileage	Gallons Fuel Reduced/ Displaced ²	Estimated Annual Savings	Years to Payback w/ incentives	Yearly GHG Savings (MTCO2e)
Sedans (Replacing Ford Taurus)						
Focus³	Gas	5,000	66	\$255.5	0.0	0.6
Focus	Gas	8,000	105	\$408.8	0.0	0.9
Prius	HEV	8,000	211	\$859.8	6.4	1.9
Compressed Natural Gas Vehicles						
E250	CNG	6,000	500	\$911.4	6.5	0.8
F250	CNG	6,500	591	\$1,057.1	5.6	0.9
F450	CNG	4,000	500	\$882.9	6.7	0.6
Propane Vehicles						
E250	LPG	6,000	500	\$785.9	6.1	0.7
F250	LPG	6,500	591	\$907.6	5.3	0.8
F450	LPG	4,000	500	\$650.8	7.4	0.3

Note:

1. PHEV= Plug-in hybrid electric vehicle, CNG = compressed natural gas, LPG= Liquefied Petroleum Gas (Propane)
2. Reducing/ displacing the use petroleum-based fuels is a goal of state policy and the federal Energy Policy Act and Energy Independence and Security Act.
3. Replacing a Ford Taurus with a compact Ford Focus offers significant fuel savings. Since a Focus can be purchased for less than the price of a Taurus, the payback of the incremental cost is zero.

Source: California Center for Sustainable Energy

The vehicle replacement analysis used current fuel prices, mileage, and fuel consumption of El Cajon vehicles, details of which are provided in **Appendix D**. This analysis showed that the CNG or propane replacements for larger trucks could save \$600-\$1000 each year per vehicle. Vehicles may see payback periods as low as five years, including rebates. If alternative fuel replacements are considered, the vehicles with the highest mileage and high fuel consumption are the best candidates.

CNG or propane vehicles could offer savings of \$600 to \$1000 per year based on based on vehicle usage seen in El Cajon

The replacement of older Ford Taurus sedans with compact Ford Focus sedans could reduce fuel costs by \$250-\$400 each year. Replacement of higher mileage sedans with hybrids could save more than \$850; however, the payback periods may be six years or more due to the incremental cost of hybrid technology.

CNG or propane vehicles can cost between \$10,000 and \$15,000 more than their gasoline- or diesel-fueled counterparts before rebates and could require additional

fueling infrastructure. The substantial fuel savings that would be achieved from large trucks, some of the biggest consumers of fuel, could offset the higher purchase costs within a few years when combined with available incentives. Currently the only public fueling stations for CNG is located approximately nine miles away in the Kearny Mesa area of San Diego.

Hybrids show the greatest greenhouse gas reduction benefits, with reductions of 1.9 MTCO₂e a year. Propane and CNG vehicles showed savings of 0.3-0.9 MTCO₂e. The use of compact sedans has emission reduction potential similar to that of the alternative fuel trucks. These savings could contribute to the City's environmental goals.

El Cajon should carefully evaluate all fuel types and available incentives when vehicle replacement decisions are made. California offers rebates and incentives for alternative fuel vehicles and infrastructure: currently available rebates are outlined later in this chapter.

Fuel Availability in El Cajon

Additional fueling infrastructure throughout the region is needed for widespread adoption of alternative fuel vehicles. The City currently fuels at local commercial fueling stations, and moving towards alternative fuels would greatly increase the distances that city employees travel to refuel. Other available refueling sites near El Cajon are identified in the *Summary of Alternative Fuel Infrastructure Availability* table below.

Appendix D contains details on each location and the costs of installing each type of fueling infrastructure.

The infrastructure for alternative fuels is currently limited in the region, but is expanding slowly. As more fueling infrastructure becomes available, the 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.

Summary of Alternative Fuel Infrastructure Availability

Fuel	Existing Fueling Sites within Ten Miles of El Cajon Public Works Yard	Availability of Production-Distribution Infrastructure
Electricity	There are number of public charging locations in and near El Cajon.	Existing electricity grid and distributed energy sources.
Biodiesel	B5 is available in El Cajon. B20 is available in central San Diego.	Storage and blending terminals, port off-loading sites needed. Local producer is New Leaf Biofuel.
CNG	One public access station in Kearny Mesa.	Existing natural gas pipeline network.
Propane (LPG)	One public access station in the city.	Existing distribution by multiple vendors.
E85	One station in central San Diego.	Storage and distribution facilities needed in order to scale-up consumption.
LNG	No fueling sites in or near the city	Existing, but West Coast off-shore LNG terminals needed.
Hydrogen	No fueling sites in or near the city	Significant investment required.

Source: <http://afdc.energy.gov/afdc/locator/stations/>.

Notes:

1. Site names, addresses, and distances are provided in **Appendix D**.
2. Contact your Energy Roadmap coordinator for information regarding the installation of publicly available EVSE at city government sites.

State Grants and Rebates

The California Energy Commission (CEC) and ARB offer alternative transportation grants and rebates through 2015 under the AB 118 Program. Funding is allocated annually and the Fiscal Year (FY) 2012-2013 budget for the CEC AB 118 Program (www.energy.ca.gov/altfuels/) is about \$100 million. ARB manages about \$85 million in rebates and projects through the Air Quality Improvement Program (www.arb.ca.gov/msprog/aqip/aqip.htm).

