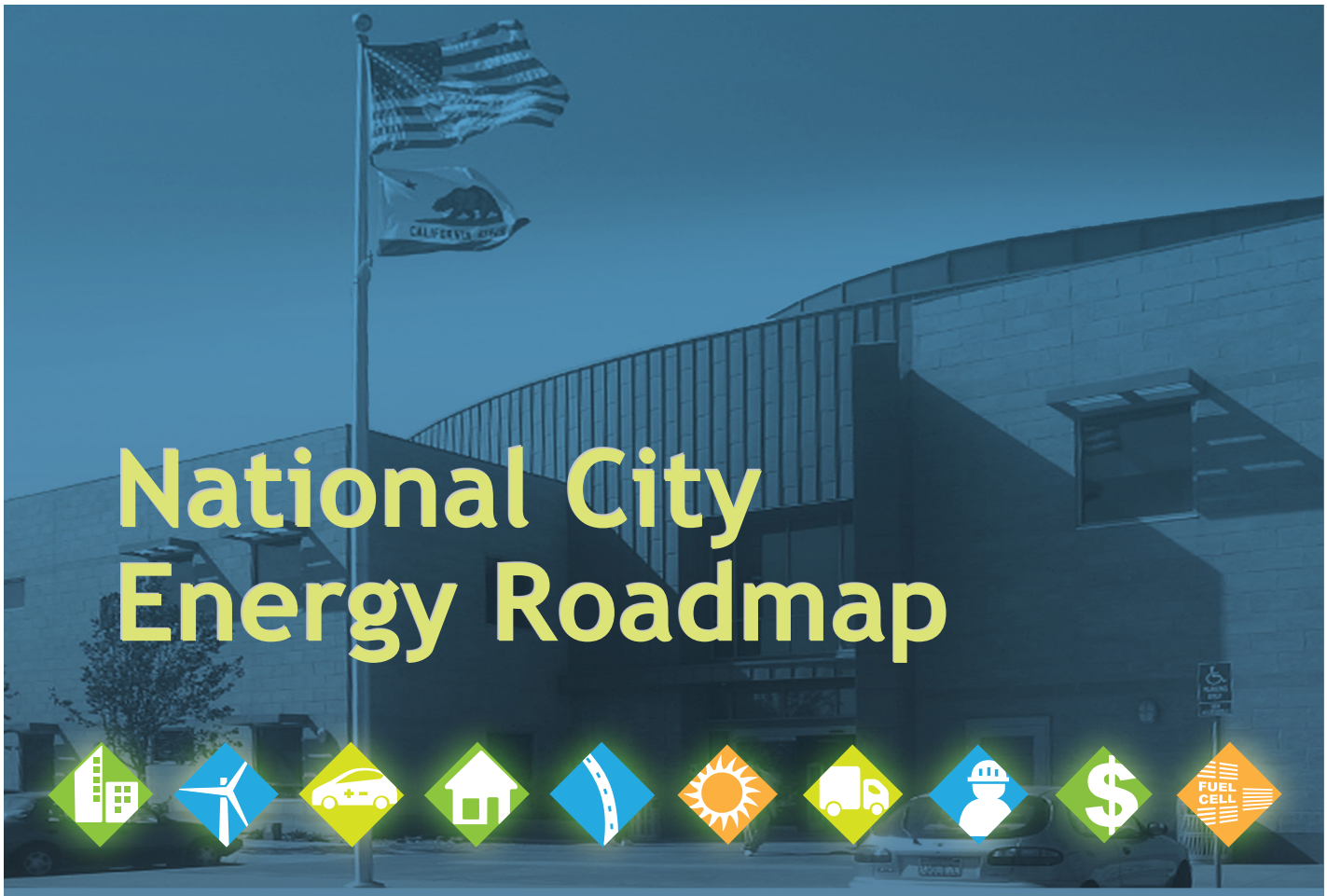

National City Energy Roadmap

Prepared through the SANDAG Energy Roadmap Program

December 2012

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

SANDAG

SDGE
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Energy Roadmap for the City of National City

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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 National City to identify ways to save energy in government operations and in the community, resulting in municipal cost savings and benefits to the environment. These wide-ranging, cost-effective opportunities to save electricity, natural gas, and transportation fuel include:

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

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

California's Vision for Local Governments

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

California Long-Term Energy Efficiency Strategic Plan

The Energy Roadmap also recognizes steps the City has taken to become more sustainable. National City adopted a Climate Action Plan (CAP) in May, 2011, outlining the City's strategy for reducing GHG emissions by 15% compared with its 2005/2006 baseline. The plan contains numerous measures related to energy efficiency and conservation. In all, National City plans to achieve annual emissions reductions of 68,159 MTCO2e by 2020 from energy reduction and alternative energy measures, representing approximately 50 percent of total emissions reductions in 2020. The Energy Roadmap serves as a resource to help National City achieve these goals.

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

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

Section I. Saving Energy in City Government Operations

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

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

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

Section II. Saving Energy in the Community

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

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

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

6. **Leverage Planning and Development Authority**
   a. Smart growth development policies
   b. Energy-efficient building upgrades
   c. Clean and efficient transportation options
7. **Market Energy Programs to Residents, Schools, and Local 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 a sustainability strategy or climate action plan
- Integrating sustainability, energy efficiency, or GHG reduction measures into a general plan, specific plan, or zoning ordinance
- Using government operations to demonstrate the feasibility of energy-efficient and sustainable practices to local residents and businesses
- Managing the city vehicle fleet
- 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

Handouts on green jobs and training opportunities can be located at the Civic Center and the 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.

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

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

1

Save Energy in City Buildings and Facilities

Energy is a major operating cost for local governments. National City has taken many steps to reduce energy usage in its facilities using Energy Efficiency and Conservation Block Grant (EECBG) funding to install lighting upgrades at City Hall. By further evaluating energy usage in municipal buildings and facilities ("sites") and identifying additional energy-saving opportunities, National City can further reduce its energy-related operating costs and use the savings for other government services. This chapter directly assists National City implement Measure B1.a.1 of its CAP, "Continue to audit city buildings and facilities to quantify energy use and identify opportunities for energy savings through efficiency and conservation measures." National City plans to reduce its annual municipal GHG emissions by 1,187 metric tons CO_2e by 2020 through energy reductions in its facilities. To help the City achieve these goals, this chapter includes:

National City could save nearly $30,000 each year from energy efficiency upgrades identified at municipal sites.

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

Energy Assessments

Beginning in February 2012, two types of energy assessment services were provided at no cost to the City: 1) Preliminary energy assessments, called "Energy Report Cards," of sites determined by municipal staff, and 2) More in-depth energy audits, called "Phase 2 Audits" for a subset of government buildings based on their Report Cards and direction from city staff.

Energy Report Cards were prepared for eleven municipal sites (listed below) early in 2012. Each Energy Report Card is included in **Appendix A**. These preliminary assessments established each site's baseline energy use and benchmarked it against similar building types in the country.

