

City of Escondido 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 Escondido

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Acknowledgements and Program Contacts

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Introduction

This energy management plan, or “Energy Roadmap,” prepared by SANDAG in consultation with City staff, provides a framework for Escondido 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 Escondido 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 and rate reviews,
- Help identifying and applying for energy rebates and innovative programs like zero-percent on-bill financing,
- Energy-saving policies and programs to utilize in general plan updates and climate action plans, and
- The latest information on critical subjects like financing energy retrofit projects, planning for electric car charging and clean fuels, and transit-oriented development.

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

Supporting Existing City Efforts

Before SANDAG and SDG&E began working with Escondido on the Energy Roadmap Program in 2011, the City had already taken various actions to save energy. In 2007, the central energy plant at the City Hall campus was upgraded with a state-of-the-art energy efficient system that saves the city \$179,000 in annual operating costs. Also in 2007, City Hall was re-roofed with a heat reflective material to save on cooling energy and associated costs.

In addition, energy and greenhouse gases (GHG) associated with employee commutes and municipal building operations have been reduced through four-day work week schedules and modified hours.

The Roadmap can help Escondido implement local energy reduction measures identified in the E-CAP.

In January 2012, the City released the draft Escondido Climate Action Plan (E-CAP) and draft General Plan Update. Relevant E-CAP and General Plan policy measures are highlighted throughout the Energy Roadmap, showing ways that the Roadmap can assist City efforts.

The draft E-CAP's GHG reduction measures include using energy more efficiently, harnessing renewable energy to power buildings, recycling waste, conserving and recycling water, and enhancing access to sustainable transportation modes. These conservation and development efforts are to keep dollars in Escondido's local economy, create new green jobs and improve the community's quality of life.

By building on its existing energy-saving efforts and taking advantage of some or all of the opportunities identified herein, Escondido can demonstrate leadership in energy efficiency and work toward greater sustainability in City government 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 Escondido.

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 government operations GHG inventory included in the draft E-CAP found that the largest portion of Escondido's 2010 government emissions were from electricity (46 percent), followed by emissions from employee commutes (17 percent). The Roadmap can help the City find ways to 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 take advantage of programs to increase staff knowledge of energy efficiency, and use its operations to showcase emerging energy efficient technologies.

The first half of the Energy Roadmap addresses saving energy in government operations. It identifies five distinct opportunities for Escondido 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, schools, and businesses. Opportunities for influence vary widely, from public education to adopting policies and implementing programs to save energy. The community-wide GHG inventory included in the draft E-CAP found that the largest amount of community-wide GHG emissions in 2010 came from electricity and natural gas use in buildings (45 percent), followed by transportation (42 percent).

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, keeps money in people's pockets, and supports growing economic opportunities including well-paying green jobs.

The second half of the Energy Roadmap identifies ways that the City can aid its constituents in saving energy and reducing GHG emissions that impact local quality of life. Chapter 6 identifies ways to integrate energy considerations into local planning. Next, Chapters 7 and 8 identify ways that local government can serve as a conduit to its residents, local schools, and businesses on locally available energy-saving programs, incentives and green job training.

- 6. Leverage Planning and Development Authority**
 - a. Smart growth development policies
 - b. Energy efficient building upgrades
 - c. Clean and efficient transportation options
- 7. Market Energy Programs to Local Residents, Schools, and Businesses**
- 8. 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 the City's General Plan Update and E-CAP
- Using government operations to demonstrate the feasibility of energy efficient and sustainable practices to local residents and businesses
- Managing the City vehicle fleet including new vehicle purchases
- Promoting energy efficiency programs through city communications such as newsletters, e-mail, and Go Green Escondido Web site
- 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
- Facilitating discussions among local and regional agencies

The Go Green Escondido Web site is a portal for local residents and businesses to access energy-saving programs.

Handouts on green jobs and training opportunities can be located at the community center and library career center.

About the Energy Roadmap Program

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

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

Escondido's Energy Roadmap Timeline				
Spring 2011	Summer 2011	Fall 2011	Winter 2011-2012	March 2012
Energy Roadmap Program launch	Report cards for city buildings	Energy audit and rate review	City's Energy Roadmap completed	Presentation to City Council
City staff provide input and direction	Further building studies underway		Clean transportation options identified	City eligible for continued assistance through Dec. 2014
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 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. Both strategies are available on the SANDAG Web site 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, Escondido can reduce its 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:

Escondido could save over \$150,000 each year from energy-efficiency upgrades and rate changes 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.

Escondido’s Municipal Energy Policies

The site assessments performed through the Energy Roadmap Program can assist the City in achieving energy- and water-saving policies included in its draft General Plan Update and E-CAP. The most relevant policy measures from the *Land Use and Community Form Element* are included here.

Water System Policy 12.9 - Employ best practices to maintain the highest possible energy efficiency in the water treatment plant and infrastructure system to reduce costs and GHG emissions.

Wastewater System Policy 13.12 - Employ best practices to maintain the highest possible energy efficiency to reduce costs and GHG emissions of the Hale Avenue Resource Recovery Facility (HARRF) and other wastewater system facilities.

Energy Policy 16.7 - Install energy-efficient lighting, appliances and alternative energy infrastructure, such as solar energy panels, within all city facilities, as feasible.

Energy Assessments Performed

In 2011, two types of energy assessment services were provided at no cost to the city: 1) Preliminary energy assessments, called “Energy Report Cards,” of sites determined by municipal staff, and 2) More in-depth energy audits, called “Phase 2 Audits” for a subset of government buildings based on their Report Cards and direction from city staff.

Energy Report Cards were prepared for twenty-nine municipal sites (listed below) mid-year in 2011. 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.

Escondido could save approximately \$113,000 each year on its utility bills by switching utility rates for its local parks.

- Center for the Arts
- City Hall
- Daley Ranch
- Dixon Lake
- East Valley Community Center
- Escondido Blvd Central Plant
- Escondido Sports Center
- Fire Stations 1-7
- Grape Day Park
- Grove Park
- Hale Ave Resource Recovery Facility (HARRF)
- James A. Stone Pool
- Jesmond Dene Park
- Joslyn Senior Center
- Kit Carson Park
- Escondido Public Library
- Mathis Center
- Mountain View Park
- Rod Mcleod Park
- Ryan Park
- Washington Park (& Pool)
- Water Treatment Plant
- Westside Park

Benchmarking is a useful tool to judge a site's energy performance compared to the national or state averages, and it is a new requirement to participate in SDG&E's 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 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 climate change information in carbon dioxide equivalent (CO²E).

The preliminary energy assessments indicate that almost all Escondido municipal sites are performing significantly more efficient than the comparable facilities in California

Energy assessments have shown Escondido to be a municipal leader in energy efficiency.

and the nation. Either in response to a specific issue discovered through the site assessment process, or as instructed by city staff, eight sites and two technologies citywide 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.