The CEC has allocated funding for light-, medium-, and heavy-duty vehicles that use natural gas (\$10 million), as well as light- and medium-duty vehicles that use propane (\$2 million). Incentives amounts are displayed below in the table *CEC Gaseous Vehicle Buydown Incentives*. Expanding alternative fuel infrastructure is another funding priority for the Energy Commission, with \$1.5 million available in FY 2012-2013.

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 Diesel Gallon Equivalent (DGE)

CCSE manages ARB's Clean Vehicle Rebate Project (CVRP) (www.energycenter.org/cvrp), which provides rebates of up to \$2,500 for light duty battery electric and plug-in hybrid vehicle purchases. CCSE received \$18 million in funding for FY 2012-2013. The *CVRP Rebate Amounts for Light-Duty Vehicles* table summarizes the rebates available.

CVRP Rebate Amounts for Light-Duty Vehicles

Vehicle Class	Maximum Incentive
Light duty zero emission vehicles (ZEV)	\$ 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.

Rebates for commercial vehicles including trucks and buses are available through ARB's Hybrid Truck and Bus Voucher Incentive Project (HVIP) (www.californiahvip.org). As of December 2012, the HVIP estimated fund balance was over \$15 million. A summary of the incentives available is provided in the *ARB HVIP Voucher Amounts for Trucks and Buses* tables below. In addition to the rebates described in the tables, the first three vouchers redeemed by a fleet per funding year are eligible for the following additional voucher amount:

- \$2,000 per vehicle if below 8,500 lbs.;
- \$5,000 per vehicle if 8,501 to 10,000 lbs.;
- \$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 Electric Vehicle Planning

San Diego Regional Electric Vehicle Infrastructure Working Group

Through a grant from the California Energy Commission, SANDAG and CCSE established the San Diego Regional Electric Vehicle Infrastructure Working Group (REVI) to develop a readiness plan for the San Diego region. The ability for public agencies to site plug-in electric vehicle chargers on public property is one barrier that REVI is developing a template and best practices to address. El Cajon staff is invited to participate on REVI.

The Electric Vehicle Project

The San Diego region was selected to take part in the largest EV rollout in U.S. history, through the EV Project (www.theevproject.com). The national project targets 16 major population areas in the U.S. as first markets for EVs. As such, the project includes deployment of nearly 15,000 EV chargers to create robust charging networks for EV drivers to utilize. Half of the EV Project funding (over \$100 million) comes from a competitive ARRA grant awarded to Ecotality North America, an EV charger manufacturer. Nissan North America, General Motors/Chevrolet, and the U.S. Department of Energy are national project partners. SANDAG and SDG&E are local project partners providing in-kind assistance.

In El Cajon, Westfield Parkway Plaza has installed EV charging stations near the Macy's store, and Walgreens has installed chargers. Many public sites throughout the region have been identified as potential locations for EV charging stations including marinas, restaurants, community and regional shopping centers, large venue entertainment centers, transportation corridors, schools, hotels, airports, convenience retail, and retail shopping.

Over the next five years, most major automobile manufacturers are expected to introduce plug-in electric vehicles. All vehicles will be compatible with the standardized EV chargers installed through the EV Project. San Diego County has some of the highest per-capita adoption of electric vehicles in the State of California, and adoption is expected to increase in coming years.

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Develop Employee Knowledge of Energy Efficiency

Developing employee knowledge of energy efficiency is another way for El Cajon to promote energy savings in city government operations and throughout the community.

Overview

This chapter identifies free educational seminars offered by SDG&E and the California Center for Sustainable Energy (CCSE) available to city employees at the SDG&E Energy Innovation Center (EIC), located in Clairemont Mesa. Additionally, local colleges and universities host educational programs. Professional certifications in the energy management field also are identified. If staff is interested in one of these courses, your Energy Roadmap coordinator can help facilitate participation in certification programs and may be able to assist with enrollment costs.

Getting Started

As a first step in identifying educational, training, and certification opportunities, the City is asked to please 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); and
- Workshops or trainings that El Cajon may be interested in hosting at a city facility.

SDG&E and CCSE conduct 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 on programs hosted by the EIC, contact SDG&E: 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.

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 (BIM)	Facilities, public works
General Energy Workshops	▪ Energy efficiency 101 ▪ Electricity 101 ▪ Basics of solar; basics of solar water heating ▪ Lunch-and-learn topics	Layperson
Best Practices and Programs	▪ ENERGY STAR best practices ▪ Rebate programs	Planning, public works, city administration
Training and Certification Programs		Audience
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. Building Operator Certification 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 (AEE). 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. (IHACI) 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
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
Online Workshop Calendar	To view upcoming workshops, visit www.sdge.com/seminars	

Implement a Commuter Benefit Program

The city can achieve transportation-related energy savings by building on the Commuter Benefit Program offered to its employees. Such programs provide alternative transportation options to driving alone – and incentives to use them. As part of the Energy Roadmap Program, El Cajon will be offered free assistance and tools to design and implement a customized commuter benefit program, also known as a Transportation Demand Management (TDM) program.