- Civic Center
- Martin Luther King, Jr. Community Center
- Public Library
- Police Station
- Fire Station 32
- Fire Station 34
- Kimball Senior Center
- Kimball Recreation Center

- El Toyon Recreation Center
- Camacho Gym and Recreation Center
- Casa de Salud

Benchmarking is a useful tool to judge a site's energy performance compared to 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 (CO_2e).

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

- Kimball Senior Center
- Kimball Recreation Center
- Casa de Salud
- Fire Station 32
- Fire Station 34
- Camacho Gym and Recreation Center
- Public Library
- El Toyon Recreation Center: Outdoor Lighting

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 here and included as **Appendix C**.

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

National City has the potential to realize nearly $30,000 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.

Energy conservation measures can be funded through zero-percent interest loans in the On-Bill Financing Program from SDG&E.

Regarding energy-saving retrofit projects, National City could undertake upgrades at 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).

Once each loan is paid off (using zero-percent interest 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 10.

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

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

Potential Savings by Energy Conservation Measure

Location	Measure	*Annual Savings for City*			
		Electricity (kWh)	Demand (kW)	Bill Savings	Greenhouse Gases ($MTCO_2e$)
Kimball Park Stadium	Replace HID Pole Lights	11,826	2.7	$1,874	3.9
Kimball Rec Center	Replace HID Wallpacks	3,373	0.8	$534	1.11
	Install Vending Misers	2,305	0	$239	0.76
	Subtotal	5,678	0.8	$773	1.87
Kimball Senior Center	Replace T12 Lamps	900	0.7	$266	0.3
	Install Vending Misers	2,478	0.0	$257	0.82
	Replace 32W T8 Lamps w/ 28W T8	221	0.25	$84	0.07
	Subtotal	3,599	0.95	$607	1.19
Casa de Salud	Install Efficient A/C	1,599	0.0	$166	0.53
Camacho Gym and Rec Center	Replace HID Wallpacks	2,313	0.5	$366	0.76
	Install Vending Misers	2,858	0.0	$296	0.94
	Spring Wound Timer –Tennis Court	2,866	0.0	$297	0.95
	Replace Submersed Pool Lights	4,644	7.7	$481	1.53
	Subtotal	12,681	8.2	$1,440	4.18
Fire Station 32	Replace Outdoor HID Lights	657	0.2	$68	0.22
Public Library	T8 to T8 Replacement	4,689	2.1	$999	1.55
	Replace MH Uplights	5,408	5.4	$560	1.78
	Replace HID Parking Lot Lights	5,011	1.1	$519	1.65
	Subtotal	15,108	8.7	$2,078	4.98
Fire Station 34	T8 to T8 Replacement	967	1.0	$333	0.32
	Replace Generator Block Heater	4,211	0.6	$697	1.39
	Replace Garage Hibay Fixtures	6,217	2.1	$1,136	2.05
	Replace Outdoor HID Lights	11,217	2.6	$1,161	3.70
	Subtotal	22,612	6.3	$3,327	7.46
Other Sites	Generator Heater	4,211	0.6	$697	1.39
Camacho Pool	Pool Covers	29,838 therms		$18,989	158.74
	TOTALS	**77,971**	**28.3**	**$30,019**	**184.46**

Notes:

1. kWh = kilowatt hours, $MTCO_2e$ = metric tons of carbon dioxide equivalent.
2. Energy assessments included HVAC systems, indoor and outdoor lighting, and building controls.

Energy Conservation Measure Economics

Location	Measure	Gross Project Cost	Total SDG&E Incentives	Net Project Cost	Simple Payback (years)
Kimball Park Stadium	Replace HID Pole Lights	$11,700	$1,800	$9,900	5.3
Kimball Rec Center	Replace HID Wallpacks	$2,800	$700	$2,100	3.9
	Install Vending Misers	$179	$100	$79	0.3
	Subtotal	$2,979	$800	$2,179	2.8
Kimball Senior Center	Replace T12 Lamps	$1,400	$440	$960	3.6
	Install Vending Misers	$179	$100	$79	0.3
	Replace 32W T8 Lamps w/ 28W T8	$490	$70	$420	5.0
	Subtotal	$2,069	$610	$1,459	2.4
Casa de Salud	Install Efficient A/C	$2,000	$1,400	$600	3.6
Camacho Gym and Rec Center	Replace HID Wallpacks	$3,900	$540	$3,360	9.2
	Install Vending Misers	$339	$200	$139	0.5
	Spring Wound Timer on Tennis Court	$600	$143	$457	1.5
	Pool Covers	$65,000	$29,838	$35,162	1.9
	Replace Submersed Pool Lights	$6,750	$1,006	$5,744	11.9
	Subtotal	$76,589	$31,727	$44,862	2.2
Fire Station 32	Replace Outdoor HID Lights	$650	$50	$600	8.8
Public Library	T8 to T8 Replacement	$10,784	$1,783	$9,001	9.0
	Replace MH Uplights	$23,400	$3,250	$20,150	36.0
	Replace HID Parking Lot Lights	$2,275	$650	$1,625	3.1
	Subtotal	$36,459	$5,683	$30,776	14.8
Fire Station 34	T8 to T8 Replacement	$4,125	$600	$3,525	10.6
	Replace Generator Block Heater	$4,180	$515	$3,665	3.2
	Replace Garage Hibay Fixtures	$10,350	$1,350	$9,000	7.7
	Replace Outdoor HID Lights	$4,000	$695	$3,305	4.7
	Subtotal	$22,655	$3,160	$19,495	5.9
Other Sites	Generator Heaters	$4,000	$695	$3,305	4.7
	TOTALS	**$159,101**	**$45,925**	**$113,176**	**3.8**

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

Finance Options for Energy Projects

SDG&E provides rebates, incentives, and financing options to pay for all or part of the costs of energy conservation measures. The SDG&E On-Bill Financing Program provides zero-percent financing for the installation of energy efficiency improvements meeting certain criteria. Financial assistance also is available from other agencies like the California Energy Commission (CEC).

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 incentives[1] 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/.

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

Through its On-Bill Financing Program,[2] SDG&E provides interest-free, unsecured financing to qualified commercial and taxpayer-funded customers for the installation of energy-efficient upgrades. Financed equipment must qualify for a rebate or incentive from SDG&E's rebate/incentive program(s). EFM Solutions and the city's SDG&E account representative, Kraig Akers, have met with city staff and discussed on-bill financing. The program for public agencies includes:

- Zero-percent financing on qualifying measures for up to ten years
- Offsets to energy-efficient upgrade costs after rebates and incentives through SDG&E
- Loan amounts that range from a minimum of $5,000 up to $250,000 per meter
- Loan installments that are added to monthly SDG&E bills
- For more information, contact Kraig Akers at KWAkers@semprautilities.com or visit www.sdge.com/obf.

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

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

Low-Interest Loans from the California Energy Commission

The Energy Efficiency Financing Program provides financing for local governments, schools, and hospitals through low-interest loans for feasibility studies and installation of energy-saving measures. As of November 2012, terms included an interest rate of one-percent fixed, a maximum loan of $3 million per application, and a maximum loan term of 15 years. Again, EFM Solutions can assist National City with applying for this loan, if needed. For more program information, contact the CEC 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 National City through the Energy Roadmap Program. Contact your Energy Roadmap coordinator for further assistance.

