

City of San Marcos Energy Roadmap

SAN MARCOS CIVIC CENTER



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 San Marcos

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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 San Marcos 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 San Marcos Energy Roadmap charts a path to saving energy in government operations and in the community.

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

California’s Vision for Local Governments

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

California Long-Term Energy-efficiency Strategic Plan

While the Energy Roadmap could be used by cities without past energy project and planning experience, it is important to state upfront that San Marcos has taken actions to save energy and lower costs before participating in this program. Examples include: heating, ventilation and air-conditioning (HVAC) improvements aimed at increased system efficiency and lower electricity use, energy-efficient lighting upgrades at City parks and facilities, and reduced petroleum consumption from hybrid vehicle purchases for the City fleet.

The City of San Marcos has also conducted a greenhouse gas (GHG) inventory of city-operated and community-wide emissions, successfully completing the arduous step of

identifying and quantifying local sources of greenhouse gases. The city accomplished this through its participation in the San Diego Regional Climate Protection Initiative, spearheaded by ICLEI-Local Governments for Sustainability USA (ICLEI). The Energy Roadmap could help San Marcos identify measures to include in a climate action plan.

By building on its existing energy-saving efforts and taking advantage of some or all of the opportunities identified herein, San Marcos 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 San Marcos.

Section I. Saving Energy in City Government Operations

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

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

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

Section II. Saving Energy in the Community

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

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

The San Marcos Web site can be a portal for local residents and businesses to access energy-saving programs and rebates.

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

6. Leverage Planning and Development Authority

- a. Integrate energy-saving measures into planning and development
- b. Include transportation demand management in development review
- c. Enable building energy retrofit projects

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 Sustainability Strategy for the City of San Marcos general plan
- Integrating sustainability, energy-efficiency, or GHG reduction measures into a general plan, specific plan, or zoning ordinance amendment
- 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 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

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

About the Energy Roadmap Program

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

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

San Marcos' Energy Roadmap Timeline				
Fall 2010	Winter 2011	Spring 2011	Summer-Fall 2011	Fall 2011 until Dec. 2012
Energy Roadmap Program launch	Report cards for city buildings	Energy audit and rate review	City's Energy Roadmap completed	City eligible for continued Roadmap assistance
City staff provide input and direction	Further building studies begin	Fleet and fuels review	Presentation to City Council	
SANDAG drafts Roadmap chapters for city staff review				

Each participating jurisdiction receives a customized Energy Roadmap that offers a comprehensive framework for saving energy at city government facilities and in the community. Each Energy Roadmap is consistent with the SANDAG 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.

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, San Marcos can reduce its energy-related operating costs and use the savings for other government services. This chapter highlights:

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

Energy Assessments

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.

San Marcos could save over \$160,000 each year from energy-efficiency upgrades and rate changes identified at municipal sites.

Energy Report Cards were prepared for sixteen municipal sites (listed below) in late 2010. 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.

- | | |
|--------------------------------------|-------------------------------|
| ▪ City Hall | ▪ San Elijo Recreation Center |
| ▪ Community Center | ▪ Bradley Park |
| ▪ Civic Center Parking Structure | ▪ Las Posas Park Pool |
| ▪ San Marcos Senior Center | ▪ Walnut Grove Park |
| ▪ Public Works Yard | ▪ Woodland Park |
| ▪ F.H. Corky Smith Gym | ▪ Fire Stations 1-4 |
| ▪ Jack’s Pond Park and Nature Center | |

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).

San Marcos could save almost \$123,000 each year on its utility bills by switching utility rates for its local parks.

The preliminary energy assessments indicate that most San Marcos municipal sites are performing more efficiently than comparable buildings in California and the nation. Either in response to a specific issue discovered through the site assessment process, or as instructed by city staff, twelve sites were identified in a priority site list and targeted for additional evaluation in the form of a comprehensive energy audit. The site list is included as **Appendix B**.

- City Hall
- Civic Center Parking Structure
- Community Center
- Fire Stations 1 and 2
- Las Posas Park Pool
- F.H. Corky Smith Gym
- Public Works Yard
- San Elijo Recreation Center
- San Marcos Senior Center
- Walnut Grove Park
- Woodland Park

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 utility rate analyses and energy audit findings 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

San Marcos 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 8. In addition, the city has the potential to save up to \$123,000 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.