How it Works

A Commuter Benefit Program provides employees with alternative transportation options for their commute, as well as incentives for using them. It starts by bundling various commuting-related programs that meet the needs of your city and employees, and including them in the benefits package for city employees.

A commuter program stands side-by-side with your agency's health benefits, 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 work schedules and telework options, to providing free or reduced-cost transit passes.

Commuter Program Benefits

By providing alternative transportation choices for its employees, El Cajon can:

- Improve traffic flow
- Set an example for residents and businesses
- Reduce commuter-related expenses
- Reduce oil consumption
- Help employees save time and reduce stress
- Reduce air pollution and greenhouse gas emissions

Some of the programs are offered free by SANDAG. Others are inexpensive for the city to implement or 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 through iCommute, provides your agency with the tools to get started, including an overview of your options, sample policies, promotional materials, and tax benefit information.

The iCommute online system offers employees free and convenient ride matching and trip tracking tools. The site also allows your agency to create customized incentive programs for rideshare participants. Its convenient reporting feature details how many of your employees are participating and measures the agency's and employees' financial and environmental savings, including the amount of air pollution and greenhouse gas emissions avoided, cost savings, and fuel savings.

Existing Commuter Trends

iCommute assisted the City of El Cajon develop and administer an Employee Commuter Survey. The survey examined the modes of transportation employees use to commute and determined alternative modes of transportation employees are interested in using. According to the survey, 84 percent of the City of El Cajon employees drive alone to work, with 24 percent citing that they drive alone because they live near their workplace. In addition, the mean commute distance and commute time for employees is approximately 14 miles and 21 minutes, respectively. For the complete survey, refer to **Appendix E**. The City of El Cajon can implement programs and incentives to make alternative transportation modes more competitive with driving alone. Specific programs and incentives the City of El Cajon can use to promote alternative modes of transport are described below.

Specific Commuter Programs

Fifty-two percent of respondents indicated they would consider using alternative commutes to work on an occasional basis. Employees surveyed preferred considering riding a bicycle to work (61%), carpooling as a rider (42%), riding the Trolley (36%), Teleworking (26%), and riding in a Vanpool (21%). Based on the survey, the City of El Cajon can provide the necessary infrastructure to make alternative modes of transportation, particularly biking and carpooling, more convenient for employees to use. The programs, tools, and ideas below have been highlighted to illustrate how the City of El Cajon can reduce energy consumption and costs.

RideMatcher

The City of El Cajon can reduce energy consumption and congestion by encouraging carpools, vanpools, and bicycling. Once the City of El Cajon has set up a network through the iCommute on-line system, employees can use RideMatcher to find other employees who have similar commutes at similar times. RideMatcher can assist an employee in finding a carpool, vanpool, or BikeBuddy.

TripTracker

TripTracker is an easy and convenient way for a commuter to track trips made by alternative modes of transportation. It also keeps track of gallons of fuel saved, monetary savings, pounds of carbon dioxide not emitted into the atmosphere, and how many miles a commuter has not traveled alone. It is necessary for commuters to track their trips if they would like to be enrolled in the Guaranteed Ride Home Program. Tracking trips also enters the commuter into iCommute's monthly prize drawings. Through TripTracker, the City of El Cajon can also implement its own incentive program to encourage alternative modes of transportation.

Transit

The City of El Cajon has the benefit of being served by the Orange and Green Trolley lines which are operated by Metropolitan Transit System (MTS). MTS bus routes 815, 816, 871, and 872 serve the El Cajon Transit Center; the civic center via a bus stop located at Main Street and Claydelle Avenue; and many other locations in the City of El Cajon. To encourage use of the public transit options, the city could offer discounted or subsidized transit passes.

Bike Lockers

According to the survey, of those willing to consider using alternative modes of transportation to work, the majority (61%) selected bicycling as their preferred alternative. The City of El Cajon could encourage bicycling to work by having bicycle lockers at the various city facilities and provide locker rooms with showers. iCommute maintains bike lockers throughout San Diego County; located conveniently at many transit stations and park and ride lots. Bicycles are allowed on all trolleys and buses, however, restrictions may apply. There are currently 16 bike lockers located at the El Cajon Transit Center. These lockers require a key issued by iCommute to access and are offered on a first come, first serve basis. There are currently eight lockers available at this location.

Lunch Time Lessons

iCommute partners with several bicycle organizations who offer no cost to low cost bicycle safety courses and promotes bicycling as an alternative mode of transportation. These safety courses could be offered throughout the year at the city's convenience.

Pretax Incentive

Employers can take advantage of employee and employer payroll tax savings offered through the IRS's Commuter Fringe Benefit Program (IRS Section 132). The IRS allows employers to offer employees the opportunity to set aside a portion of their salary, pretax, to pay for transit and vanpooling, up to \$125 per month per employee (in 2012). Bicyclist can also receive up to \$20 per month and cannot be combined with the transit incentive. Employers benefit by not paying payroll taxes on that money, while in effect adding value to their employee's compensation package. To take full advantage of this option, the payroll department would need to be consulted.

Telework

By allowing an employee to work from home, the City of El Cajon would lessen the burden on transportation facilities, reduce energy consumption and decrease congestion. The City of El Cajon could apply to participate in the iCommute sponsored Telework Pilot Program beginning in Fiscal Year 2014. At the end of the pilot program, the city would determine if teleworking is a viable option for city employees. Teleworking has been shown to help recruit and retain high performing employees and help the employees become more productive and happier. The employee also benefits by not having to commute to work which puts money back into the employee's pocket. Jobs that are most suited for teleworking are ones that require reading, writing, researching, working with data and talking on the phone or "information-based jobs".