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2

Demonstrate Emerging Energy Technologies

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

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

California's Vision on Research & Technology
Technology advancement related to energy use and demand will match—or even eclipse—the consumer electronics industry in innovation, time to market, and consumer acceptance.
California Long-Term Energy Efficiency Strategic Plan

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

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

SDG&E Emerging Technologies Program: Technologies Eligible for Demonstration

City Government or Commercial Sites	
Lighting	**Addressable Electronic Ballast for HID Fixtures**: Demonstration on three building types: distribution warehouse, gymnasium, and big-box retail. Advanced electronic ballast with high bay HID (high intensity discharge) fixture that permits day lighting, dimming, and demand response measures.
Air Conditioning	**Aquachill Air Conditioner**: For small commercial buildings. Advanced split system air conditioning (AC) that uses water cooled condenser, resulting in demand and energy savings (three, four, and five ton units; EER 14.0-14.5).
Refrigeration	**VRF Conveni-Pack System**: For supermarkets and mini-markets. Advanced refrigeration and space cooling technology in one combined unit that can be used for refrigeration cases, freezers, and space conditioning (three to five ton units).
Communications and Controls	**Commercial Energy Control Systems**: For medium and large commercial buildings that utilize refrigeration (refrigerant flow technology) and smart meter technology.
	Commercial Energy Management System: For a company that utilizes a wireless network and controllers to manage and optimize a building's energy systems. To be demonstrated at medium-size commercial building with multiple packaged roof-top units and large commercial building with central plant equipment.
Residential Sites	
Air Conditioning	**Aquachill Air Conditioner**: For homes and multi-family apartment buildings. Advanced split system AC that uses water-cooled condenser, resulting in demand and energy savings (three, four, and five ton units; EER 14.0-14.5).
	VRF Mini-Split Air Conditioners: For residential single and multi-family homes. Advanced room AC that uses zoned cooling coils with air handlers and central compressor. Cooling capacity is varied and to be demonstrated in residences with one to four zones (two to five ton units).
Communications and Controls	**Single Vendor Residential HAN Pilot**: For single-family homes. Home Area Network (HAN) technology with in-home display, programmable communicating thermostat, appliance controllers, battery storage, and back-office operation; resulting in demand and energy savings. To be demonstrated at 28 homes.
	Residential Energy Management Technologies Evaluation: For single-family homes. Technologies can include home area network, in-home display, programmable communicating thermostat and appliance controllers; resulting in demand and energy savings. Based on evaluation of energy management systems from 150 companies, SDG&E will work with up to ten companies to test one to five systems each.
	Multi-Vendor HAN Pilot: HAN technologies that include IHD, PCT, load controllers from different vendors to be operated in a coordinated manner. Planned evaluation: test multi-vendor systems in 12 residential homes.
	Residential Zonal Controls: Convert central forced air heating, ventilation, and air conditioning (HVAC) systems into smart multi-zone HVAC systems. Senses conditions in each room, analyzes real-time and historical room-occupancy, and actuates vents in each room to regulate room temperature. Planned evaluation: test systems in 12 residential homes with single zone HVAC systems.

3

Green the City Vehicle Fleet

The City of National City maintains a fleet of approximately 165 vehicles that range from sedans and pick-up trucks to fire engines and other heavy-duty trucks. The City maintains another 43 pieces of equipment including heavy construction equipment, landscaping tractors, generators, and trailers. The City can achieve transportation-related energy savings through actions that promote fuel conservation, efficiency, and an increased use of clean, alternative fuels in its vehicle fleet.

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

National City has recognized that fleet operations contribute significantly to its total energy use as well as greenhouse gas (GHG) emissions, and has adopted practices to ensure the fleet is operated as efficiently as possible. As part of this effort, the fleet includes hybrid vehicles. National City also has retrofitted many of its heavier duty diesel trucks to comply with the latest California Air Resources Board (ARB) emissions standards. National City also performs preventative maintenance to keep vehicles operating as long as possible. The City has included the vehicle fleet in its inventory of GHG emissions and has set a reduction target of 330 metric tons CO_2 equivalent ($MTCO_2e$) per year by 2020 in its Climate Action Plan. This Roadmap chapter offers tools and information that can support National City's efforts to maintain efficient fleet operations and help meet its Climate Action Plan goals through the use of advanced technology and alternative fuel vehicles.

California Goals for Transportation Fuels

The State of California has adopted several transportation fuel laws and goals, and the California Energy Commission has been the responsible agency for the targets shown in the *California Goals for Transportation Fuels* table. In order to meet these goals the state allocates grant funds through the Assembly Bill (AB) 118 Program to help address barriers to the production and deployment of alternative fuels, vehicles, and infrastructure. Millions of dollars are available annually through 2015, for which the City and local businesses can apply. Additional information is provided later in this section.

California Goals for Transportation Fuels	
Objective	**State Goals and Milestones**
Petroleum Reduction	Reduce petroleum fuel use to 15 percent below 2003 levels by 2020
Alternative Fuel Use	Increase alternative fuel use to 20 percent of on-road fuel demand by 2020 and 30 percent by 2030
In-State Biofuels Use	Increase biofuel use to one billon 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

National City's Fleet

National City's fleet supports the provision of essential public services such as police and fire protection, street repairs, park maintenance, and wastewater operations. The city uses around 9,500 gallons of gasoline and diesel per month and spends more than $400,000 to keep the fleet fueled on a yearly basis.

When replacing vehicles, city staff evaluates vehicle duty requirements and selects the most efficient vehicle that can do the job. The City currently operates the smallest trucks available for regular duty and operates its largest vehicles only when necessary. The City has also purchased Prius hybrids for use as pool vehicles. With additional data collection, the City could track fleet-wide indicators such as total fuel consumption and vehicles miles travelled (VMT) on an annual basis. This data would help monitor progress in reducing fuel use and reducing emissions as called for in the City's Climate Action Plan. As more efficient and alternative fuel vehicles replace older, less efficient vehicles, the City should see reduced costs.

Online Fleet Planning Tools

The U.S. Department of Energy's Petroleum Reduction Planning Tool (www.afdc.energy.gov/afdc/prep/), at the Alternative Fuels and Advanced Vehicles Data Center, could supplement National City's current fleet management system by evaluating and calculating petroleum reductions through three categories of reduction measures including efficiency (e.g., fuel economy, idling reductions), conservation (e.g., VMT reductions), and alternative fuels (e.g., vehicles that run on electricity, compressed natural gas). A petroleum reduction goal (e.g., 10 percent savings) can be set and the free online tool can identify potential savings based on the fleet information entered and petroleum reduction measures selected.

When considering a new fleet vehicle purchase, the Cool Fleets Web site (www.coolfleets.com) has a free online calculator that can help the City identify the most cost-effective vehicle with the best environmental performance. It provides

helpful information on a variety of indicators, including costs and GHG emissions. The user can compare each vehicle to itself or other models using different variables such as the lease term and average annual mileage scenarios. The user chooses the applicable fuel cost for their location and selects vehicles individually or by category.