Regarding energy-saving retrofit projects, San Marcos could undertake upgrades at most of its audited municipal sites through 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).

Not all municipal projects qualify at this time; therefore, SANDAG has been engaging SDG&E to allow more, if not all, future municipal projects to participate in its on-bill financing program.¹ 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 9.

Lowering City Utility Bills at Community Parks

A simple analysis was conducted to estimate potential savings the City of San Marcos 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 \$122,560 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.² The rate analyses are provided as **Appendix D**.

- Bradley Park
- Hollandia Park
- San Elijo Park
- Cerro de Las Posas Park
- Mission Sports Park
- Sunset Park

¹ To qualify for SDG&E's on-bill financing program, retrofit projects at each site must have an estimated cost of at least \$5,000 and no more than \$250,000, to be repaid within ten years.

² 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	Greenhouse Gases (MTCO ₂ e)
City Hall	Indoor lighting	68,021	6.19	\$7,137	22.4
	Controls/sensors	3,998	0.00	\$414	1.3
	Subtotal	72,019	6.19	\$7,551	23.8
Civic Center Parking Structure	Lighting	56,712	12.94	\$8,558	18.7
	Subtotal	56,712	12.94	\$8,558	18.7
Community Center	Lighting	5,401	1.18	\$559	1.8
	Subtotal	5,401	1.18	\$559	1.8
Fire Station 1	Lighting	8,786	1.47	\$910	2.9
	Backup generator	1,629	0.10	\$204	0.5
	Subtotal	10,415	1.57	\$1,114	3.4
Fire Station 2	Lighting	3,500	0.94	\$362	1.2
	Backup generator	2,386	0.30	\$318	0.8
	Subtotal	5,886	1.24	\$680	1.9
Las Posas Park Pool	Lighting	5,725	1.31	\$592	1.9
	Pool lighting	1,248	2.08	\$129	0.4
	HVAC motors	32,264	2.05	\$3,340	10.6
	Subtotal	39,237	5.44	\$4,061	12.9
F.H. Corky Smith Gym	Lighting	14,080	10.81	\$3,573	4.6
	Subtotal	14,080	10.81	\$3,573	4.6
Public Works Yard	Lighting	26,985	6.16	\$2,794	8.9
	HVAC replacement	10,011	7.36	\$1,036	3.3
	Backup generator	13,957	2.30	\$2,005	4.6
	Subtotal	50,953	15.82	\$5,835	16.8
San Elijo Recreation Center	Lighting	13,034	5.60	\$1,348	4.3
	Subtotal	13,034	5.60	\$1,348	4.3
San Marcos Senior Center	Lighting	2,102	0.46	\$218	0.7
	Subtotal	2,102	0.46	\$218	0.7
Walnut Grove Park	Lighting	32,327	7.80	\$3,347	10.7
	Subtotal	32,327	7.80	\$3,347	10.7
Woodland Park	Lighting	10,439	2.81	\$1,286	3.4
	Pool lighting	1,560	2.60	\$162	0.5
	Pool controls	9,782	0.00	\$1,013	3.2
	Subtotal	21,781	5.41	\$2,461	7.2
Other Municipal Sites	Backup generators	11,349	1.70	\$1,587	3.7
	Subtotal	11,349	1.70	\$1,587	3.7
TOTALS		335,296	76.16	\$40,892	110.6

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.