Guaranteed Ride Home

According to the survey, 16 percent of respondents reported that a Guaranteed Ride Home Program would encourage them to carpool to work. Guaranteed Ride Home Programs make alternative modes of transport a more feasible option; Enrollment in this program allows commuters who carpool, vanpool, take a Premium Express Bus, the COASTER, walk, or bike to work three or more times per week to have the use of a rental car or taxi in the case of a family emergency, unscheduled overtime, or the commuter's rideshare partner becomes unavailable. A copay of \$3.00 is required when the commuter requests the use of this program and may be used up to three times per year. A study is currently underway to determine if this program should be opened to all modes of alternative transportation.

SchoolPool

SchoolPool is open to all public and private elementary schools, middle schools and high schools in the San Diego region. SchoolPool promotes carpooling, biking and walking to school. These alternative modes of transportation reduce congestion around schools and promote healthy lifestyles while helping the environment. SchoolPool also puts and emphasis on safety. Safety events are held at various schools throughout the year. For the 2012 - 2013 school year, no schools are enrolled in the SchoolPool Program. The City of El Cajon could encourage all of their schools to enroll in the SchoolPool program.

Getting Started

At the request of city staff, SANDAG staff made an overview presentation on the iCommute program to city representatives at the city on August 8, 2012. The iCommute team has since begun working with city staff to learn more about the city's existing commuter benefits and discuss potential ways to enhance the city's existing commuter policies through the iCommute program. Implementing a program is an easy and cost-effective way to reduce energy consumption at the city: many commuter policies and benefits can be offered at no or little cost to the City of El Cajon.

For more information on iCommute programs and services and to download the Commuter Benefit Starter Kit for Employers, visit www.icommutesd.com, or contact Kimberly Weinstein at (619) 699-0725 or kimberly.weinstein@sandag.org.

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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 built environment is comprised of private development and land uses, roadways and pedestrian facilities, the open space system, and other public facilities such as parks and schools. The energy demand of the built environment is strongly dependent upon the design and orientation of individual buildings; the distribution and density of development; the siting, sizing and design of transportation infrastructure; and other public facilities.

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.

Sustainable Communities Strategy

Pursuant to Senate Bill 375 (SB 375) (Steinberg 2008), SANDAG and regional planning agencies across the state are required to develop a Sustainable Communities Strategy (SCS) in order to reduce greenhouse gas (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 metropolitan planning organization (MPO) in the state to adopt a SCS as part of its 2050 Regional Transportation Plan (2050 RTP). SANDAG is using this strategy as the foundation for updating its Regional Comprehensive Plan (RCP), which provides a long-term strategic planning framework for the region based on “smart growth” and “sustainability.” These principles are described in the next section.

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.

SB 375 also 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 a ½ mile of a major transit stop or a high quality transit corridor included in the 2050 RTP.

SANDAG, working closely with all local jurisdictions, is undertaking a combined update to its RCP and RTP/SCS, called San Diego Forward: The Regional Plan. The Regional Plan is scheduled for adoption in 2015, and will include a review of smart growth designated areas in relation to the SCS. **Appendix F** contains larger definitions for what projects 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.

Smart growth principles are exemplified in two areas of El Cajon: Downtown El Cajon, and Westfield Parkway. These sites have been included in a region wide Smart Growth Concept Map, last updated by SANDAG in January 2012.

1. **Downtown El Cajon** encompasses approximately 219 acres. The portion of downtown around Main Street and Magnolia Avenue has undergone significant improvement, including the addition of new sidewalks, landscaping, street furniture, lighting, new restaurants and housing. The City has studied an expanded downtown area that stretches along El Cajon Boulevard to Chase Avenue, and includes the El Cajon Transit Center on Marshall Avenue. The study looked into the potential of adding these areas to the downtown and how it could be redeveloped with high quality office, retail, and housing.
2. **Westfield Parkway**, at Fletcher Parkway and Johnson Avenue, is one of East County's largest regional shopping centers, consisting of five major anchor retailers and over 1.5 million square feet of total retail, service, eating, and financial uses. Existing city-based shuttles, along with several regional bus routes, use Westfield Parkway as a transit stop and connection to downtown El Cajon and the El Cajon Transit Center.

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 two percent of the annual *TransNet* revenues to local governments through a competitive grant program. For more information on the SGIP and future funding cycles, visit www.sandag.org/smartgrowth.

SANDAG also allocates funds under the TDA and *TransNet* local sales tax program to support bicycle and pedestrian transportation projects through a competitive process on an annual basis. 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. The grant program also encourages local jurisdictions to provide bicycle parking, education, encouragement, and awareness programs that support pedestrian and bicycle infrastructure.

As the City continues to undertake planning activities and evaluate goals and policies related to smart growth, active transportation and alternative fuels; it can utilize the menu of sample policy measures provided in **Appendix E** as an additional reference. The measures reflect the goals of State agencies like the California Energy Commission and Office of the Attorney General. This appendix also contains the existing and potential “smart growth opportunity areas” that the City provided SANDAG for inclusion in the update to the Smart Growth Concept Map.