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

Alternative Fuels for Fleet Applications

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

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

Descriptions of each type of alternative fuel and information on the availability of alternative fuel vehicles for a variety of fleet applications are provided in **Appendix D.** Opportunities for cost-saving vehicle replacements specific to National City's fleet are described below.

Vehicle Replacement: Alternative Fuel Options for National City

SANDAG partnered with the California Center for Sustainable Energy (CCSE) to provide an assessment tailored to National City's fleet and vehicle replacement protocols. National City evaluates vehicles for replacement based on a number of factors including age, mileage, maintenance history, and condition. National City has many older vehicles with low mileage. Although these vehicles may operate for many more years, they will eventually need to be replaced. Consideration of high efficiency and alternative fuel options during the vehicle procurement process could help National City achieve green fleet goals. By budgeting more for fuel efficient vehicles, the City could achieve sustained long term savings.

Hybrid and alternative fuel vehicles could offer savings of $900 to $1,900 a year based on based on vehicle usage seen in National City

The following *Potential Vehicle Replacements and Savings* table identifies alternative fuel replacement options that could be suitable for the pick-up trucks, and passenger vehicles in National City's vehicle fleet. The table identifies potential fuel and cost savings on an annual and lifetime basis using mileage information provided by the City.

CCSE identified vehicles based on high annual mileage and fuel consumption. Because most city vehicles operate in a relatively small geographic area, yearly mileage and potential fuel savings were found to be less than what has been identified for fleets operating in larger geographic areas. For the purpose of this assessment, emergency response vehicles and construction equipment were not included, but the City's Energy Roadmap coordinator can provide additional information regarding these vehicles on request.

Potential Vehicle Replacements and Savings

Vehicle Model	Fuel Tech[1]	Annual Mileage	Gallons Fuel Reduced/ Displaced[2]	Estimated Annual Savings	Years to Payback w/ incentives	Annual GHG Reduction (MTCO2e)
Ford Taurus	Hybrid	13,600	358	$1,462	3.8	3.3
Saturn L	Hybrid	10,000	263	$1,075	5.1	2.1
Pontiac G. Prix	Hybrid	7,500	198	$806	6.8	1.7
Ford F-150	CNG	8,200	586	$1,102	9.9	1.0
Ford F-150	CNG	6,800	486	$914	11.9	0.8
Ford F-150	LPG	8,200	586	$806	9.3	0.7
Ford F-450	CNG	10,500	1167	$1,992	3.0	1.6
Ford F-450	CNG	5,300	589	$1,006	5.9	0.8
Ford F-450	LPG	10,500	1167	$1,270	3.4	1.1

Note:
1. Hybrid = hybrid electric vehicle, CNG = compressed natural gas, LPG= Liquefied Petroleum Gas (Propane)
2. Reducing/ displacing the use petroleum-based fuels is a goal of state policy and the federal Energy Policy Act and Energy Independence and Security Act.

Source: California Center for Sustainable Energy

Savings from Alternative Fuel Vehicles

The vehicle replacement analysis used current fuel prices, mileage, and fuel consumption of National City's vehicles, details of which are provided in **Appendix D**. In general, the replacement of older sedans with suitable hybrids results in an estimated annual savings of $1,000 to $1,400 per vehicle per year. Higher mileage vehicles may see payback periods of 5 years or less. Replacements of smaller pick-up and work trucks with compressed natural gas (CNG) or propane fueled versions could result in annual savings of up to $900 per vehicle for smaller trucks and $1,900 for the larger ones.

CNG or propane vehicles can cost between $8,000 and $20,000 more than their gasoline- or diesel-fueled counterparts and could require additional fueling infrastructure. The substantial fuel savings that would be achieved from large trucks, some of the biggest consumers of fuel, could offset the higher purchase costs within a few years when combined with available incentives. Many of the trucks in National City's fleet have lower annual mileage, and would not offer as much savings.

Hybrid vehicles show the greatest potential for greenhouse gas savings, with reductions of 1.7 -3.3 $MTCO_2e$ a year. Propane and CNG vehicles showed savings of 0.7-1.6 $MTCO_2e$. Based on these savings additional actions would be needed to meet the City's 2020 GHG reduction targets. Other vehicle/fuel technologies including plug-in electric vehicles, biodiesel, and renewable natural gas (biomethane), may offer substantial GHG savings, but do not offer positive financial savings at this time.

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

Fuel Availability in National City

Additional fueling infrastructure is needed for widespread adoption of alternative fuel vehicles. The City currently fuels its fleet vehicles at local retail fueling stations. Other available refueling sites near National City are identified in the *Summary of Alternative Fuel Infrastructure Availability* table on the following page. **Appendix D** contains details on each location and the costs of installing each type of fueling infrastructure.

Summary of Alternative Fuel Infrastructure Availability		
Fuel	**Existing Fueling Sites within Ten Miles of National City's Public Works Yard[1]**	**Availability of Production-Distribution Infrastructure**
Electricity	The EV Project is deploying up to 1000 level 2 electric vehicle chargers across San Diego County through 2012.	Existing electricity grid and distributed energy sources.
Biodiesel	B100 is available directly from a producer and B20 is available in San Diego. Additional private fueling at Naval Base San Diego and City of Chula Vista.	Storage and blending terminals, port off-loading sites needed. Local producer is New Leaf Biofuel.
CNG	One private and four public access stations.	Existing natural gas pipeline network.
Propane (LPG)	Two public access sites, one in Chula Vista and one in San Diego. Additional Private Fueling in Chula Vista.	Existing distribution by multiple vendors.
E85	One public station is located near the city.	Storage and distribution facilities needed in order to scale-up consumption.
LNG	One public station is located near the city.	Existing, but West Coast off-shore LNG terminals needed.
Hydrogen	No fueling sites in or near the city	Significant investment required.

Source: http://afdc.energy.gov/afdc/locator/stations/.
Notes:
1. Site names, addresses, and distances are provided in **Appendix D**.
2. Contact your Energy Roadmap coordinator for information regarding the installation of publicly available electric vehicle infrastructure at city government sites.

The City's Climate Action Plan calls for streamlined permitting requirements for electric vehicle charging infrastructure. Improved siting process can help expand local infrastructure and support plug-in vehicle adoption by the City's fleet, other commercial fleets, and the general public.

State Grants and Rebates

The California Energy Commission (CEC) and ARB offer alternative transportation grants and rebates through 2015 under the AB 118 Program. Funding is allocated annually and the FY 2011-2012 budget for the CEC AB 118 Program (www.energy.ca.gov/altfuels/) is about $100 million. ARB manages approximately $85 million in rebates and projects through the Air Quality Improvement Program (www.arb.ca.gov/msprog/aqip/aqip.htm).

The CEC has allocated funding for light-, medium-, and heavy-duty vehicles that use natural gas ($6.5 million), as well as light- and medium-duty vehicles that use propane ($5.2 million). Incentives amounts are displayed in the table *CEC Gaseous Vehicle*

Buydown Incentives. Expanding alternative fuel infrastructure is another funding priority for the energy commission.