Energy Conservation Measure Economics					
Location	Measure	Gross Project Cost	Total SDG&E Incentives	Net Project Cost	Simple Payback (years)
City Hall	Indoor lighting	\$14,734	\$3,956	\$10,778	1.5
	Controls/sensors	\$1,678	\$310	\$678	1.6
	Subtotal	\$16,412	\$4,266	\$11,456	1.5
Civic Center Parking Structure	Lighting	\$23,584	\$3,997	\$19,587	2.3
	Subtotal	\$23,584	\$3,997	\$19,587	2.3
Community Center	Lighting	\$3,600	\$474	\$3,126	5.6
	Subtotal	\$3,600	\$474	\$3,126	5.6
Fire Station 1	Lighting	\$6,420	\$626	\$5,794	6.4
	Backup generator	\$2,000	\$259	\$1,741	8.5
	Subtotal	\$8,420	\$885	\$7,535	6.8
Fire Station 2	Lighting	\$2,710	\$305	\$2,405	6.6
	Backup generator	\$2,000	\$387	\$1,213	3.8
	Subtotal	\$4,710	\$692	\$3,618	5.3
Las Posas Park Pool	Lighting	\$10,590	\$438	\$10,152	17.1
	Pool lighting	\$1,600	\$270	\$1,330	10.3
	HVAC motors	\$4,100	\$2,050	\$2,050	0.6
	Subtotal	\$16,290	\$2,758	\$13,532	3.3
F.H. Corky Smith Gym	Lighting	\$19,960	\$1,807	\$18,153	5.1
	Subtotal	\$19,960	\$1,807	\$18,153	5.1
Public Works Yard	Lighting	\$25,250	\$1,965	\$23,285	8.3
	HVAC replacement	\$8,250	\$1,000	\$7,250	7.0
	Backup generator	\$10,000	\$2,326	\$7,674	3.8
	Subtotal	\$43,500	\$5,291	\$38,209	6.5
San Elijo Recreation Center	Lighting	\$7,910	\$1,324	\$6,586	4.9
	Subtotal	\$7,910	\$1,324	\$6,586	4.9
San Marcos Senior Center	Lighting	\$2,450	\$151	\$2,299	10.5
	Subtotal	\$2,450	\$151	\$2,299	10.5
Walnut Grove Park	Lighting	\$17,395	\$2,520	\$14,876	4.4
	Subtotal	\$17,395	\$2,520	\$14,876	4.4
Woodland Park	Lighting	\$8,185	\$934	\$6,302	4.9
	Pool lighting	\$2,000	\$338	\$1,662	10.3
	Pool controls	\$200	\$100	\$100	0.1
	Subtotal	\$10,385	\$1,372	\$8,064	3.3
Other Municipal Sites	Backup generators	\$9,000	\$1,874	\$7,126	4.5
	Subtotal	\$9,000	\$1,874	\$7,126	4.5
	TOTALS	\$183,616	\$27,411	\$154,167	3.8

Note.

Gross and net installation and equipment costs are estimated and do not replace product specifications and contractor bids.

Implementation Strategy for 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.
4. Seek approval from SDG&E to use its On-Bill Financing Program (zero-percent interest loans) to cover upfront costs for energy upgrades.
5. Undertake internal city processes to implement energy upgrade projects.
6. Monitor site performance to ensure energy and cost savings are achieved.

The Energy Roadmap team can assist San Marcos with these implementation steps over the duration of the Roadmap Program (until December 2012).

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 is also 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 incentives³ 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/.

³ 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,⁴ 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@semptrautilities.com or visit www.sdge.com/obf.

Low-Interest Loans from the California Energy Commission

The Energy-Efficiency Financing Program provides financing for local governments, schools, and hospitals through low-interest loans for feasibility studies and installation of energy-saving measures. As of October 2010, 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 San Marcos 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 San Marcos through the Energy Roadmap Program. Contact your Energy Roadmap coordinator for further assistance.

⁴ The On-Bill Financing (OBF) program is funded by California utility customers and administered by SDG&E under the auspices of the California Public Utilities Commission. The OBF program may be modified or terminated without prior notice and is provided to qualified customers on a first-come, first-served basis until program funds are no longer available. Eligibility requirements apply.

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Demonstrate Emerging Energy Technologies

In addition to energy assessments and improving efficiency in city government buildings and facilities, San Marcos 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 San Marcos want to host a demonstration, your Energy Roadmap coordinator can arrange for a meeting with SDG&E Emerging Technologies Program staff. SDG&E will provide all of the relevant information, including how to participate, eligible technologies, and any costs to the city or participating business or resident.

California's Vision on Research & Technology

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

California Long-Term Energy Efficiency Strategic Plan

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

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

SDG&E Emerging Technologies Program: Technologies Eligible for Demonstration

City Government or Commercial Sites

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

Residential Sites

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

Green the City Vehicle Fleet

The City of San Marcos maintains a fleet of approximately 150 vehicles that range from sedans and pick-up trucks to fire engines and other heavy-duty trucks. The city can achieve transportation-related energy savings through actions that promote fuel conservation, efficiency, and an increased use of clean, alternative fuels in its vehicle fleet.