Energy-saving opportunities were not found at each site audited because municipal staff had been diligent in maintaining or improving building performance already. 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.

- | | |
|--------------------------------|--------------------------------------|
| ▪ Center for the Arts | ▪ Water Treatment Plant |
| ▪ City Hall | ▪ All Outdoor Lighting |
| ▪ Escondido Blvd Central Plant | ▪ All Backup Generator Block Heaters |
| ▪ James A. Stone Pool | |
| ▪ Washington Park and Pool | |

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, citywide outdoor lighting study, and utility rate analyses are summarized below and are included as **Appendices C and D**.

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 energy conservation measures identified.

Energy Audit Findings

The City of Escondido is a municipal leader in the field of energy efficiency. The City Hall Campus, which includes the Center for the Arts and the Escondido Blvd Central Plant facilities, has emerged as one of the highest performing facilities of its type in San Diego County. Excellent energy performance proves to be a general trend for this city, but energy efficiency is a continually moving target and there are always strategies available to improve. Escondido has the potential to realize over \$40,000 in annual operations savings on its utility bills by implementing the energy conservation measures in the *Potential Savings by Energy Conservation Measure* table on page 5. In addition, the city has the potential to save approximately \$113,000 each year on its utility bills by switching to a relatively new outdoor lighting rate. The rate change could apply to several community parks, and it is described in the following section.

All of the energy-saving retrofit projects identified at the Escondido facilities are eligible for SDG&E's On-Bill Financing Program. This could enable the city to avoid paying upfront capital costs associated with energy-saving retrofits through zero-percent interest loan(s) on its utility bill(s). Once each loan is paid off (using zero-percent on-bill

financing), the city's utility bills would reflect annual bill savings like those shown in the *Energy Conservation Measure Economics* table on page 6.

Escondido, like many cities, has a good deal of outdoor lighting. Outdoor lighting has many options for replacement that result in both energy savings and improved quality of light. Special attention should be taken when considering outdoor lighting replacements, and the *Outdoor Lighting Report* found in **Appendix D** details a lifecycle cost analysis of the best options for the City to date.

Lowering City Utility Bills at Community Parks

A simple analysis was conducted to estimate potential savings the City of Escondido could realize if outdoor area lighting was switched from existing utility rates to one of the optional outdoor lighting rate schedules now offered by SDG&E. Analysis of the following parks identified a potential annual bill savings of up to \$113,000 by switching to an outdoor lighting time of use (OL-TOU) utility rate. SDG&E must perform its own assessment to determine if sites can qualify "as-is" for this rate change, or if additional measures would be necessary.¹ The rate analyses are provided as part of **Appendix D**.

- Escondido Sports Center
- Jesmond Dene Park
- Kit Carson Park
- Mountain View Park
- Ryan Park

Findings at Municipal Pools

City staff had requested that special attention be placed on the pool facilities in hopes of saving money for a department in great need. Variable frequency drives (VFDs) are a common and very useful means of lowering energy consumption at pools. Escondido could install VFDs on their pool pumps to achieve potential energy savings. Essentially, a VFD resizes the pump motor to fit the power needed at that time, and simple payback periods are estimated at 1.0-1.5 years. In addition, lighting opportunities exist at the pool facilities, although the payback periods are very long due to their short usage periods on an annual basis. At the present time, SDG&E's On Bill Financing program (discussed at the end of this chapter) can allow these lighting projects to be completed with no out-of-pocket cost to the city, so Escondido may wish to pursue these measures.

¹ For a park to qualify for this reduced utility rate, at least 90 percent of the electricity consumed must be for outdoor lighting. Parks that include caretaker residences, or other non-lighting load in excess of ten percent, could not qualify without undergoing electrical upgrades.

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)
James A. Stone Pool	Pool Lighting	3,096	5.16	\$321	1.02
	Outdoor Lighting	7,499	1.63	\$738	2.47
	VFD on Pool Pump	23,351	1.80	\$2,417	7.70
	Indoor lighting	27	0.05	\$3	1.02
	Subtotal	33,973	8.64	\$3,479	11.21
Washington Pool	Outdoor Lighting	13,613	3.11	\$1,409	4.49
	Pool Lighting	1,548	2.58	\$160	0.51
	VFD on Pool Pump	39,827	2.72	\$4,123	13.14
	Subtotal	54,998	8.41	\$5,692	18.14
Washington Treatment Plant	Outdoor Lighting	20,507	4.68	\$2,123	6.76
	Indoor Lighting	2,759	0.94	\$286	0.91
	Backup Generator	16,248	2.56	\$2,688	5.36
	Subtotal	39,514	8.18	\$5,097	13.03
HAARF	Outdoor Lighting	16,956	4.0	\$1,770	5.59
	Backup Generator	41,976	7.2	\$6,944	13.85
	Subtotal	58,932	11.2	\$8,714	19.44
Center for the Arts	Outdoor Lighting	51,280	3.1	\$5,312	16.92
	Backup Generator	10,566	1.8	\$1,748	3.49
	Subtotal	61,846	4.9	\$7,060	20.40
Other Municipal Sites	Outdoor Lighting	68,585	15.8	\$7,159	22.63
	Backup Generator	23,950	3.5	\$3,962	7.90
	Subtotal	92,544	19.3	\$11,120	30.53
Totals		341,798	60.63	\$41,162	112.75

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. No opportunities for natural gas savings were identified during the energy audits.
4. HAARF = Hale Avenue Resource Recovery Facility

Energy Conservation Measure Economics

Location	Measure	Gross Project Implementation Cost	Total SDG&E Incentives	Net Project Cost	Simple Payback (years)
James A. Stone Pool	Pool Lighting	\$4,500	\$671	\$3,829	11.9
	Outdoor Lighting	\$6,650	\$519	\$6,131	8.3
	VFD on Pool Pump	\$5,500	\$2,282	\$3,218	1.3
	Indoor lighting	\$135	\$45	\$90	30.0
	Subtotal	\$16,785	\$3,517	\$13,268	3.8
Washington Pool	Outdoor Lighting	\$3,995	\$1,121	\$2,874	5.7
	Pool Lighting	\$2,250	\$335	\$1,915	12.0
	VFD on Pool Pump	\$8,000	\$3,857	\$4,143	1.0
	Subtotal	\$19,845	\$6,033	\$13,812	2.4
Water Treatment Plant	Outdoor Lighting	\$17,150	\$2,860	\$14,290	6.7
	Indoor Lighting	\$1,748	\$1,167	\$581	2.0
	Backup Generator	\$12,500	\$2,693	\$9,807	3.6
	Subtotal	\$31,398	\$6,720	\$24,678	4.8
HAARF	Outdoor Lighting	\$17,500	\$1,398	\$16,102	9.1
	Backup Generator	\$24,000	\$7,015	\$16,985	2.4
	Subtotal	\$41,500	\$8,413	\$33,087	3.8
Center for the Arts	Outdoor Lighting	\$28,790	\$4,002	\$24,788	4.7
	Backup Generator	\$8,000	\$1,763	\$6,237	3.6
	Subtotal	\$36,790	\$5,765	\$31,025	4.4
Other Municipal Sites	Outdoor Lighting	\$57,890	\$3,150	\$51,951	7.3
	Backup Generator	\$21,500	\$3,946	\$17,554	4.4
	Subtotal	\$79,390	\$7,096	\$69,505	6.3
Totals		\$225,708	\$40,332	\$185,376	4.5

Notes.