CEC Gaseous Vehicle Buydown Incentives

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

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

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

CVRP Rebate Amounts for Light-Duty Vehicles

Vehicle Class	Maximum Incentive
Light duty zero emission vehicles (ZEV)	$ 2,500
Plug-in hybrid electric vehicles (PHEV)	$1,500
Zero emission motorcycles (ZEM)	$ 900
Neighborhood electric vehicles (NEV)	$ 900

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

Rebates for commercial vehicles including trucks and buses are available through ARB's Hybrid Truck and Bus Voucher Incentive Project (HVIP) (www.californiahvip.org). As of November 2012, the HVIP estimated fund balance was over $16 million. A summary of the incentives available is provided in the *ARB HVIP Voucher Amounts for Trucks and Buses* tables on the following page.

HVIP Voucher Amounts for *Zero-Emissions* Trucks & Busses	
Gross Vehicle Weight (in pounds)	
5,001 – 8,500 lbs	$12,000
8,501 – 10,000 lbs	$18,000
10,001 – 14,000 lbs	$30,000
14,001 – 19,500 lbs	$35,000
19,501 – 26,000 lbs	$40,000
> 26,000 lbs	$45,000

HVIP Voucher Amounts for *Hybrid* Trucks & Busses	
Gross Vehicle Weight (in pounds)	
6,001 – 8,500 lbs (plug-in hybrids only)	$8,000
8,500 – 10,000 lbs (plug-in hybrids only)	$10,000
10,001 – 19,500 lbs	$15,000
19,501 – 33,000 lbs	$20,000
33,001 – 38,000 lbs	$25,000
> 38,000 lbs	$30,000

Note: The **first three vouchers** redeemed by a fleet are eligible for the following additional voucher amount:

$2,000 per vehicle if below 8,500 lbs.;

$5,000 per vehicle if 8,501 to 10,000 lbs.;

$10,000 per vehicle if over 10,000 lbs.

The Electric Vehicle Project

The San Diego region was selected to take part in the largest EV rollout in U.S. history, through the EV Project (www.theevproject.com). This 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.

Through the EV Project, up to 1,000 electric vehicle public chargers can be installed around San Diego County by the end of 2012.

National City's Wal-Mart has installed two public access charging stations and the Port of San Diego has installed a unit at its General Services Building near the waterfront. Many public sites throughout the region have been identified as potential locations for EV charging stations including marinas, restaurants, community and regional shopping centers, large venue entertainment centers, transportation corridors, schools, hotels, airports, convenience retail, and retail shopping. A number of public chargers are expected to be installed in and near National City.

Over the next five years, most major automobile manufacturers are expected to introduce plug-in electric vehicles. Beginning in December 2010, two major automobile manufacturers began selling EV sedans, the Nissan Leaf and Chevrolet Volt, in San Diego County. Additional plug in vehicles are available from Mitsubishi, Toyota, and other manufacturers. All vehicles will be compatible with the standardized EV chargers installed through the EV Project.

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Develop Employee Knowledge of Energy Efficiency

Developing employee knowledge of energy efficiency is another way for National City 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) and the SDG&E Energy Innovation Center (EIC). The SDERC is located at the California Center for Sustainable Energy (CCSE) in Kearny Mesa and the EIC is located in Clairemont Mesa. In addition to these facilities, local colleges and universities host educational programs. Professional certifications in the energy management field also are identified. If city staff is interested in one of these courses, your Energy Roadmap coordinator can help facilitate participation in certification programs 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 National City may be interested in hosting at a city facility.

SDG&E and CCSE conduct hundreds of expert-facilitated seminars on a broad spectrum of energy topics at the SDERC and EIC. Workshop costs are covered 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 e-mail: seminars@sdge.com. CCSE and SDG&E publish a quarterly workshop calendar in print and online at: www.energycenter.org/erc.

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

Free Educational Seminars		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

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Promote Commuter Benefits to Employees

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

How it Works

A commuter benefit program includes bundling various commuting-related programs that meet the needs of your city and employees, and including them in the benefits package for city employees.

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

Some of the programs are offered free by SANDAG. Others are inexpensive for the city to implement or come with subsidies sponsored by SANDAG. For example, SANDAG provides a $400 per month subsidy for qualifying vanpools. The Commuter Benefit Starter Kit for Employers, available through iCommute, provides your agency with the tools to get started, including an overview of your options, sample policies, promotional materials, and tax benefit information.

The iCommute online system offers employees free and convenient ride matching and trip tracking tools. The site also allows your agency to create customized incentive programs for

Commuter Program Benefits

By providing alternative transportation choices for its employees, National City can:

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

rideshare participants. It'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.

Existing Commuter Trends

iCommute has developed a survey to identify how employees currently get to work and what alternative transportation options they are willing to try. The survey also identifies what motivates the employees to choose one commute option over another and what kind of incentives would motivate them to try an alternative commute. iCommute would administer the survey, analyze the results and report back to the City of National City. Conducting the survey is the first step in developing a specific commuter program.

Specific Commuter Programs

Below are some of the programs offered by iCommute. iCommute will work with the City of National City to determine which programs the city would like to include into their commuter benefit program. In addition to the programs listed below, iCommute will work with the city to develop other incentive programs to encourage the use of alternative transportation.

RideMatcher

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

TripTracker

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

Guaranteed Ride Home

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

Pretax Incentive

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

Transit

The Blue Line Trolley and several MTS routes service the City of National City. To encourage use of the public transit options, employers also 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 National City could offer discounted monthly transit passes as part of the overall benefits package for city employees. A small discount can go a long way to encourage employees to take transit. Employers can buy transit passes in bulk at a discounted rate through the Metropolitan Transit System EcoPass Program and pass those savings along to employees.

Telework

By allowing an employee to work from home, the City of National City would lessen the burden on transportation facilities, reduce energy consumption and decrease congestion. The City of National City could participate in the iCommute sponsored Telework Pilot Program beginning in spring 2013. At the end of the pilot program, the

city would determine if teleworking is a viable option for city employees. Teleworking has been shown to help recruit and retain high performing employees and help the employees become more productive and happier. The employee also benefits by not having to commute to work which puts money back into the employee's pocket. Jobs that are most suited for teleworking are ones that require reading, writing, researching, working with data and talking on the phone or "information-based jobs".

SchoolPool

SchoolPool is open to all public and private elementary schools, middle schools and high schools in the San Diego region. SchoolPool promotes carpooling, biking and walking to school. These alternative modes of transportation reduce congestion around schools and promote healthy lifestyles while helping the environment. SchoolPool also puts and emphasis on safety. Safety events are held at various schools throughout the year.

Carpool Incentive Pilot Program

This pilot program incentivizes the use of carpooling by rewarding drivers and passengers with $50.00 a month for a total of three months ($150.00 total). To qualify, the participant has to be part of a verifiable carpool, log trips for three consecutive months and carpool at least three days a week or 13 days per month and track those trips using iCommute's TripTracker tool. The purpose of this pilot program is to gain at least 600 new carpoolers in the iCommute system, encourage carpoolers through the use of incentives to use the TripTracker tool and log their carpool trips for the duration of the three month trial, and test the type of incentive and measure retentions rates one year later. The results of the Pilot Program will be shared with the city once the Pilot Program is completed.