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 G 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 SDG&E can provide assistance. For example, the City can receive free energy code compliance training for local building inspectors, or receive 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

Energy Upgrade California (EUC) (www.energyupgradeca.org) is a statewide comprehensive retrofit program for residential and small commercial buildings. The program coordinates federal, state, utility, and local retrofit program outreach, incentives, training, and qualifications. Locally, the California Center for Sustainable Energy (CCSE) is collaborating with SDG&E to coordinate the EUC program. CCSE manages additional rebates offered in San Diego County; as well as workforce training that qualifies local contractors to perform the work.

The EUC program promotes a “whole house” performance approach to 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 diverges from the traditional “widget” approach to energy efficiency program delivery, which targets only 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. 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 8.)

The San Diego Regional Energy Partnership (SDREP) has tasked CCSE with continuing several local EUC programs through 2014 that were previously funded through ARRA

grants from the City of Chula Vista, City of San Diego and County of San Diego. Those jurisdictions, along with SANDAG, have dedicated grant funds to the SDREP to provide additional EUC resources to all local jurisdictions in San Diego County. SANDAG's contribution is to:

“Further develop and support regional Energy Upgrade California 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.”

El Cajon residents can take advantage of this program to reduce their energy consumption while improving the comfort of their homes, and municipal staff is encouraged to participate in the planning and implementation of these programs through a regional Retrofit Advisory Council (RAC). **Appendix G** includes details about the RAC and the region-wide projects underway through the SDREP.

3. Clean and Efficient Transportation Options

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* (LEED) certification. The SANDAG 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 greenhouse gas emissions. SANDAG recently completed a study, *Integrating Transportation Demand Management into the Planning and Development Process - A Reference for Cities*. The report is available as part of the Smart Growth Toolbox at the following

link: http://www.sandag.org/uploads/publicationid/publicationid_1663_14425.pdf

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.

El Cajon Bicycle Master Plan

The City's 2011 Bicycle Master Plan recommends an additional 52 miles of bicycle facilities to be integrated with the existing 20 miles of bicycle facilities within the City. The overall goal of the Bicycle Master Plan is to maximize the connections between mass transit, employment, and residential sectors and activity centers with bikeways to promote a viable alternative to automobile travel in a climate particularly conducive to bicycle transportation.

To meet the goals of its bike plan, the City can apply for funds through the *TransNet* Smart Growth Incentive Program (SGIP) and the Transportation Development Act (TDA) *TransNet* Bicycle and Pedestrian grant programs, described previously.

Planning for Alternative Fueling Infrastructure

One of the six early actions identified in the SANDAG *Regional Energy Strategy* is to support the planning for electric vehicle charging and alternative fueling infrastructure. Siting alternative fueling stations, electric charging points, vehicle maintenance facilities, and other infrastructure in coordination with vehicle availability is important to provide customers like fleet managers and the general public with a level of certainty that infrastructure will be available to support their investment in an alternative fuel vehicle.

Support for alternative fuel infrastructure can also 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, the Airport Authority, the Port of San Diego, and CCSE, have committed to addressing the need for more fueling choices across the region. A complete list of both publicly and privately available alternative fueling stations is included in **Appendix E**.

Plug-in Electric Vehicles and Charging Stations

The San Diego region is at the forefront of plug-in electric vehicle (PEV) deployment with the highest per capita amount of PEV purchases and electric vehicle supply equipment (EVSE) installations in the United States. The EV Project, a federally-funded Department of Energy program, brought an influx of residential and publicly accessible EVSE installations to the San Diego region from 2010 to 2012. Currently in El Cajon, EV charging is available at three sites: Macy's on Fletcher Parkway, Mossy Nissan on West Main Street, and Walgreens on North 2nd Street.

Several barriers have been identified through the region's early experiences, which need to be addressed in a strategic and coordinated manner to enable widespread regional PEV adoption and efficient deployment of EVSE. Assisted by a California Energy Commission grant, SANDAG and CCSE formed a working group of local governments, regional agencies, SDG&E, and other stakeholders to address these PEV issues and develop a readiness plan for the San Diego region. The San Diego Regional Electric Vehicle Infrastructure Working Group (San Diego REVI) held its kickoff meeting in March 2012 and is holding monthly meetings over a two-year period. El Cajon staff are invited to participate at REVI meetings. More information on REVI and other PEV planning efforts in the region can be found on CCSE's Plug-in and Get Ready website: www.energycenter.org/pluginready.

Sample mandatory and voluntary ordinances for including TDM, alternative fueling infrastructure, and other transportation-related measures in development projects are provided in **Appendix H**.

Market Energy Programs to Local Residents, Schools, and Businesses

This chapter provides El Cajon with internet links to existing energy efficiency and fuel-saving resources that the city could include on its Website, newsletters, and email alerts. This would enable El Cajon to serve as a conduit to its constituents on energy-saving residential, commercial, and school programs. The City could help promote messages of sustainability that foster a greater local understanding of the connection between energy/fuel use and environmental impacts. The City also could become a local government partner with national energy-saving educational campaigns like *ENERGY STAR* and *WaterSense*.