1. Gross and net installation and equipment costs are estimated and do not replace product specifications and contractor bids.
2. HAARF = Hale Avenue Resource Recovery Facility

Implementation Strategy to Achieve Municipal Energy and Cost Savings

1. Apply to SDG&E for outdoor lighting rate changes at community parks. Undertake rate change at all parks that qualify.
2. Pursue energy retrofit projects that qualify for on-bill financing and/or have an immediate payback.
3. Seek approval from SDG&E to use its On-Bill Financing Program (zero-percent interest loans) to cover upfront costs for energy upgrades.
4. Undertake internal city processes to implement energy upgrade projects.
5. Monitor site performance to ensure energy and cost savings are achieved.
6. Apply to SDG&E for outdoor lighting rate changes at community parks. Undertake rate change at all parks that qualify.

The Energy Roadmap team can assist Escondido 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 incentives² for each municipal site. Generally, programs that apply to commercial businesses also apply to public agencies. To review all of SDG&E's rebate and incentive programs, see chapter 7 of this Energy Roadmap or visit www.sdge.com/business/rebatesincentives/.

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

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

Through its On-Bill Financing Program,³ 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 www.sdge.com/obf.

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 August 2011, terms included an interest rate of three-percent fixed, a maximum loan of \$3 million per application, and a maximum loan term of 15 years. Again, EFM Solutions can assist Escondido with applying for this loan, if needed. For more program information, contact the California Energy Commission's Special Projects Office, (916) 654-4104, e-mail: pubprog@energy.state.ca.us, or www.energy.ca.gov/efficiency/financing.

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

³ 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.

2

Demonstrate Emerging Energy Technologies

In addition to energy assessments and improving efficiency in city government buildings and facilities, Escondido can also 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 Escondido 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.

3

Green the City Vehicle Fleet

The City of Escondido maintains a fleet of approximately 650 vehicles that range from sedans and pick-up trucks to fire engines and other heavy-duty trucks. This chapter highlights ways that Escondido 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. As a follow-up to Escondido's Energy Roadmap, the City is being offered a free alternative fuels assessment specific to its municipal fleet. SANDAG has partnered with the California Center for Sustainable Energy (CCSE) to perform these assessments.

Special attention is given to the Electric Vehicle Project at the end of this section because it is the largest deployment of electric vehicles (EV) and EV charging infrastructure in U.S. history, with approximately \$40 million worth of equipment and services being dedicated to the San Diego region. The City has taken part in a regional advisory group to the EV Project and is participating in the San Diego Regional Electric Vehicle Infrastructure Working Group (REVI), a technical group launched by SANDAG in March 2012 to collaboratively address near-term barriers to deploying EV chargers.

California Goals for Transportation Fuels

California has adopted several transportation fuel laws and goals as shown in the *California Goals and Transportation Fuels* table. In order to meet these goals, the state allocates millions of dollars in grants funds annually through the AB 118 Program to help address barriers to the production and deployment of alternative fuels, vehicles, and infrastructure. Additional information on AB 118 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

Conservation: Fuel-Saving Driving Tips for City Employees

Trip planning, efficient driving habits, and routine maintenance can reduce petroleum use and transportation costs. Fleet managers can review vehicle scheduling and routing to determine potential fuel efficiency improvements. In addition, employees can consider the following:

- Alternatives to an in-person meeting or event such as a conference call or Web cast,
- Alternative transportation options such as carpooling, walking, bicycling, and public transit,
- Shared vehicle options like carpooling with other staff and staff from other agencies, and
- Using the most fuel efficient vehicle that will serve the trip purpose.

The official U.S. government source for fuel economy information is www.fueleconomy.gov. The site provides data on new and used cars and trucks and provides the following fuel efficiency tips that the city make its employees aware of.

- **Drive sensibly.** Aggressive driving habits like speeding, rapid acceleration, and hard-stop braking can lower fuel efficiency by 33 percent at highway speeds and by five percent around town.
- **Use cruise control.** Using cruise control on the highway helps to maintain a constant speed and, in most cases, saves fuel.
- **Observe the speed limit.** While each vehicle reaches optimal fuel economy at a different speed, fuel efficiency usually decreases at speeds above 60 miles per hour (mph). As a rule of thumb, each five-mph increase over 60 mph can cost the city about \$0.21 per gallon of gasoline.
- **Remove excess weight.** Avoid keeping unnecessary and heavy items in vehicles. An extra 100 pounds can reduce fuel efficiency by up to two percent. The reduction is based on the percentage of extra weight relative to the vehicle's weight and affects smaller vehicles more than larger ones.
- **Avoid excessive idling.** Vehicles with larger engines typically waste more fuel while idling than vehicles with smaller engines.
- **Use overdrive gears.** Engine speed goes down when in overdrive gears, thereby saving fuel and reducing engine wear.
- **Properly inflate tires.** Check tires monthly for proper inflation. Under-inflated tires can lower fuel efficiency by 0.4 percent for every one-psi drop in pressure of all four tires.

Fleet Planning with the Petroleum Reduction Planning Tool

There are many conservation and efficiency measures that could be deployed to reduce petroleum use in the municipal fleet. To increase overall fleet fuel efficiency, the Federal Energy Management Program (FEMP) recommends focusing on increasing fuel efficiency of the least efficient vehicles as a first step. Also, the U.S. Department of Energy's Petroleum Reduction Planning Tool (<https://www.afdc.energy.gov/afdc/prep/>), at the Alternative Fuels and Advanced Vehicles Data Center, can help fleet managers evaluate and calculate petroleum reductions through the following methods:

- Alternative fuels
- Hybrid electric vehicles
- Biodiesel blends
- Fuel economy
- Vehicle miles traveled reduction
- Truck stop electrification
- Idling time reduction
- Onboard idle reduction

The methods fall under efficiency (e.g., fuel economy, idling reductions), conservation (e.g., vehicle miles traveled (VMT) reductions), and alternative fuels (e.g., vehicles that run on electricity, compressed natural gas). The fleet manager can set a petroleum reduction goal (e.g., 10 percent savings), and the free online tool will identify potential savings based on the fleet information entered and petroleum reduction measures selected.

Additionally, FEMP has dedicated resources to assist federal agency fleet managers in developing and implementing petroleum reduction strategies. Through Executive Order 13514 and other mandates, federal agencies are required to reduce petroleum usage and increase alternative fuel use in their fleets. Local jurisdictions are not impacted by the federal mandates, but may find FEMP's resources helpful if developing a petroleum reduction plan. FEMP provides guidance and a handbook on fleet management, which are available online at www1.eere.energy.gov/femp/regulations/guidance.html#fm.