Getting Started

For more information on iCommute programs and services and to download the Commuter Benefit Starter Kit for Employers, visit www.icommutesd.com, or contact Kimberly Weinstein at (619) 699-0725 or Kimberly.Weinstein@sandag.org or Alexander Lukes at (619) 515-1178 or Alexander.Lukes@sandag.org.

6

Leverage Planning and Development Authority

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

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

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

The Planning Role of Local and Regional Governments

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

State law specifically vests local governments with authority over land use and development activities within their jurisdictions in accordance with their general plans and other policy documents that address land use, circulation (transportation), housing, public facilities, environmental management (open space, conservation, safety, scenic

highways), and economic development. Local governments develop regulations and programs to implement their planning policies and goals.

National City is currently leveraging its planning authority through both its General Plan and Climate Action Plan to achieve reductions in energy usage throughout its community. Adopted in June, 2011, National City's updated General Plan contains goals and policies regarding energy efficiency and conservation spread throughout a number of different elements. These include the Circulation, Conservation and Sustainability, and Education and Community Participation Elements. National City's Climate Action Plan builds on these policies and is a primary implementation vehicle for achieving the goals and carrying out the policies articulated in the General Plan related to GHG mitigation. The City plans to reduce community-wide GHG emissions by 18.3% in 2020 compared with business-as-usual emissions projections, or 137,137 $MTCO_2e$.

Relevant text from National City's Climate Action Plan and General Plan can be found in **Appendix F.**

Sustainable Communities Strategy

Pursuant to Senate Bill 375 (Steinberg 2008), SANDAG and regional planning agencies across the state are required to develop a Sustainable Communities Strategy (SCS) in order to reduce greenhouse gas (GHG) emissions from passenger vehicles consistent with targets set by the California Air Resources Board (CARB). The following table, *GHG Reductions in the SANDAG Sustainable Communities Strategy*, presents the assigned CARB targets and the projected GHG reductions and vehicle miles traveled (VMT) reductions projected in the SCS. On October 28, 2011, SANDAG became the first metropolitan planning organization (MPO) in the state to adopt a SCS as part of its 2050 Regional Transportation Plan (2050 RTP). SANDAG is using this strategy as the foundation for updating its Regional Comprehensive Plan (RCP), which provides a long-term strategic planning framework for the region based on "smart growth" and "sustainability." These principles are described in the next section.

GHG Reductions in the SANDAG Sustainable Communities Strategy

Average Weekday Per Capita CO_2 and VMT Reductions for Cars and Light Trucks from 2005

Target Year	CARB Target	GHG	VMT
2020	7%	14%	12%
2035	13%	13%	10%
2050	N/A	10%	7%

Notes: CO_2 = carbon dioxide.
CARB identifies CO_2 as the GHG whose concentration is being most affected directly by human activities. CO_2 also serves as the reference to compare all other GHGs.

SB 375 also provides an opportunity for streamlining the California Environmental Quality Act (CEQA) process for certain local redevelopment projects, if they are consistent with the SCS as either a "residential/mixed use project" or as a "Transit Priority Project" (TPP). Environmental review of a residential/mixed use project consistent with the SCS would not need to consider growth-inducing impacts or increases in GHG emissions from passenger cars and light trucks. For a TPP, the project would need to be at least 50 percent residential with a density of at least 20 units per acre and be within a ½ mile of a major transit stop or a high quality transit corridor included in the 2050 RTP.

SANDAG, working closely with all local jurisdictions, will undertake an update to its RCP over 2012 and 2013, including a review of smart growth designated areas in relation to the SCS. **Appendix G** contains larger definitions for what could qualify for CEQA streamlining.

1. Smart Growth Development Policies

Smart growth can be defined as a compact, efficient, and environmentally sensitive pattern of development that provides people with additional travel, housing, and employment choices by focusing future growth away from rural areas and closer to existing and planned job centers and public facilities, while preserving open space and natural resources. Smart growth policies fit into the broader context of sustainability by guiding development to preserve access to natural resources. The principles of sustainability are based on achieving conservation goals and objectives in three broad areas: a prosperous economy, a healthy environment, and social equity. With the adoption of SB 375, the state is recognizing the influence that smart growth policies have on long term sustainability.

National City's General Plan includes a number of policies related to smart growth. Goal LU-1 of the Land Use Element is to practice "Smart growth that is consistent with statewide and regional transportation and planning goals and policies." Two examples are Downtown National City and the Westside Infill Transit Oriented Development. These sites have been included in a region wide Smart Growth Concept Map, last updated by SANDAG in 2012. The complete list of National City sites is included in **Appendix G**.

1. **The Downtown National City** area includes the Downtown Specific Plan, which was adopted 2005. The Plan emphasizes walkable neighborhoods and mixed-use and transit-oriented development with densities of up to 75 dwelling units per acre. The Specific Plan anticipates approximately 4,000 new dwelling units. The 8th Street Trolley Station is within close walking distance to the downtown area. Opportunities exist for a higher usage of both the existing 8th Street Trolley Station and bus routes with the potential residential development planned for the downtown area.

2. **The Westside Infill Transit Oriented Development (WI-TOD),** also known as the Paradise Creek Affordable Housing Project, is a proposed 201-unit affordable housing development on the east side of Paradise Creek, and the expansion of Paradise Creek Educational Park on the west side of the creek. The proposed project is based on a concept that was developed through a neighborhood and stakeholder design participation process and incorporated into the Westside Specific Plan, which was adopted in 2010.

Funding for Smart Growth Planning

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

In addition, **Appendix G** contains additional sample policies that encourage smart growth development. National City could use some or all of these policies in implementing the policies of the General Plan or Climate Action Plan. This appendix also contains the existing and potential "smart growth opportunity areas" that the City provided SANDAG for inclusion in the adopted Smart Growth Concept Map (2012).

2. Energy –Efficient Building Upgrades

The *California Long Term Energy Efficiency Strategic Plan*, the California Public Utilities Commission's (CPUC) framework for energy efficiency in the State, describes local governments' authorities and opportunities for promoting energy efficiency in new and existing buildings. Through the Energy Roadmap program, SDG&E can offer free energy code training for local code inspectors. In addition, local governments can promote residential programs like *Energy Upgrade California (EUC)*, which help homeowners undertake building retrofits that save energy and reduce monthly utility bills. The EUC program also provides local workforce training.

Additionally, **Appendix H** provides a series of energy-related policy measures that reflect the goals of State agencies like the California Energy Commission (CEC), CPUC, and

Office of the Attorney General. The appendix includes further information on EUC and financing mechanisms for energy-efficient building retrofits.

Codes, Permits, and Compliance

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

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

If the City has interest in learning more about code, permit and compliance options, the Energy Roadmap coordinator and SDG&E can provide assistance. For example, the City can receive free energy code compliance training for local building inspectors, or receive materials needed to consider adoption of voluntary reach codes, which go beyond the traditional minimum code requirements to make buildings more energy-efficient.