Special attention is given to the Electric Vehicle Project at the end of this section. It is the largest deployment of electric vehicles (EV) and EV charging infrastructure in U.S. history and approximately \$40 million worth of equipment and services have been dedicated to the San Diego region. The city may want to consider participating in the EV Project as there are still opportunities to become an EV Project participant or host publicly accessible EV charging infrastructure as of this writing.

Fuel Conservation and Efficiency

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.

Driving Suggestions 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.

Alternative Fuels for Fleet Applications

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

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

The following tables summarize potential fleet applications, nearby refueling infrastructure, and estimated infrastructure costs. Vehicle rebates and infrastructure grants are discussed after. **Appendix E** provides a description of alternative fuels, potential fleet applications, and the locations of available refueling infrastructure.

Summary of Potential Alternative Fuel Fleet Applications

Fleet Application ¹	Biodiesel ²	Electricity	Ethanol (E85)	Hydrogen	Natural Gas	Propane
Passenger Vehicle	--	PHEV, BEV	FFV	FCV	CNG	LPG
Vanpool-Shuttle	B20	n/a	FFV	--	CNG	--
Refuse Hauler	B20	HEV	--	--	CNG, LNG	--
Sweeper	B20	n/a	--	--	CNG, LNG	--
Other Medium/Heavy-Duty	B20	HEV	--	--	CNG, LNG	--
Forklift	--	BEV	--	--	CNG	LPG
Low-speed Vehicle ³	--	NEV	--	--	CNG	LPG

Notes.

1. Check with original equipment manufacturer (OEM) regarding vehicle warranty and alternative fuels.
2. Diesel blends that are five to twenty percent biodiesel and 95 to 80 percent petroleum diesel, respectively.
3. Examples include a traffic checker and neighborhood electric vehicle.

B20 = twenty percent biodiesel blend

BEV = battery electric vehicle

E85 = 85 percent ethanol, 15 percent gasoline

FFV = flex fuel vehicle

LPG = liquefied petroleum gas

PHEV = plug-in hybrid electric vehicle

HEV = hybrid electric vehicle

FCV = fuel cell vehicle

CNG = compressed natural gas

LNG = liquefied natural gas

Summary of Alternative Fuel Infrastructure Availability and Costs

Fuel	Existing Fueling/Charging Sites within Ten Miles of San Marcos' Public Works Yard ¹	Cost of Additional Fueling/Charging Infrastructure	Availability of Production-Distribution Infrastructure
Electricity	The EV Project is deploying up to 1,450 level 2 electric vehicle chargers across San Diego County before 12/31/11. As of August 2011, EVSE are located at two car dealerships and the San Diego Wild Animal Park.	Publicly Available, Level 2: \$2,500-\$5,000. As part of EV Project, city could install, at little or no cost, publicly accessible EVSE at municipal sites through 12/31/11.	Existing electricity grid and distributed energy sources.
Biodiesel	No publicly-accessible fueling sites in or near city. Four cities plan to or already use blends of B5 or B20 to offset diesel fuel consumption: Oceanside, San Diego, Escondido, and Chula Vista.	Information not available on new infrastructure. Biodiesel can be brought to a city and blended onsite within existing diesel storage tanks.	Storage and blending terminals, port off-loading sites needed. Local producer is New Leaf Biofuel.
CNG	Four private access stations, one at the San Marcos Unified School District site, on shared property with the Public Works Yard. Three sites near surrounding San Marcos.	Small station: \$350,000 Medium station: \$500,000 Large station: \$950,000 Add public fast-fill dispenser: \$125,000	Existing natural gas pipeline network
Propane	Two public access sites, one in San Marcos, one in Escondido.	\$65,000	Existing
E85	One public access station located near the city	\$100,000 to \$250,000	Storage and distribution facilities needed in order to scale-up consumption
LNG	No fueling sites in or near the city	Large station: \$1,200,000 Combined LCNG and LNG station: \$1,600,000	Existing, but West Coast off-shore LNG terminals needed
Hydrogen	No fueling sites in or near the city	\$500,000 to \$5,000,000	Significant investment required

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

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

California Goals for Transportation Fuels

California has adopted several transportation fuel laws and goals, and the California Energy Commission has been the responsible agency for the targets shown in the *California Goals and Transportation Fuels* table. In order to meet these goals the state allocates grants funds 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

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 greenhouse gas 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.