Alternative Fuels for City Fleet Applications

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 F**. Alternative fuel and vehicle selection can 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

SANDAG has partnered with the California Center for Sustainable Energy to offer Escondido an alternative fuels fleet assessment at no cost to the City.

Summary of Alternative Fuel Infrastructure Availability and Costs

Fuel	Existing Fueling/Charging Sites within Ten Miles of Escondido's Maintenance and Operations Department, Fleet Services ¹	Availability of Production-Distribution Infrastructure
Electricity	The EV Project is deploying up to 1,450 level 2 electric vehicle chargers across San Diego County through June 2012. As of August 2011, EVSE are located at two car dealerships and the San Diego Wild Animal Park.	Existing electricity grid and distributed energy sources.
Biodiesel	Using its onsite fuel storage tanks, Escondido is trying biodiesel for some of its diesel-powered fleet. No publicly-accessible fueling sites in or near city. It is one of three cities using blends of B5 or B20 to offset diesel fuel consumption: San Diego, Escondido, and Chula Vista.	Storage and blending terminals, port off-loading sites needed. Local producer is New Leaf Biofuel.
CNG	Three private access stations located in or near the city.	Existing natural gas pipeline network
Propane (LPG)	One public access sites in Escondido.	Existing
E85	One public access station located near the city	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 F**.

2. Contact your Energy Roadmap coordinator for information regarding the installation of publicly available EVSE at city government sites.

Online Vehicle Comparison Tool

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.

Another helpful resource for relevant data on new and used cars and trucks from current and prior model years is www.fueleconomy.gov. The user cannot manipulate as many features as Cool Fleets, but users can access data on used vehicles.

State Grants and Rebates

The California Air Resources Board (ARB) and California Energy Commission (CEC) offer alternative transportation grants and rebates through 2015 under the AB 118 Program. Funding is allocated annually and the FY 2010-2011 budget for the CEC AB 118 Program (www.energy.ca.gov/altfuels/) is about \$108 million. ARB manages about \$85 million in rebates and projects through the Air Quality Improvement Program (www.arb.ca.gov/msprog/aqip/aqip.htm).

CCSE manages ARB's Clean Vehicle Rebate Project (CVRP) (www.energycenter.org/cvrp), which provides rebates of up to \$2,500 for light duty electric vehicle purchases. CCSE received \$15 million in funding for fiscal year (FY) 2011-2012. 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 November 2011, the HVIP estimated fund balance was over twelve million dollars. The following tables show the rebates offered by both programs.

CVRP Rebate Amounts for Light-Duty Vehicles

Vehicle Class	Maximum Incentive
Light duty zero emission vehicles (ZEV)	\$ 2,500
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.

ARB HVIP Voucher Amounts for Trucks and Buses

Gross Vehicle Weight in Pounds (lbs.)	Base Incentive ¹
8,501 – 10,000 lbs. ²	Plug-in hybrid
	Zero emission
10,001 – 19,500 lbs.	\$ 10,000
19,501 – 33,000 lbs.	\$ 15,000
33,001 – 38,000 lbs.	\$ 15,000 ³
	\$ 20,000
	\$ 25,000
> 38,000 lbs.	\$ 30,000

Notes.

1. The first HVIP-eligible vehicle purchased by a fleet and ARB-certified hybrid vehicles above 14,000 lbs. are each eligible for an additional \$5,000 voucher.
2. This weight category includes plug-in hybrid and zero-emission vehicles only.
3. Zero-emission commercial vehicles in this weight category are eligible for \$20,000.

The Electric Vehicle Project

The San Diego region was selected to take part in the largest electric vehicle (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, CCSE, and SDG&E are local project partners providing in-kind assistance.

In 2009, Ecotality organized a San Diego Electric Vehicle Advisory Committee that provides input to the EV Project. The EV Advisory Committee included representation from Escondido, other local governments, CCSE, the Port of San Diego, UCSD, Qualcomm, SDG&E, SANDAG, and other stakeholders. The

EV charger installations are underway and expected to be completed by June 2012.

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, 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. Beginning in December 2010, two major automobile manufacturers began selling EV sedans, the *Nissan LEAF* and *Chevrolet VOLT*, in San Diego County. All vehicles will be compatible with the standardized EV chargers installed through the EV Project. If the city would like to become an EV Project participant or host a publicly accessible EV charging site, opportunities are still available as of the writing of this document.

EV Project participants are qualifying electric vehicle purchasers that agree to have data on their charging habits aggregated into a U.S. Department of Energy study. The study will provide needed information on where future EV chargers should be sited across the country. In return for study participation, the EV purchaser received its “home” (i.e., fleet location or residence) EV charger and installation at little to no cost. For more information on the EV Project contact your Energy Roadmap coordinator.

Through the EV Project, about 2,000 electric vehicle (EV) chargers can be installed around San Diego County before June 2012. Up to 1,000 will be at publicly-accessible sites and about 1,000 will be at residences.

4

Develop Employee Knowledge of Energy Efficiency

Developing employee knowledge of energy efficiency is another way for Escondido to promote energy savings in city government operations and throughout the community. Energy efficiency training and public education is a measure (R3-E3) identified in the draft E-CAP dated January 2012. SDG&E and the Energy Roadmap Program can facilitate training opportunities for staff and potentially address enrollment fees.

Overview

This chapter identifies free educational seminars available to city employees at the San Diego Energy Resource Center (SDERC) and the SDG&E Energy Innovation Center (EIC). The SDERC is located at the California Center for Sustainable Energy (CCSE) in Kearny Mesa and the EIC is located in Clairemont Mesa. In addition to these facilities, local colleges and universities host educational programs. Professional certifications available in the energy management field also are identified. If city staff is interested in one of these courses, your Energy Roadmap coordinator can help facilitate participation in certification programs.

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 Escondido 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 SDERC. Workshop costs are covered by the SDERC and funded 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 SDERC, contact CCSE at (858) 244-1177. For SDG&E workshops email: seminars@sdge.com. CCSE and SDG&E publish a quarterly workshop calendar in print and online at: www.energycenter.org/erc.

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

Free Educational Seminars at SDERC and EIC		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
Online Workshop Calendar	To view upcoming workshops, visit www.energycenter.org/attend .	
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

Promote Commuter Benefits to City Employees

The City of Escondido can achieve transportation-related energy savings by promoting commuter programs to its employees. Such programs provide alternative transportation options to driving alone and incentives to use them. Support services from the SANDAG iCommute Program are offered at no cost to the city as part of your Energy Roadmap. Services are customized to address the specific needs of your city and its employees. Needs are identified through city staff direction, a survey of employee commute habits and preferences, and the mapping of employee commutes so that iCommute can recommend to the city which commute choices may make sense to promote to staff.