Energy Upgrade California

Energy Upgrade California (EUC) (www.energyupgradeca.org) is a statewide comprehensive retrofit program for residential and small commercial buildings. The program coordinates federal, state, utility, and local retrofit program outreach, incentives, training, and qualifications. Locally, the California Center for Sustainable Energy (CCSE) is collaborating with SDG&E to coordinate the EUC program. CCSE manages additional EUC rebates offered by some of the local governments in San Diego County; as well as workforce training that qualifies local contractors to perform the work. Residents of National City can take advantage of this program to reduce their energy consumption while improving the comfort of their homes.

Currently, the cities of San Diego and Chula Vista, and the County of San Diego, have used a portion of their Energy Efficiency and Conservation Block Grants (EECBG) to

augment state and utility rebates available to their residents. As the EUC program grows, more local governments may choose to formally support EUC through passage of resolutions, dedication of funds (if available) for increased rebates to their residents, or establishment of and/or participation in various financing programs for retrofits. EUC can support National City's goal of reducing GHG emissions from energy usage by 68,519 $MTCO_2e$ per year by 2020.

National City General Plan

"Because the city is almost completely developed, reducing the City's energy consumption and improving the sustainability of its infrastructure will depend almost entirely on the retrofitting and adaptation of existing systems."

Conservation and Sustainability Element

The EUC program promotes a "whole house" performance approach to efficiency that focuses on the elements within a home that affect energy use, how they interact, and how they influence health and safety. This approach diverges from the traditional "widget" approach to energy efficiency program delivery, which targets only one building aspect at a time, such as lighting, air conditioners, or insulation. To determine the best approach for improvements to an individual home, a home energy assessment is done. The assessment can pinpoint exactly what upgrades can be made, the costs, and the rebates or incentives that may apply. The home assessments and retrofit projects are performed by licensed building contractors that have been trained for the EUC program. (More information on workforce development programs is contained in Chapter 8.)

Financing for Residents and Businesses

There are a number of financing options available in the San Diego region to assist residents and businesses mitigate the upfront costs of energy efficiency retrofits. These include low-interest loans (currently 5-6% APR) from the San Diego Metropolitan Credit Union (SDMCU) as well as Powersaver loans and Energy Efficient Mortgages. **Appendix H** contains a detailed chart describing these and many other financing options for home and business retrofits.

3. Clean and Efficient Transportation Options

Transportation Demand Management

Transportation demand management (TDM) is the application of strategies to reduce single occupancy vehicle travel by encouraging alternative transportation options. Including TDM measures in the development review process may offer developers creative, affordable, and effective ways to reduce vehicle trips and their impacts. TDM

measures also contribute toward Leadership in Energy and Environmental Design (LEED) certification. Goal C-4 of the Circulation Element in National City's General Plan incorporates TDM and aims for "Increased use of alternative modes of travel to reduce peak hour vehicular trips, save energy, and improve air quality."

The SANDAG iCommute program offers free assistance to San Diego regional businesses and agencies in establishing and implementing customized TDM policies and programs that reduce traffic congestion, fuel use, air pollution, and GHG emissions. Active transportation choices like biking and walking provide a healthier alternative to driving and reduce petroleum consumption and pollution locally. In addition, smart growth land use patterns, like those characterized in the SANDAG Smart Growth Concept Map, accommodate biking and walking as mobility choices. They typically contain a diverse mix of land uses, complemented by sidewalks, bike paths, a variety of housing types, and an interconnected and rich street grid that can slow and disperse vehicle traffic.

To reduce traffic congestion and emissions from the use of vehicles in the City and promote alternative forms of transportation such as walking and bicycling, National City can apply for grant funds through the *TransNet* SGIP, discussed previously, and the Transportation Development Act (TDA) *TransNet* Bicycle and Pedestrian grant programs. SANDAG allocates funds under the TDA and *TransNet* local sales tax program to support bicycle and pedestrian transportation projects through a competitive process on an annual basis.

Alternative Fueling Infrastructure

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

Support for alternative fuel infrastructure can also help attract private investment associated with alternative transportation to the region. The San Diego Regional Clean Cities Coalition, along with its members including the County, SANDAG, local cities, the Airport Authority, the Port of San Diego, and CCSE, have committed to addressing the need for more fueling choices across the region. A complete list of both publicly and privately available alternative fueling stations is included in **Appendix D**.

Plug-in Electric Vehicles and Charging Stations

The San Diego region is at the forefront of plug-in electric vehicle (PEV) deployment with the highest per capita amount of PEV purchases and electric vehicle supply equipment (EVSE) installations in the United States. By the December 2012, the EV Project will have installed up to 1,000 home (or fleet) Level 2 EVSE; 1,000 publicly accessible Level 2 EVSE at commercial properties, city streets, municipal buildings, and San Diego destinations like Balboa Park; and 30 DC fast charge EVSE along the region's transportation corridors. There are currently three locations with public charging stations within National City: Port of San Diego General Services Building, Mossy Nissan, and Walmart.

Several barriers have been identified through the region's early experiences, which need to be addressed in a strategic and coordinated manner to enable widespread regional PEV adoption and efficient deployment of EVSE. Assisted by a California Energy Commission grant, SANDAG and CCSE formed a working group of local governments, regional agencies, SDG&E, and other stakeholders to address these PEV issues. The San Diego Regional Electric Vehicle Infrastructure Working Group (San Diego REVI) held its kickoff meeting in March 2012 and is holding bimonthly meetings over a two-year period. National City staff has been invited to participate in the working group.

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

7

Market Energy Programs to Local Residents, Schools, and Businesses

This chapter provides National City with internet links to existing energy efficiency and fuel-saving resources that the city could include on its Web site, newsletters, and e-mail alerts. This would enable National City 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's 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 the FOCUS newsletter
3. Provide educational materials on saving energy at city venues such as the permit desk, parks and recreation areas, libraries, and city hall. SDG&E, CCSE, and SANDAG iCommute can provide materials about programs and services for residents and businesses.
4. Invite SDG&E, SANDAG iCommute and/or CCSE to host an information booth on energy-saving programs or commuter programs at community events.
5. Help coordinate presentations by SDG&E and SANDAG iCommute to community organizations such as a neighborhood planning group or local chamber of commerce.

Comprehensive Energy Program Websites

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

Local Educational Resources

San Diego Regional Energy Resource Center

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

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

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

Resources available from the SDERC include:

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

SDG&E Energy Innovation Center

In January 2012, SDG&E opened the Energy Innovation Center (EIC), which was designed to be one of San Diego's first LEED (Leadership in Energy & Environmental Design) Platinum buildings open to the public. The EIC is a community resource to explore the latest green technologies and learn about energy efficiency. It hosts a variety of workshops and includes a Food Service Demonstration Kitchen that hosts free seminars on energy-efficient cooking, equipment, lighting and food safety.