Data provided by Cool Fleets include:

- *Total of all costs* - Sum of total fuel cost, total maintenance cost, total actual depreciation, and total interest cost.
- *Invoice amount* - Includes standard equipment with typical fleet options.
- *Manufacturer incentive* - Programs offered by each manufacturer. Additional incentives can be modified based on purchasing needs.
- *Monthly cost* - Total of all costs divided by months in service.
- *Total fuel cost* - Based on user input for cost per gallon, mileage, and months in service.
- *Effective depreciation rate* - The rate of depreciation for the portion of the vehicle's value that is consumed in use.
- *Total depreciation* - Total actual depreciation is the amount of the vehicle's value that is consumed in use.

- *Total maintenance* - Maintenance expenditures are based on Donlen's recommended service intervals at average national account prices. Includes tires at appropriate intervals.
- *Guide book average* - Based on the average of estimates from the Automotive Lease Guide and the Black Book Commercial Vehicle Value Guide (the industry standard for the field of Fleet/Remarketing).
- *Total interest cost* - Assumes a six-percent annual fixed lending rate and a two-percent depreciation rate.

The fleet manager can print vehicle comparison sheets from Cool Fleets that include the information bulleted above and use it to help in their new vehicle selection process. 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 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 Energy Commission 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).

The Energy Commission has allocated funding for light-, medium-, and heavy-duty vehicles that use natural gas (\$13 million), as well as light- and medium-duty vehicles that use propane (\$3 million). Expanding alternative fuel infrastructure is another funding priority with allocations for electric chargers, CNG station upgrades/expansions, and additional E85 dispensers.

The California Center for Sustainable Energy (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. As of August 2011, the fiscal year (FY) 2010-2011 funding has been expended. CCSE expects FY 2011-2012 funding to become available before the end of 2011. In the interim, applications for eligible CVRP vehicles are being placed on a waiting list.

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 August 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	\$ 10,000
	Zero emission	\$ 15,000
10,001 – 19,500 lbs.		\$ 15,000 ³
19,501 – 33,000 lbs.		\$ 20,000
33,001 – 38,000 lbs.		\$ 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). Beginning in December 2010, two major automobile manufacturers began selling EV sedans, the *Nissan LEAF* and *Chevrolet VOLT*, in San Diego County.

The national project targets 16 major population areas in the U.S. as first markets for EVs. As such, the project includes deployment of nearly 15,000 EV chargers to create robust charging networks for EV drivers to utilize. Half of the EV Project funding (over \$100 million) comes from a competitive ARRA grant awarded to Ecotality North America, an EV charger manufacturer. Nissan North America, General Motors/Chevrolet, and the U.S.

Department of Energy are national project partners. SANDAG and SDG&E are local project partners providing in-kind assistance.

In 2009, Ecotality organized a San Diego Electric Vehicle Advisory Committee that provides input to the EV Project. The EV Advisory Committee includes representation

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

from local governments, the California Center for Sustainable Energy, 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 December 31, 2011. 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. All vehicles will be compatible with the standardized EV chargers installed through the EV Project.

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 includes the 15,000 vehicles in U.S. markets and will provide needed information on where future EV chargers should be sited across the country. In return for study participation, the EV purchaser receives 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 or Andy Hoskinson, San Diego Stakeholder Services Area Manager for the EV Project and Ecotality North America at (619) 559-2118 or ahoskinson@etecevs.com.

4

Develop Employee Knowledge of Energy Efficiency

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

Overview

This chapter identifies free educational seminars available to city employees at the San Diego Energy Resource Center (SDERC), located at the California Center for Sustainable Energy (CCSE) in Kearny Mesa in the City of San Diego. The SDERC is a program jointly provided by CCSE and SDG&E. In addition, local colleges and universities host educational programs. Also identified herein are professional certifications on energy-related issues. SDG&E or the Energy Roadmap Program can help facilitate city staff participation in certification programs and may be able to assist with enrollment costs.

Getting Started

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

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

SDG&E and Center for Sustainable Energy (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 as well as energy-related training and certification programs that could benefit city employees.