Regional commuter options for Escondido include: carpools, vanpools, the Sprinter, bus, biking and teleworking.

Existing City Savings from Alternative Commute Schedules

Approximately 650 City employees currently work modified hours in a staggered four-day work week and the City identified in its E-CAP the associated energy, fuel and cost savings from employee work schedules. The E-CAP stated that the work schedules collectively eliminated approximately 2.5 million vehicle miles annually traveled, decreased employees' transit-related emissions, reduced highway congestion during peak hours and saved approximately 113,000 gallons of gasoline. The four-day work week currently implemented at City Hall allows for the facility to be closed on Fridays, lowering that facility's energy requirements and effectively saving the City approximately \$50,000 in annual heating and cooling costs.

How Commuter Programs Work

iCommute offers resources and tools to design and implement a customized commuter program, also known as a transportation demand management (TDM) program. Promoting commuter programs can be an easy and cost-effective way to reduce petroleum consumption in the city. There are many ways that Escondido can take part, many of which are for little or no cost to the city.

An employee commuter program provides workers with alternative transportation options, as well as incentives for using them. 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.

Some of the programs are offered free by SANDAG. Others are inexpensive or come with subsidies. For example, SANDAG provides a \$400 per month subsidy for qualifying vanpools to manage the costs of the van rental. Additionally all agencies participating in the Energy Roadmap program will be offered the opportunity to participate in a new SANDAG sponsored *Carpool Incentive Pilot Project* that will provide \$50 per month per carpooler for three months. The *Guaranteed Ride Home Program* is another SANDAG incentive that makes choosing an alternative commute easy. Commuters who carpool, vanpool, take an Express Bus, ride the COASTER, walk, or bike to work three or more times a week are eligible for a taxi ride or rental car to get home from work, for just a \$3 co-pay, in the event of emergency or unscheduled overtime.

Commuter Cost Calculator provides commuters with the actual cost of their current commute and the potential savings from choosing alternative forms of transportation.

Benefits of Participation

Alternative transportation is good business. Cities can:

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

Commuter Program Recommendations for Escondido

Escondido's **Air Quality and Climate Protection Policy** (7.2), from the Resource Conservation Element of its General Plan Update, calls for reducing GHG emissions through various measures including TDM programs and alternative modes of transportation. SANDAG can assist the City with commuter options consistent with this policy, which are identified on the following pages.

The City of Escondido is well served by transit (light rail and bus) and has access to the I-15 Express Lanes which facilitate ridesharing. Additionally, the City of Escondido recently expanded bicycle parking throughout downtown Escondido and at City Hall. Based on an assessment of these local transportation options available in and around

Escondido, iCommute has prepared the following TDM recommendations for the city to consider including in its Commuter Benefit Program. Recommendations that would help reduce traffic congestion from employee commutes focus on:

- Transit benefits,
- Rideshare options, and
- Teleworking

Transit Benefits

Due to the proximity of municipal sites to the Sprinter line, the following incentives could encourage increased transit use among city staff.

- 1) Pre-Tax Benefit (No cost to City of Escondido):** Under the Transportation Equity Act, IRS code 132(f), and California state law, employers are allowed to offer payroll tax savings for transportation assistance up to \$230 a month per employee for transit passes or vanpool expenses and up to \$20 per month for bicycle maintenance expenses. The Employer's Tax Guide to Fringe Benefits IRS code 132(f) details this benefit and is available from the IRS at www.irs.gov/pub/irs-pdf/p15b.pdf.
- 2) Discounted Transit Passes (Minimal cost to City of Escondido):** Employer have the option of subsidizing part of their employees' commuting costs and allowing employees to pay for the remainder with pre-tax dollars. To further encourage participation in transit, the City of Escondido could offer discounted monthly transit passes to employees as part of the overall benefits package for city employees. A small discount can go a long way to encourage employees to try transit.

Rideshare Options

Carpooling and vanpooling are flexible commute solutions that are easy to coordinate using the free iCommute online ridematching system. Additionally, iCommute provides incentives that make ridesharing easy:

- 1) Carpool Incentive Pilot Project (No cost to City of Escondido but requires a staff member to administer):** iCommute began seeking applicants for a Carpool Incentive Pilot Project in October 2011. Participants in the pilot project will receive \$50 per month per carpooler for three months. The incentive will be provided by iCommute but distributed through the participating employer. All agencies involved in the Energy Roadmap program are invited to apply to take part in the Carpool Incentive Pilot Project.

- 2) **Regional Vanpool Program (No cost to City of Escondido):** For city employees that have longer distance commutes (20 miles or more), vanpools are a comfortable, cost-effective, and convenient way for groups of 7 to 15 people to share their commute. Employees or the employer can lease a vehicle through one of iCommute's contracted vanpool vendors and receive \$400 per month to help offset the cost of the lease. On average, vanpool participants cut their commute costs by many hundreds of dollars per year. Typical savings to each passenger:
 - 20 miles round-trip commute = \$1,000/year
 - 50 miles round-trip commute = \$4,400/year

- 3) **Guaranteed Ride Home (No cost to City of Escondido):** Commuters who carpool, vanpool, take an Express Bus, ride the COASTER, walk, or bike to work three or more times a week have a safety net with the Guaranteed Ride Home program. The program can be used up to three times per enrollment year by registered participants for an annual co-pay of three dollars. iCommute will provide a taxi or rental car in the event of:
 - Personal or family illness or emergency
 - Unscheduled overtime (with a supervisor's approval)
 - Your rideshare partner is unavailable

Bicycle Encouragement

- 1) **Pre-Tax Benefit for bicycle commuters (No cost to City):** the 2008 Energy Act added "qualified bicycle commuting reimbursement" to the list of qualified transportation fringe benefits. As of 2009, any employer may reimburse an employee up to \$20 per month tax free for reasonable expenses incurred by the employee for the purchase of a bicycle and bicycle improvements, as well as repair and storage if the bicycle is regularly used for travel between the employee's residence and place of employment. The Employer's Tax Guide to Fringe Benefits IRS code 132(f) details this benefit and is available from the IRS at www.irs.gov/pub/irs-pdf/p15b.pdf.

- 2) **Bike to Work Month (No Cost to City) –** To encourage bicycle commuting, the City of Escondido could host a Bike to Work Day Pit Stop, participate in the Bike to Work Month Corporate Challenge, and offer bike commuter safety and education courses for employees (sponsored and coordinated by iCommute).

Teleworking

Escondido already uses alternative work schedules, but it may wish to consider additional options provided here. Teleworking allows eligible employees to work from home or a remote location one or more days per week. Telework has specific benefits for employees and employers that take advantage of the program. Employees benefit from telework by cutting their commute and related costs, achieving a live-work balance, reduced stress, and improved job satisfaction. As an added benefit, less time spent on the road due to teleworking also means less traffic congestion and a more reliable commute for those who commute. Benefits to employers include improved productivity, reduced overhead, improved retention and recruitment, and reduced absenteeism. Sample telework policies, agreements, and forms are provided as **Appendix F**.