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

SANDAG iCommute Programs for the Community

In addition to supporting city-employee commuter programs like those identified in Chapter 5, National City 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.
  - Participate in the Bike to Work and Rideshare Week Corporate Challenges to demonstrate your commitment to sustainable commute choices.
  - Host a Bike to Work Day pit stop(s)
- Recognize and/or honor local commuters and employers who have demonstrated a commitment to sustainable commute choices.

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

SANDAG SchoolPool Program

SchoolPool is iCommute's free ridematching service for parents of children who attend the same school anywhere in the region. With this safe and secure service, parents are matched with other parents in their neighborhood who are interested in sharing the

driving responsibilities or would like to have their kids bike or walk to school with other students and a parent leader. National City could:

- Encourage the School District and/or individual schools to enroll in SchoolPool, a secure online ridematching service administered by SANDAG for parents with children in kindergarten through 12th grade. SchoolPool can be a transportation solution for parents who live in districts where school bus services have been cut.
  - SchoolPool enables parents of children who attend the same school and live in the same neighborhood to share responsibilities of getting their children to and from school.
    - SchoolPool helps parents connect their children with bike buddies and "walking school buses" – groups that ride their bikes or walk to school together with one or more adults.
    - Parents who use SchoolPool to find bike buddies and walking school buses can receive a free helmet for each child who bikes and a free baseball cap for each child who walks. All children who either bike or walk can receive reflective backpacks. Safety vests are provided for parent leaders.

National Educational Resources

ENERGY STAR Government Partnerships

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

The U.S. Environmental Protection Agency (EPA) and U.S. Department of Energy (DOE) also host an annual ENERGY STAR Awards ceremony to honor organizations that have made outstanding contributions to protecting the environment through energy efficiency. For more information on government partnerships, visit www.energystar.gov/index.cfm?c=government.bus_government.

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

Energy Programs and Assistance for Local Businesses

Energy efficiency and Demand Response	
Business Incentives	www.sdge.com/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
Energy Upgrade California	EUC is a statewide brand for all energy-saving building retrofit programs. EUC coordinates federal, state, utility, and local retrofit program outreach, incentives, training, and qualifications. Locally, CCSE is collaborating with SDG&E to coordinate the program. www.energyupgradeca.org
PACE and AB 811 Programs	Property Assessed Clean Energy (PACE) or AB 811 programs are intended to give cities and counties the ability to offer low-interest loans for energy efficiency and solar energy projects to commercial and/or residential property owners. *Residential PACE programs are currently on hold nationwide. Commercial programs are emerging in 2012. www.pacenow.org

Energy efficiency and Demand Response

Advanced Home Program	www.sdge.com/builderservices/programs/advancedhomes/index.shtml
Air Conditioning Tune-Ups	www.actimeprogram.com/ProjectCenter/
Summer Saver Program	www.sdge.com/summersaver/
Affordable Financing for Home Improvements	www.sdge.com/residential/homeImpFinance.shtml
Refrigerator-Freezer Recycling Program	www.arcaincutility.com/CA/SDGE/Step2_ZipCode.cfm?ServiceCompany=43
Clothes Washer Rebate Program	www.20gallonchallenge.com/programs_residential.html or (888) 376-3314
Residential Energy Survey	www.sdge.com/residential/resEnergyProfiles.shtml (800) 411-SDGE (7343)
Lighting Turn in Program	www.sdge.com/lighting
Tax Credits	www.energytaxincentives.org/

New Construction Programs

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

Low Income Assistance

Residential Rate Assistance Program	www.sdge.com/residential/assistance/assistServCare.shtml
The Energy Team Program	www.sdge.com/residential/energyTeam.shtml or (866) 597-0597
Programs for Customers with Special Needs	www.sdge.com/residential/assistance/otherCustomerServices.shtml
Neighbor to Neighbor	www.sdge.com/residential/assistance/financialAssistance.shtml
Multi-Family Affordable Solar Housing	www.energycenter.org/index.php/incentive-programs/multifamily-affordable-solar-housing

Energy and Water

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

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Support Green Jobs and Workforce Training

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

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

California's Vision for Workforce Education and Training
By 2020, California's workforce is trained and fully engaged to provide the human capital necessary to achieve California's economic, energy efficiency, and demand-side management potential.
California Long-Term Energy Efficiency Strategic Plan

Training and Education Resources

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

The Green Career Network

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

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

- Access job postings and a Green Employers list

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

Employers can:

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

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

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

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

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

The Miramar College ATTE Center is located at 10440 Black Mountain Road, San Diego, CA 92126. Call (619) 388-7673 or visit www.attemiramar.com for more information.

Cuyamaca Community College's San Diego Green Building Training Collaborative

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

Trainings serve all of San Diego County and are offered at Cuyamaca College in Rancho San Diego and Palomar College in San Marcos. Certificates of Achievement are awarded upon program completion. GCCCD plans to continue the green building training collaborative after ARRA funds are expended. Cuyamaca College already offers green workforce training certificates and degrees in water/wastewater technology, environmental health and safety, sustainable landscaping, and renewable energy. For more information, visit www.cuyamaca.edu/preview/cleanenergy/.

The San Diego Workforce Partnership

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

- South Metro Career Center, located at 4389 Imperial Avenue, San Diego, CA 92105
- South County Career Center, located at 1111 Bay Boulevard, Suite E, Chula Vista, CA 91911

For more information, visit http://www.metrocareercenters.org/Contact.aspx.

San Diego Regional Energy Resource Center

Jointly provided by CCSE and SDG&E

The San Diego Energy Resource Center (ERC) provides a variety of workshops, continuing education, and certification courses in energy efficiency, renewable energy, and green building, including HERS training, BPI certification, LEED certification, and solar installation training. The ERC's mission and funding runs through the end of 2012. The ERC is located at CCSE, 8690 Balboa Avenue, Suite 100, San Diego, CA 92123. Contact (858) 244-1177 or visit www.energycenter.org.

SDG&E Energy Innovation Center

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

Statewide Resources for Training and Education

Grid Alternatives

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

Solar Training Institute

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

California Community Colleges Economic and Workforce Development

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

Looking Forward

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

Energy-Saving Funding Opportunities

Local Government Partnerships with San Diego Gas & Electric

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

Prior to the start of new program cycles, SDG&E announces a request for abstracts for future local government partnership programs. The next program cycle, which will be determined by the CPUC, will likely begin in January 2015. Using its Energy Roadmap as a guide, National City 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 a different course of action.

Local Government Energy Efficiency Partnerships have three focus areas:

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

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

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

State Energy Program Grants and Energy efficiency and Conservation Block Grants

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

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

Non-Financial Resources for Local Governments

The Beacon Award

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

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

Becoming a Beacon Award participant is a simple process. Agencies at every step of the climate action journey are welcome to consider applying. To be accepted as a

Beacon Award participant, cities and counties will complete a simple application form and do the following:

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

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

San Diego Gas & Electric

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

- Promote energy efficiency, demand response and conservation programs, services and resources
- Provide energy education and outreach to the community

California Center for Sustainable Energy

The California Center for Sustainable Energy (CCSE) (www.energycenter.org) works with local governments on several initiatives including:

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

Energy Policy Initiatives Center

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

San Diego Association of Governments

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

SANDAG iCommute Program

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