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

The following five outreach mechanisms are provided as sample ways in which the City can engage residents and businesses in energy programs:

1. Provide summary descriptions and links to SDG&E programs and rebates and related resources on the El Cajon website.
2. Include articles about opportunities to save energy with links to existing programs and community resources, like the California Center for Sustainable Energy (CCSE), in city newsletters (print or email) or similar media.
3. Provide educational materials on saving energy at city venues such as the permit desk, parks and recreation areas and city hall. SDG&E, CCSE, and SANDAG iCommute can provide materials about programs and services for residents and businesses.
4. Invite SDG&E, SANDAG iCommute and/or CCSE to host an information booth on energy-saving programs or commuter programs at community events.
5. Help coordinate presentations by SDG&E and SANDAG iCommute to community organizations such as a neighborhood planning group or local chamber of commerce.

Comprehensive Energy Program Websites

Residential Energy-Saving Programs	www.sdge.com/residential/rebates.shtml
Commercial Energy-Saving Programs	www.sdge.com/business/rebatesincentives
Educational Resources for All	SDG&E and CCSE conduct hundreds of expert-facilitated seminars on a broad spectrum of energy topics at two locations in central San Diego, the Energy Innovation Center (EIC). The online calendar lists workshops from both organizations and venues. http://www.sdge.com/energy-innovation-center/seminars
SANDAG iCommute	Free online gateway to commuter choices in the San Diego region; hosted by SANDAG. Includes 511, transit trip planner, online ride matching service, and cost of commute calculator. www.icommutesd.com
Energy Upgrade California	www.energyupgradecalifornia.org

Local Educational Resources

SDG&E 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 a variety of workshops and includes a Food Service Demonstration Kitchen that hosts free seminars on energy-efficient cooking, equipment, lighting and food safety. Additionally the California Center for Sustainable Energy (CCSE) hosts workshops related to renewable energy at the EIC.

The EIC is located at 4760 Clairemont Mesa Blvd, San Diego, CA 92117. Call (800) 411-7343 or visit www.sdge.com/eic. For information related to solar programs and workshops, contact CCSE at (858) 244-1177 or visit www.energycenter.org.

SANDAG iCommute Programs for the Community

In addition to supporting city-employee commuter programs like those identified in Chapter 5, El Cajon could help educate its residents and local businesses about alternatives to driving alone in the community. The city could:

- Provide information on commuting resources at the Civic Center, libraries and other public sites, and/or on municipal websites and newsletters. Include links to the 511 transit trip planner, iCommute online ridematching service, and an 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. El Cajon could:

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.

- 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.
 - 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.

National Educational Resources



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 www.energystar.gov.

The U.S. Environmental Protection Agency (EPA) and U.S. Department of Energy (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 www.energystar.gov/index.cfm?c=government.bus_government.

WaterSense® WaterSense Promotional Partners

WaterSense helps consumers identify water-efficient products and programs that meet WaterSense 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 www.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 www.epa.gov/watersense/partners/promotional.html.

Energy Programs for Residential and Business Audiences

Renewable Energy Programs

Self-Generation Incentive Programs	www.energycenter.org/index.php/incentive-programs/self-generation-incentive-program
The California Solar Initiative (CSI)	www.energycenter.org/index.php/incentive-programs/california-solar-initiative
CSI Thermal Program (Solar Water Heating)	www.energycenter.org/index.php/incentive-programs/solar-water-heating
Sustainable Communities Program	www.sdge.com/environment/sustainable-communities-overview/
SDG&E Solar Initiative	http://www.sdge.com/clean-energy/going-solar/solar-rebate-programs
Net Energy Metering	www.sdge.com/nem/

Energy and Water

20-Gallon Challenge	The 20-Gallon Challenge is a call for residents and businesses to reduce our region's water use on average by 20 gallons per person, per day. Hosted by the San Diego County Water Authority. http://20gallonchallenge.com/
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Smart Grid

SDG&E Smart Grid Program	Smart meter and smart grid technologies are being deployed throughout the San Diego region and across the state. www.sdge.com/smartgrid
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Clean Transportation and Petroleum Reduction Programs

Clean Vehicle Rebate Project	www.energycenter.org/cvrp
SANDAG iCommute	www.icommutesd.com/
SDG&E Clean Transportation	www.sdge.com/cleantransportation/
The EV (Electric Vehicle) Project	www.theevproject.com/
SANDAG SchoolPool Program	www.icommutesd.com/Schoolpool

Energy Programs and Assistance for Local Businesses

Energy efficiency and Demand Response

Business Incentives	www.sdge.com/rebates-finder/business
Critical Peak Pricing	www.sdge.com/save-money/demand-response/critical-peak-pricing
Technical Assistance and Technology Incentives	www.sdge.com/tati
Project Management Builder Services	www.sdge.com/builder-services
Summer Saver	www.sdge.com/vendor/summersaver/
On-Bill Financing	www.sdge.com/obf
Energy Savings Bid	www.sdge.com/bid
Energy Challenger (energy audit tool)	www.sdge.com/save-money/no-cost-audits/business-energy-assessment-program
Energy efficiency Seminars	www.sdge.com/seminars
PACE Financing: CaliforniaFIRST	www.californiafirst.org

New Construction

Savings by Design	www.sdge.com/clean-energy/savings-design/savings-design
Sustainable Communities Program	www.sdge.com/sustainable-communities/