Getting Started

The *Commuter Benefit Starter Kit for Employers* is provided by iCommute and lays out the tools you need to get started, including an overview of your options, sample commuter program policies, promotional materials, and tax benefit information. The complete Commuter Benefit Starter Kit is available for download at iCommutesd.com.

iCommute can help the city survey its employees to identify local commuting habits and preferences.

Additionally the iCommute on-line system offers employers and employees free and convenient tool that makes it easy to access, evaluate, and compare transportation choices. The “Commute Cost Calculator” provides commuters with the actual cost of their current commute and the potential savings from choosing alternative forms of transportation. “RideMatcher,” a tool within the Web site, helps commuters securely find a vanpool, carpool, or bicycle partner. The “TripTracker” tool allows commuters to log their commute trips on an interactive calendar that calculates the financial and environmental costs of their daily commute patterns.

The site also allows your agency to create customized incentive programs for employees that participate in your commuter program. TripTracker’s 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. A sample TripTracker report is provided as **Appendix F**.

Commuter Program Support Offered by iCommute

At any time, the city can request assistance from iCommute to engage city employees in alternative transportation options and to establish municipal commuter policies.

Actions could include:

- Meet with iCommute and go over free online tools and functionality of the iCommute Web site
- Establish a point person (usually a representative from Human Resources) to work with your iCommute representative to set up your employer network in icommutesd.com.
- Survey staff on their current commute habits and preferences (provided for free by iCommute).
- Map your employees' commutes so you know which commute choices make sense to promote to staff (provided for free by iCommute).
- Formalize a commuter benefit policy that outlines the commuter benefits that the city can offer (iCommute has samples for you).
- Once you've decided which commute choices to promote and/or incentivize, have iCommute give a presentation to staff and/or hold an iCommute registration drive. Registration drives are most effective when the message comes from agency leadership, via letter or e-mail message.
 - North County Transit District also is available for free on-site transit trip planning.
- Include commuter benefit information in new employee orientation packets and link to iCommute on your intranet site.
- Participate in and promote iCommute annual events such as Rideshare Week, Bike to Work Day, and Walk and Bike to School Day. Join the Rideshare Week and Bike to Work Corporate Challenges to showcase your commitment to sustainable commute choices. (A sample National Bike Month proclamation is included in **Appendix F**.)

"TripTracker" enables commuters to log their commute trips on an interactive calendar that calculates the financial and environmental costs of their daily commute patterns.

Escondido can promote and participate in annual events like Bike to Work Day, Dump the Pump and Rideshare Week.

For more information or to continue developing and implementing your commuter program, contact your Energy Roadmap coordinator or Kim Weinstein, SANDAG iCommute, (619) 699-0725, kwe@sandag.org.

Leverage Planning and Development Authority

Local governments can promote energy efficiency in their communities by leveraging their authority over local land use and development activity. Escondido has included several energy policies in its draft General Plan Update and draft Escondido Climate Action Plan (E-CAP), released in January 2012.



This chapter addresses ways in which energy considerations can be integrated into local land use and transportation planning and recognizes the efforts to date by Escondido in this area. The energy efficiency and/or petroleum reduction measures identified here are consistent with regional and state energy policies, and fall under the following categories.

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

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.

Goal 6 of Escondido's General Plan Update calls for an increased use of renewable energy sources, and improved energy conservation and efficiency.

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 (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 (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 further in the smart growth 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%
2050	N/A	10%	7%

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, will undertake an update to its RCP over 2012 and 2013, including a review of smart growth designated areas in relation to SCS. **Appendix G** contains larger definitions for what could qualify for CEQA streamlining. The proposed energy policies in Escondido's General Plan Update are consistent with the direction of the Sustainable Communities Strategy.

Proposed Energy Policies in Escondido's General Plan Update

16.1	Monitor federal, state and regional energy policies and lobby for appropriate changes that benefit the community.
16.2	Continue to work with local utility providers to ensure that adequate electricity and natural gas services and facilities are available for new and existing development.
16.3	Implement energy conserving land use practices that include compact development, provision of bikeways and pedestrian paths, and the incorporation of transit routes and facilities.
16.4	Encourage site and building design that reduces exterior heat gain and heat island effects (tree planting, reflective paving materials, covered parking, cool roofs, etc.).
16.5	Require, to the extent feasible, building orientations and landscaping that use natural lighting to reduce energy demands.
16.6	Evaluate and amend appropriate codes and ordinances in order to facilitate and encourage the installation of renewable energy systems and facilities (solar, wind, hydro-power, geothermal, and bio-mass), where appropriate, for all development.

1. Energy Efficient Building Upgrades

Escondido has been incorporating green building practices into its own facilities including pursuit of LEED certification for its new Police and Fire Facility. The City's *Go Green Escondido* Web site includes information and resources for residents about green building, energy efficiency, and associated rebates.

The proposed energy policies in the E-CAP (shown in the following table) are consistent with California's *Long Term Energy Efficiency Strategic Plan*. The strategic plan is the California Public Utilities Commission's (CPUC) framework for energy efficiency in the State and it describes local governments' authorities and opportunities for promoting energy efficiency in new and existing buildings.

Proposed Local Energy Reduction Measures in the E-CAP

R2-E1	New residential energy efficiency requirements
R2-E2	New commercial energy efficiency requirements
R2-E3	New residential renewable energy requirements
R2-E4	New commercial renewable energy requirements
R2-E5	Existing residential energy retrofits
R2-E6	Existing commercial energy retrofits
R3-E1	Regional energy planning coordination
R3-E2	Energy efficient development, and renewable energy deployment facilitation and streamlining
R3-E3	Energy efficiency training and public education

The following sections on energy codes and Energy Upgrade California describe additional ways that Escondido could promote energy efficiency through local planning.

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 Escondido 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 could receive free energy code compliance training for local building inspectors, or receive materials needed in order to consider adoption of voluntary reach codes, which

go beyond the traditional minimum code requirements to make buildings more energy efficient.

Energy Upgrade California (Building Retrofits)

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. Since energy use in buildings represents the second largest source of GHG emissions in Escondido, EUC and similar efforts can help the City meet local, regional, and state goals.

EUC (www.energyupgradeca.org) is a statewide umbrella under which all energy-saving building retrofit programs are housed. 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 EUC rebates offered by some of the local governments in San Diego County; as well as workforce training that qualifies local contractors to perform the work.

Currently, the cities of San Diego and Chula Vista, and the County of San Diego, have used a portion of their Energy Efficiency and Conservation Block Grants (EECBG) to augment state and utility rebates available to their residents. As the EUC program grows, more local governments may choose to formally support the EUC through passage of resolutions or dedication of funds (if available) for increased rebates to their residents. More information about energy codes and the EUC are provided below.