Free Educational Seminars at the San Diego Energy Resource Center		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 San Marcos 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 San Marcos include: carpools, vanpools, the Sprinter, bus, biking and teleworking.

Based on the initial needs assessment, the city can make informed decisions as to how it may like to promote alternative transportation options to its employees. 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 San Marcos can take part, many of which are for little or no cost to the city.

How Commuter Programs Work

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.

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

Commuter Program Recommendations for San Marcos

The iCommute team met with City of San Marcos staff to learn more about the city's existing commuter program and discuss potential ways to enhance the city's commuter policies and offerings through the iCommute program. City staff expressed interest in reducing traffic congestion - especially during construction on State Route (SR) 78. Based on meetings with the city, and an assessment of local transportation options available in and around San Marcos, 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 on SR 78 from employee commutes focus on:

- Transit benefits,
- Rideshare options, and
- Teleworking and flex schedules.

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 San Marcos):** 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 San Marcos):** Employers 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 San Marcos 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 San Marcos but requires a staff member to administer):** iCommute is launching a Carpool Incentive Pilot Project in November 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 will be invited to apply to take part.
- 2) **Regional Vanpool Program (No cost to City of San Marcos):** 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 San Marcos):** 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

Teleworking and Flex Schedules

The City of San Marcos currently offers flex schedules to employees on a case-by-case basis. A telework policy and program could supplement the flex schedule program. 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**.

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

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.

Additionally the iCommute on-line system offers employers and employees free and convenient tools that make 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 G**.

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.

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

San Marcos 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 Antoinette Meier, SANDAG iCommute, (619) 699-7381, amei@sandag.org.

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Leverage Planning and Development Authority

Local governments have the opportunity to promote energy-efficiency in their communities by leveraging their authority over local planning and development activity. This chapter identifies the following ways in which the City of San Marcos could use its role in planning and development to promote energy savings from electricity, natural gas, and transportation fuel.

1. **Integrate energy-saving measures into planning and development**
2. **Include transportation demand management in development review**
3. **Enable building energy retrofit projects**



First, it is important to note that the city already uses its role in planning and development to promote energy savings, such as incorporating sustainability into its ongoing General Plan update, completing a greenhouse gas (GHG) inventory, and implementing a transportation demand management (TDM) policy for city businesses.

The City conducted a *Community Opinion Survey* at the onset of its General Plan update to receive input on a variety of topics and concerns, including Greening San Marcos. When presented with a series of environmental initiatives that could be considered by the City, respondents' support was highest for:

- Requiring that all new developments follow environmentally-friendly building practices (90 percent strongly or somewhat support), followed closely by
- Improving opportunities for bus and Sprinter travel, shuttle service, walking, bicycling and carpooling (90 percent),
- Acquiring and preserving additional natural open space (90 percent),
- Constructing new city parks (90 percent), and
- Providing incentives for home owners to install solar energy (89 percent).¹

¹ *Community Opinion Survey Draft Report*, Just the Facts chapter, page 5. Prepared for City of San Marcos by True North Research, December 3, 2009. Direct link: <http://ourcityyourfuture.com/documents/Community%20Survey%20Report.pdf>.

1. Integrate Energy-Saving Measures into Planning and Development

As the city undertakes future planning activities and evaluates goals and policies related to energy efficiency and conservation, it is recommended that the menu of sample policy measures provided in **Appendix H** be referenced as additional opportunities to increase energy efficiency in the community. Opportunities include regulation of private development projects, amendments to local ordinances and the general plan, preparation of specific plans, and development of measures to mitigate significant environmental impacts under the California Environmental Quality Act (CEQA).

The sample measures reflect the goals of State agencies like the California Public Utilities Commission, California Energy Commission, and Office of the Attorney General, and are organized into the following categories:

- Energy-efficient buildings
- Renewable energy and distributed generation
- Smart growth and livable communities
- Clean transportation options
- Energy-efficient use of water



As part of its smart growth efforts, San Marcos has supported pedestrian - and bicycle-friendly design, including the installation of in-pavement flashing lights at a crosswalk leading to Knob Hill Elementary School. Energy savings and environmental benefits are generated as a result of fewer automobile trips and reduced vehicle miles traveled (VMT). In this case, pedestrian safety improvements provide parents with additional choices for getting children to and from school. The SANDAG *TransNet* program funded this project as part of a Walkable Communities Demonstration Program in 2001.