Energy Programs and Assistance for Residents

Comprehensive Residential Websites

SDG&E's Residential Rebates and Services	All SDG&E residential programs can be accessed from this Website. www.sdge.com/saveenergy
Energy Upgrade California	EUC is a statewide brand for all energy-saving building retrofit programs. EUC coordinates federal, state, utility, and local retrofit program outreach, incentives, training, and qualifications. Locally, CCSE is collaborating with SDG&E to coordinate the program. www.energyupgradeca.org
PACE and AB 811 Programs	Property Assessed Clean Energy (PACE) or AB 811 programs are intended to give cities and counties the ability to offer low-interest loans for energy efficiency and solar energy projects to commercial and/or residential property owners. *Residential PACE programs are currently on hold nationwide. Commercial programs are emerging. www.pacenow.org

Energy efficiency and Demand Response

Advanced Home Program	www.californiaadvancedhomes.com/
Air Conditioning Tune-Ups	www.actimeprogram.com/ProjectCenter/
Summer Saver Program	www.sdge.com/vendor/summersaver/
Refrigerator-Freezer Recycling Program	www.arcaincutility.com/CA/SDGE/Step2_ZipCode.cfm?ServiceCompany=43
Clothes Washer Rebate Program	www.20gallonchallenge.com/programs_residential.html or (888) 376-3314
Residential Energy Survey	http://www.sdge.com/energy-efficiency-survey-0 (800) 411-SDGE (7343)
Lighting Turn in Program	www.sdge.com/lighting
Tax Credits	www.energytaxincentives.org/

New Construction Programs

Advanced Home Program	http://www.californiaadvancedhomes.com/
New Solar Homes Partnership	http://www.sdge.com/clean-energy/going-solar/applying-solar-rebates

Low Income Assistance

Residential Rate Assistance Program	www.sdge.com/residential/assistance/assistServCare.shtml
Energy Savings Assistance Program	http://www.sdge.com/energy-savings-assistance-program
Programs for Customers with Special Needs	http://www.sdge.com/available-assistance-programs
Multi-Family Affordable Solar Housing	www.energycenter.org/index.php/incentive-programs/multifamily-affordable-solar-housing

Energy and Water

WECalc Home Water-Energy-Climate Calculator	Free online tool from the Pacific Institute that estimates home water-related energy use and associated greenhouse gas emissions. http://www.wecalc.org/
SoCal Water Smart for Residential Customers	Available water efficiency product rebates. www.socalwatersmart.com/
Clothes Washer Rebate Program	www.20gallonchallenge.com/programs_residential.html or (888) 376-3314

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Support Green Jobs and Workforce Training

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



The Green Career Network

The Green Career Network (www.greencareernetwork.org) brings together green job seekers and green employers. Hosted by the California Center for Sustainable Energy (CCSE), this online portal provides job listings, trainings, and research in green jobs in renewable energy, energy efficiency, green building, transportation, sustainability, and environmental studies.

On the **Green Career Network** job seekers can:

- Access job postings and a Green Employers list
- Read a step-by-step guide to finding a green job
- Identify available workforce training and education opportunities
- Access studies and reports on the green economy, industries, and market analyses
- Network through free educational programs and events

Employers can:

- Use an online job board to post job announcements and review resumes
- Find information about on-the-job training programs that can reimburse up to 50 percent of wages or salaries earned by eligible new workers during training
- Find information on how to get help from groups like the Small Business Administration and the Small Business Development Center that provide free business counseling, workshops, and training to help grow businesses



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, CA 92126. Call (619) 388-7673 or visit www.attemiramar.com for more information.



CUYAMACA
COLLEGE

Cuyamaca Community College

Cuyamaca College offers green workforce training certificates and degrees in water/wastewater technology, environmental health and safety, sustainable landscaping, and renewable energy. For more information, visit www.cuyamaca.edu.

The San Diego Workforce Partnership

The San Diego Workforce Partnership (www.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 (WIB).

The nearest One-Stop Career Center is located in El Cajon:

- East County Career Center, located at 924 East Main Street, El Cajon, CA 92021. For more information, visit <http://eccc.guhsd.net/>

SDG&E Energy Innovation Center

The Energy Innovation Center (EIC) 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 Blvd, San Diego, CA 92117. Contact (800) 411-7343 or visit www.sdge.com/eic.

Statewide Resources for Training and Education



Grid Alternatives

Grid Alternative (www.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 (www.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 (www.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.

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Looking Forward

This Energy Roadmap provides El Cajon with a framework for continued efforts to save energy in government operations and the community that supports energy conservation goals. After the city participates in the SANDAG Energy Roadmap Program, there may be local, state, and federal funding opportunities for the city to continue energy-saving activities, either on its own or in partnership with SANDAG. These funding sources are described below, followed by non-financial resources.

Energy-Saving Funding Opportunities

Local Government Partnerships with San Diego Gas & Electric

The SANDAG Energy Roadmap Program is primarily funded through a local government partnership with SDG&E. The utility manages several local government energy efficiency partnerships in the region for jurisdictions, public agencies, and the California Center for Sustainable Energy. 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 local government partnership programs. The next program cycle, to be determined by the CPUC, will likely begin in January 2015. Using its Energy Roadmap as a guide, El Cajon can decide if it would like to propose to SDG&E its own local government partnership, have SANDAG continue to serve as a mechanism to provide added energy efficiency services, or take a different course of action.