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 is instead of a “widget” approach that 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 discussed in Chapter 8.)

Additionally, **Appendix H** provides a series of energy-related policy measures reflect the goals of State agencies like the California Energy Commission (CEC), California Public Utilities Commission, and Office of the Attorney General. The appendix includes further information on financing mechanisms for energy-efficient retrofits also.

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

In addition to the SGIP, discussed previously, Escondido can apply for grant funds through the Transportation Development Act (TDA) *TransNet* Bicycle and Pedestrian grant programs. SANDAG 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.

Alternative Fueling Infrastructure

One of the six early actions identified in the SANDAG *Regional Energy Strategy* is to support the planning for electric 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 Fuels Coalition, along with its members including the County, SANDAG, local cities, the

Airport Authority, the Port of San Diego, and CCSE, must continue to address the need for more fueling choices across the region. A complete list of both publicly and privately available alternative fueling stations in and around Escondido 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. By June 2012, the EV Project will have installed up to 1,000 home (or fleet) Level 2 EVSE; 1,000 publicly accessible Level 2 EVSE at commercial properties, city streets, municipal buildings, and San Diego destinations like Balboa Park; and 30 DC fast charge EVSE along the region's transportation corridors.

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 will form a working group of local governments, regional agencies, SDG&E, and other stakeholders to address these PEV issues. The San Diego Regional Electric Vehicle Infrastructure Working Group (San Diego REVI) is scheduled to begin in March 2012 and have bimonthly meetings over a two-year period. Escondido has participated in PEV infrastructure planning as part of the advisory group to the EV Project, and would continue to be a valuable participant going forward.

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

3. 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.

Past planning of the built environment typically featured segregation of land uses and transportation systems that favored the automobile over biking, walking, and public transit. Communities in which people walk, bike, and ride public transit are typically characterized by a more concentrated, diverse and synergistic mix of land uses and a distinct sense of place, created by safe, generous and attractive sidewalks, well-defined and well-connected bike paths and lanes, street-adjacent buildings that accommodate pedestrian-oriented uses, a variety of housing types and choices, and a rich, interconnected street grid that controls the speed and volume of vehicle traffic. In addition to promoting transportation choices, smart growth land use patterns help protect open space, wildlife habitat, watersheds, and agricultural land.



Community Character Policy 1.8

Require development projects to locate and design buildings, construct energy and water efficient infrastructure, reduce GHG emissions, enhance community livability and economic vitality, and implement other practices contributing to sustainable resources.
Escondido General Plan Update (Jan. 2012)

Escondido is currently updating the City's General Plan with the inclusion of smart growth principles and transit-oriented design throughout. Two examples of smart growth areas are the Downtown Specific Plan and Mercado Area Plan, and Mission Road area. These sites also were included in a regionwide Smart Growth Concept Map developed by SANDAG.

1. **Downtown Specific Plan and Mercado Area Plan** (Tulip Street to Fig Street, between Washington Avenue and 5th Avenue) is an area designated as a town center. The Escondido Transit Center, located on the west end of this area, is the termination point for the SPRINTER line. Downtown Escondido is also home to numerous civic and cultural facilities including City Hall, Grape Day Park, California Center for the Arts, a multi-plex theater, Boys and Girls Club, Children's museum, and the main library. The adopted Specific Plan includes incentives for mixed-use and affordable housing projects. Downtown's proximity to public transit makes the area well suited for smart growth projects.

2. **Mission Road Area** (from I-15 to Escondido Boulevard, and Escondido Boulevard from Mission Road to Washington Avenue) is a mixed-use transit corridor characterized by underutilized commercial and industrial development. The area is served by high-frequency, local transit connecting I-15 with the downtown area. A number of potential infill reuse areas have already been identified, including the Mount Vernon Inn and swap meet.

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. During the 2005 pilot year SGIP, Escondido was awarded two grants - one for the Maple Street Pedestrian Plaza and one for the pedestrian improvements as part of the Grand Avenue/El Mercado Project. For more information on the SGIP, and upcoming funding cycles, visit www.sandag.org/smartgrowth.

In addition, **Appendix G** contains sample policies that encourage smart growth development. Escondido staff received these appendix materials for consideration in the City's General Plan Update. The policies also could be considered in Escondido's development review process. Finally, this appendix contains the existing and potential "smart growth opportunity areas." These sites have been included in a region wide Smart Growth Concept Map, last updated by SANDAG in 2011.

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Market Energy Programs to Local Residents, Schools, and Businesses

This chapter provides Escondido with internet links to existing energy efficiency and fuel-saving resources that the city could include on its *Go Green Escondido* Web site, newsletters, and E-Alerts. This would enable Escondido 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 Go Green Escondido Web site.
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 e-mail) or similar media.
3. Provide educational materials on saving energy at city venues such as the permit desk, parks and recreation areas, libraries, and the civic center. SDG&E, CCSE, and SANDAG iCommute can provide materials about programs and services for residents and businesses.
4. Invite SDG&E, SANDAG iCommute staff, and 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 staff 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	CCSE and SDG&E conduct hundreds of expert-facilitated seminars on a broad spectrum of energy topics at two locations in central San Diego, the San Diego Energy Resource Center (SDERC) and Energy Innovation Center (EIC). The online calendar lists workshops from both organizations and venues. www.energycenter.org/attend
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



San Diego Regional Energy Resource Center

Jointly provided by the California Center for Sustainable Energy and San Diego Gas & Electric

The San Diego Energy Resource Center (SDERC) is a community resource for energy information and provides a variety of workshops, continuing education, and certification courses in energy-efficiency, renewable energy, and green building including HERS training, BPI certification, LEED certification, and solar installation training.

The SDERC is located at the California Center for Sustainable Energy at 8690 Balboa Avenue, Suite 100, San Diego, CA 92123. Call (858) 244-1177 or visit www.energycenter.org. ERC hours are from 8 a.m. to 5 p.m. weekdays excluding national holidays.

Resources available from the SDERC include:

- Online workshop, training, and events calendar: CCSE and SDG&E conduct hundreds of expert-facilitated seminars on a broad spectrum of energy topics at the SDERC.
- Energy Connection eNewsletter: CCSE's free monthly eNewsletter provides current information on resources, regional energy issues, news, and other features.
- Reference and tool-lending library: The reference library offers books, DVDs and periodicals on climate change, efficiency, green building, renewable energy, and transportation. Materials cover a broad range of information and are designed for those in a variety of professions and levels of education and knowledge.

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. The EIC is located at 4760 Clairemont Mesa Blvd, San Diego, CA 92117. Call (800) 411-7343 or visit www.sdge.com/eic.

SANDAG iCommute Programs for the Community

In addition to supporting city-employee commuter programs like those identified in Chapter 5, Escondido 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 Web sites 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. Samples are provided in **Appendix F**.
 - 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
- Recognize and honor local commuters and employers who have demonstrated a commitment to sustainable commute choices.

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.