2. Include Transportation Demand Management in Development Review

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. Sample mandatory and voluntary ordinances for including TDM measures in new development projects are provided in **Appendix I**. The SANDAG iCommute

program offers free assistance to San Diego regional businesses and agencies in establishing and implementing customized transportation demand management policies and programs that reduce traffic congestion, fuel use, air pollution, and greenhouse gas emissions.

Additional measures to reduce demand include teleworking, carpooling and vanpooling, alternative work schedules, certain vehicle pricing measures as well as parking pricing, and parking management and reform. Parking management and parking pricing strategies are options to reduce the amount of driving and are primarily implemented at the local government level.

Parking strategies can be effective in, and complement, smart growth areas with compact land use patterns and alternative travel options. They should be evaluated on a case-by-case basis to reflect the unique nature and local characteristics of the many communities and types of development projects throughout the region.

3. Enable Building Energy Retrofit Projects

Existing buildings represent a significant energy-savings opportunity. Building energy retrofit programs facilitate energy-efficiency projects in existing buildings, which in addition to saving energy can help property-owners lower utility bills, improve comfort and indoor air quality, and support climate action planning by lowering community-wide greenhouse gas emissions. Participation in the planning of building energy retrofit programs would help the city take advantage of services and resources as they become available. Examples of services and resources include energy assessments for property-owners, financing for the up-front costs of energy-efficiency and renewable energy projects, and training for local contractors to perform installations and maintenance.



Three types of inter-related programs to promote building energy retrofits are:

1. Energy Upgrade California, which includes energy incentives available from federal, state, utility, and local government sources.
2. Financing mechanisms to address upfront costs of energy retrofits such as energy-efficiency loans, liens, or mortgages.
3. Workforce development programs that train local contractors to perform energy assessments, product installations, maintenance, and other duties. (*Discussed in Chapter 8.*)

With the influx of federal stimulus funds that began in 2009, existing federal, state, and local energy-efficiency programs have been expanded and are being coordinated in an effort to bring down the costs of home energy assessments, capital purchases, installations, and inspections. California has compiled all available programs under one program named Energy Upgrade California (www.energyupgradecalifornia.org). Energy Upgrade California coordinates federal, state, utility, and local government retrofit program outreach, incentives, contractor training, and participant qualifications.

Appendix J describes energy retrofit program resources and financing mechanisms.

Market Energy Programs to Local Residents, Schools, and Businesses

This chapter provides San Marcos with internet links to existing energy-efficiency and fuel-saving resources that the city could include on its municipal Web site, newsletters, and E-Alerts. This would enable San Marcos 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 City of San Marcos 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, 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 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 - San Diego Energy Resource Center (SDERC) Online Workshop Calendar	The Center for Sustainable Energy (CCSE) and SDG&E conduct hundreds of expert-facilitated seminars on a broad spectrum of energy topics at the SDERC. The online calendar lists workshops from both organizations. 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.

SANDAG iCommute Programs for the Community

In addition to supporting city-employee commuter programs like those identified in Chapter 5, San Marcos 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 as **Appendix K**.
 - 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.

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. San Marcos could:

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

- Encourage the School District and/or individual schools to enroll in SchoolPool, a secure online ridematching service administered by SANDAG for parents with children in kindergarten through 12th grade. SchoolPool can be a transportation solution for parents who live in districts where school bus services have been cut.
 - SchoolPool enables parents of children who attend the same school and live in the same neighborhood to share responsibilities of getting their children to and from school.

- o 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.
- o 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/
California Energy Commission's Emerging Renewables	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/
The 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 small businesses. *PACE programs are currently on hold nationwide. CCSE provides current status of PACE and regional activities. http://energycenter.org/index.php/incentive-programs/pace-property-assesed-clean-energy

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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Support Green Jobs and Workforce Training

San Marcos can increase local awareness of workshops, training, and employment resources available to its constituents. The city can make this information more widely available in several ways, such as including it on the city Web site or providing handouts at locations such as libraries and the Civic Center.

Most of the local resources identified in this section are available long term. However, some workforce training was funded through the American Recovery and Reinvestment Act (ARRA) and may be discontinued after December 2012 if funding is not replaced.