Local Government Energy efficiency Partnerships have three focus areas:

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

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

- Municipal facility retrofit 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
- Energy plan development



State Energy Program Grants and Energy efficiency and Conservation Block Grants

The U.S. Department of Energy (DOE) and California Energy Commission release State Energy Program (SEP) 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 DOE and are released from both the Energy Commission and DOE. For program opportunities, visit www.energy.ca.gov/contracts/index.html.



CLEAN VEHICLE
REBATE PROJECTSM

Clean Vehicle Rebate Project

The Clean Vehicle Rebate Project (CVRP) is funded by the California Air Resources Board (CARB) and administered statewide by the California Center for Sustainable Energy (CCSE). 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, 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 zero-emission or plug-in hybrid electric vehicles.



California Energy Commission AB 118: Alternative and Renewable Fuel & Vehicle Technology Program

The AB118: Alternative and Renewable Fuel and Vehicle Technology Program authorizes the California Energy Commission (CEC) to develop and deploy alternative and renewable fuels and advanced transportation technologies to help attain the state's climate change policies. 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 AB 118 and the associate investment plan can be found on the CEC Website (<http://www.energy.ca.gov/altfuels/index.html>).



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. Department of Energy (DOE) Website (<http://www1.eere.energy.gov/cleancities/>). The local affiliate of the DOE Clean Cities program is the San Diego Regional Clean Cities Coalition and is described on the following page.



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 two 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. Additional information on the current funding cycle is available at www.sandag.org/smartgrowth.

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. The grant program also encourages local jurisdictions to provide bicycle parking, education, encouragement, and awareness programs that support pedestrian and bicycle infrastructure. More information on current funding opportunities is available at www.sandag.org/active.

Non-Financial Resources for Local Governments



The Beacon Award

The Institute for Local Governments' California Climate Action Network (CCAN) has created the Beacon Award to recognize cities and counties that reduce greenhouse gas (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.

Once a local government applies, it is designated as a Beacon Award program participant, and will then begin working toward achieving the first Beacon Award level. There is no deadline to apply; applications will be accepted on an ongoing basis.

Becoming a Beacon Award participant is a simple process. Agencies at every step of the climate action journey are welcome to consider applying. To be accepted as a Beacon Award participant, cities and counties will complete a simple application form and do the following:

- Adopt a resolution by the governing body committing the agency to participate in the program;
- Designate a lead staff person as a point of contact;

- Prepare, or commit to prepare, a baseline greenhouse gas emissions inventory for agency facilities and the community as a whole (previously completed inventories using a commonly accepted methodology will be accepted);
- Prepare, or commit to prepare, a climate action plan that includes actions in each of the Best Practice Areas (previously completed plans using a commonly accepted methodology will be accepted); and
- Demonstrate compliance with AB 939, the California Integrated Waste Management Act of 1989.

Visit www.ca-ilg.org/BeaconAward for more information.

San Diego Gas & Electric

As described in previous chapters, SDG&E (www.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



California Center for Sustainable Energy

The California Center for Sustainable Energy (CCSE) (www.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
- San Diego Regional Electric Vehicle Infrastructure Working Group (REVI), in partnership with SANDAG, that includes representatives from local jurisdictions, regional agencies, SDG&E, workforce training partners, and electric vehicle and equipment manufacturers
- San Diego Regional Clean Cities Coalition
- California Clean Vehicle Rebate Project



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 www.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 www.sandag.org/energy.



SANDAG iCommute Program

The SANDAG iCommute team can assist local governments with staff commuter programs, transportation demand management (TDM) ordinances, online tools, and outreach on alternative transportation options for the commute. For more information, contact Kimberly Weinstein at (619) 699-0725, kimberly.weinstein@sandag.org, or visit www.icommutesd.com.



Statewide Energy Efficiency Best Practices Coordinator

Patrick Stoner serves as the Statewide Local Government Energy Efficiency Best Practices coordinator. The position is part of the California Public Utilities Commission's 2010 through 2012 statewide energy efficiency programs. Like SANDAG is available to you locally, Mr. Stoner is a statewide resource. The statewide coordinator 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. Mr. Stoner is housed at the Local Government Commission (LGC) and has been part of the LGC since 1993. He can be reached at (916) 448-1198, extension 309 or email pstoner@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 greenhouse gas emissions and save energy. SEEC (www.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 San Diego Gas & Electric. 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 greenhouse gas emissions
- Institute for Local Governments’ California Climate Action Network (CCAN) is providing recognition for cities and counties through the Beacon Award



San Diego Regional Clean Cities Coalition

The San Diego Regional Clean Cities Coalition is the local affiliate of the Department of Energy’s Clean Cities program. Coordinated by the California Center for Sustainable Energy (CCSE), the Clean Cities Coalition brings together stakeholders in the public and private sectors to increase the use of alternative fuel and alternative fuel vehicles. The Clean Cities Coalition holds educational events on a regular basis and board of directors meets monthly. More information and a calendar of events can be found at www.sdccleanfuels.org.

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www.sandag.org/energy

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