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. Escondido could:

- Encourage the School District and/or individual schools to enroll in SchoolPool, a secure online ridematching service administered by SANDAG for parents with children in kindergarten through 12th grade. SchoolPool can be a transportation solution for parents who live in districts where school bus services have been cut.
 - 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/sustainablecommunities/
CEC Emerging Renewables Program	www.consumerenergycenter.org/erprebate/index.html
SDG&E Solar Initiative	www.sdge.com/environment/solar/sdSolarInitiative.shtml
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/index.php/incentive-programs/clean-vehicle-rebate-project
SANDAG iCommute	www.icommutesd.com/
SDG&E Clean Transportation	www.sdge.com/cleantransportation/
EV (Electric Vehicle) Project	www.theevproject.com/
SANDAG SchoolPool Program	www.icommutesd.com/Schoolpool
Clean Vehicle Rebate Project	www.energycenter.org/index.php/incentive-programs/clean-vehicle-rebate-project

Energy Programs and Assistance for Local Businesses

Energy-Efficiency and Demand Response

Business Incentives	www.sdge.com/business/rebatesincentives
Critical Peak Pricing	www.sdge.com/cpp
Technical Assistance and Technology Incentives	www.sdge.com/tati
Project Management Builder Services	www.sdge.com/builderservices
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/audit
Energy-Efficiency Seminars	www.sdge.com/training

New Construction

Savings by Design	www.sdge.com/builderservices/savingsBD.shtml
Sustainable Communities Program	www.sdge.com/environment/sustainablecommunities/

Energy Programs and Assistance for Residents

Comprehensive Residential Web Sites

SDG&E's Residential Rebates and Services	All SDG&E residential programs can be accessed from this Web site. www.sdge.com/saveenergy
Retrofit Central	Retrofit Central is a one-stop shop for information on programs, incentives, technical assistance, and financing for energy-efficiency and renewable residential retrofits. Once Energy Upgrade California is fully functional, it may be phased out. It is hosted by the California Center for Sustainable Energy. www.energycenter.org/retrofit
PACE and AB 811 Programs	Property Assessed Clean Energy (PACE) or AB 811 programs were intended to give cities and counties the ability to offer low-interest loans for energy-efficiency projects and solar panels to homeowners and businesses. *Residential PACE programs are currently on hold nationwide. Commercial PACE is planned to launch mid-2012. https://californiafirst.org/

Energy-Efficiency and Demand Response

Advanced Home Program	www.sdge.com/builderservices/programs/advancedhomes/index.shtml
Air Conditioning Tune-Ups	www.actimeprogram.com/ProjectCenter/
Summer Saver Program	www.sdge.com/summersaver/
Affordable Financing for Home Improvements	www.sdge.com/residential/homeImpFinance.shtml

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	www.sdge.com/residential/resEnergyProfiles.shtml (800) 411-SDGE (7343)
Lighting Turn in Program	www.sdge.com/lighting
Tax Credits	www.energytaxincentives.org/

New Construction Programs

Advanced Home Program	www.sdge.com/builderservices/programs/advancedhomes/index.shtml
New Solar Homes Partnership	www.sdge.com/environment/solar/solarForNewHomes.shtml

Low Income Assistance

Residential Rate Assistance Program	www.sdge.com/residential/assistance/assistServCare.shtml
The Energy Team Program	www.sdge.com/residential/energyTeam.shtml or (866) 597-0597
Programs for Customers with Special Needs	www.sdge.com/residential/assistance/otherCustomerServices.shtml
Neighbor to Neighbor	www.sdge.com/residential/assistance/financialAssistance.shtml
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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8

Support Green Jobs and Workforce Training

The city of Escondido can increase local awareness of workshops, training, and employment resources available to its constituents. The city can make this information more widely available by including it on its Web site and/or providing handouts at local libraries and city hall.

Some of the training available in the region has been funded through the American Recovery and Reinvestment Act (ARRA), and may be discontinued after December 2012. Many other local resources identified in this section are available long term.

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 (HVAC) 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, 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 on-line 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 Community College's San Diego Green Building Training Collaborative

The Grossmont-Cuyamaca Community College District (GCCCD) was awarded ARRA funds to launch the San Diego Green Building Training Collaborative under California's Clean Energy Workforce Training Program. The collaborative trains unemployed or underemployed workers with previous construction experience to be building analyst professionals, water auditors, solar photovoltaic installers, and solar thermal installers.

Trainings serve all of San Diego County and are offered at Cuyamaca College in Rancho San Diego and Palomar College in San Marcos. Certificates of Achievement are awarded upon program completion. GCCCD plans to continue the green building training collaborative after ARRA funds are expended. Cuyamaca College already 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/preview/cleanenergy/.

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 to Escondido is the North County Inland Career Center, located at 463 N. Midland, Escondido, California 92027. For more information, visit <http://www.rescare.com/locations/nccc/index.php>.



San Diego Regional Energy Resource Center

Jointly provided by the California Center for Sustainable Energy and San Diego Gas & Electric

The San Diego Energy Resource Center (ERC) provides a variety of workshops, continuing education, and certification courses in energy efficiency, renewable energy, and green building, including HERS training, BPI certification, LEED certification, and solar installation training. The ERC is located at CCSE, 8690 Balboa Avenue, Suite 100, San Diego, CA 92123. For more information, contact (858) 244-1177 or visit www.energycenter.org.

SDG&E Energy Innovation Center

The Energy Innovation Center (EIC) also hosts a variety of workshops and includes a Food Service Demonstration Kitchen that hosts free seminars on energy-efficient cooking, equipment, lighting and food safety. The EIC is located at 4760 Clairemont Mesa Blvd, San Diego, CA 92117. Call (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.

Looking Forward

This Energy Roadmap is meant to provide Escondido with a framework for continued efforts to save energy in government operations and the community. After the city participates in the SANDAG Energy Roadmap Program, there are 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 non-transportation components of the Energy Roadmap Program are 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, which will be determined by the CPUC, will likely begin in January 2015. Using its Energy Roadmap as a guide, Escondido 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 member agencies with added energy-efficiency services, or take on another 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,
- Compact fluorescent light (CFL) bulb recycling programs,
- Green building, permit expedite, and fee reduction programs,
- Peer-to-peer best practices and networking,
- Staff training programs, and
- 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.

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 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. We welcome agencies at every step of the climate action journey 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



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/.



CleanTECH San Diego

CleanTECH San Diego is a non-profit organization that works to accelerate San Diego as a world leader in the clean technology economy. CleanTECH San Diego stimulates innovation and advances the adoption of clean technologies and sustainable industry practices for the economic, environmental and social benefit of the greater San Diego region. For more information, visit www.cleantechsandiego.org.



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, sfr@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. Contact Kim Weinstein at (619) 699-0725, kwe@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, e-mail pstoner@lgc.org, or visit <http://eecoordinator.info/>.

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

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www.sandag.org/energy



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