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

The concept of green jobs is relatively new and includes a wide variety of professions. To help explain the concept and identify examples, the table below identifies sample green job fields and sample green jobs.

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 brings together green job seekers and green employers. Hosted by the California Center for Sustainable Energy (CCSE), this online portal provides job listings, trainings, and research for green jobs in renewable energy, energy

efficiency, green building, transportation, sustainability, and environmental studies. More information is available at www.greencareernetwork.org.

Resources for job seekers on the Green Career Network include:

- Job postings and a list of green employers,
- A step-by-step guide to finding a green job,
- Available workforce training and education opportunities,
- Studies and reports on the green economy, industries, and market analyses, and
- Networking through free educational programs and events.

Resources for employers on the Green Career Network include:

- An online job board to post job announcements and review resumes,
- 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, and
- Information on how to get help from entities like the Small Business Administration and the Small Business Development Center that provide free business counseling, workshops, and training to help businesses.



Advanced Transportation Technology & Energy Center, San Diego Miramar College

Advanced Transportation Technology & Energy (ATTE) Centers were created to help California compete 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. The ATTE Center at San Diego Miramar College 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 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 (GCCCCD) 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 the City of San Marcos. Certificates of achievement are awarded upon program completion. GCCCCD plans to continue the green building training collaborative after ARRA funds are expended. Cuyamaca College offers green workforce training certificates and degrees in water/wastewater technology, environmental health and safety, sustainable landscaping, and renewable energy. For more information, visit www.cuyamaca.edu/preview/cleanenergy/.

The San Diego Workforce Partnership

The San Diego Workforce Partnership 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). More information can be found at www.sandiegoatwork.com.

The nearest One-Stop Career Center to San Marcos 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 (SDERC) *Jointly provided by the California Center for Sustainable Energy and San Diego Gas & Electric*

The SDERC, located at CCSE at 8690 Balboa Avenue in San Diego, 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. Please refer to Chapter 7 for further SDERC details or visit www.energycenter.org.

Statewide Resources for Training and Education



Grid Alternatives

Grid Alternatives offers volunteer opportunities to gain hands-on solar experience and network with others interested in renewable energy, the environment, and our communities. More information is available at www.gridalternatives.org.



Solar Training Institute

The Solar Training Institute provides accelerated training classes for contractors, electricians, engineers, solar energy entrepreneurs, sales people, or others considering a career change to the growing solar industry. More information is available at www.trainingforsolar.com.



**ECONOMIC &
WORKFORCE
DEVELOPMENT**
through the
CALIFORNIA
COMMUNITY
COLLEGES

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 is the state program from which the local Advanced Transportation Technology and Energy Center, San Diego Workforce Partnership, and One-Stop Career Centers stem. More information is available at www.cccewd.net.

Looking Forward

This Energy Roadmap provides San Marcos 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 SANDAG Energy Roadmap Program is primarily funded through a local government partnership with SDG&E. The utility manages several local government energy-efficiency partnerships in the region for jurisdictions, public agencies, and the California Center for Sustainable Energy. The duration is typically three years, and they are approved by the California Public Utilities Commission (CPUC).

Prior to the start of new program cycles, SDG&E announces a request for abstracts for future local government partnership programs. The next program cycle, which will be determined by the CPUC, will likely begin in January 2014. Using its Energy Roadmap as a guide, San Marcos 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.

U.S. DEPARTMENT OF **ENERGY** 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 Antoinette Meier at (619) 699-7381, amei@sandag.org or visit www.icommutesd.com.



Statewide Energy Efficiency Best Practices Coordinator

Patrick Stoner serves as the Statewide Local Government Energy Efficiency Best Practices coordinator. The position is part of the California Public Utilities Commission's 2010 through 2012 statewide energy-efficiency programs. Like SANDAG is available to you locally, Mr. Stoner is a statewide resource. The statewide coordinator develops and distributes best practices case studies, provides information and examples of energy-efficiency policies and programs, provides materials that may help local governments implement climate action plans, and serves as a resource to help local government energy programs achieve success. Mr. Stoner is housed at the Local Government Commission (LGC) and has been part of the LGC since 1993. He can be reached at (916) 448-1198, extension 309 or e-mail pstoner@lgc.org.

Statewide Energy Efficiency Collaborative

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

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

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www.sandag.org/energy



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

