City of La Mesa Energy Roadmap

Prepared through the SANDAG Energy Roadmap Program

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

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Energy Roadmap for the City of La Mesa

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Introduction

This energy management plan, or "Energy Roadmap," prepared by SANDAG in consultation with city staff, provides a framework for La Mesa 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 La Mesa Energy Roadmap charts a path to saving energy in government operations and in the community.

- No-cost expert technical assistance, such as free energy audits of government buildings,
- Help identifying and applying for energy efficiency rebates and innovative programs like zero-percent on-bill financing,
- Energy-saving resources for cutting edge topics like general plan updates, electric vehicles, and transportation demand management strategies, and
- The latest information on critical subjects like financing energy efficiency projects, 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 City of La Mesa has already undertaken a number of actions related to energy reduction and sustainability. These actions include energy efficiency retrofits at many city facilities, streetlight and traffic light retrofits, as well as fleet vehicle upgrades. The City also encourages green building practices, waste reduction and diversion, and smart growth policies in its community.

In 2010, La Mesa conducted a greenhouse gas (GHG) inventory of city-operated and community-wide emissions, successfully completing the arduous step of identifying and quantifying local sources of GHG emissions. The City accomplished this through its participation in the San Diego Regional Climate Protection Initiative, spearheaded by

Local Governments for Sustainability USA (ICLEI). La Mesa continues to participate in the Climate Protection Network Group formed by ICLEI, and in 2007, the City Council approved a resolution endorsing the U.S. Mayor's Climate Protection Agreement. The Energy Roadmap identifies measures that La Mesa could include in a climate action plan.

The Energy Roadmap identifies measures that La Mesa can use in climate action planning.

La Mesa's history of action, along with completion of the Energy Roadmap, has enabled the city to apply for a Beacon Award. The Beacon Award recognizes and celebrates California cities that reduce GHG emissions and energy use, adopt policies and programs to address climate change, and promote sustainability. La Mesa is now a Beacon Award Participant and has received a certificate for interim accomplishments based on best practice activities in areas of sustainability.

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

Section I. Saving Energy in City Government Operations

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

La Mesa is now a Beacon Award Participant and has received a certificate for interim accomplishments in sustainability.

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
- Integrating sustainability, energy efficiency, or GHG reduction measures into a general plan, specific plan, or zoning ordinance
- Using government operations to demonstrate the feasibility of energy efficient and sustainable practices to local residents and businesses
- Managing the city vehicle fleet including new vehicle purchases
- Promoting energy efficiency programs through city communications such as newsletters, e-mail, and Web site
- Training of employees that deal with energy issues
- Staying on top of the latest developments, programs, and trends in energy efficiency
- Applying and qualifying for future funding opportunities related to energy efficiency

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

About the Energy Roadmap Program

The Energy Roadmap Program is a collaboration 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.

Each participating jurisdiction receives a customized Energy Roadmap that offers a comprehensive framework for saving energy at city government facilities and in the community. Each Energy Roadmap is consistent with the SANDAG 2050 Regional Transportation Plan/Sustainable Communities Strategy (2011); Regional Energy Strategy (2009), which serves as the San Diego region's energy policy blueprint; and Climate Action Strategy (2010), SANDAG's first ever guide on climate change. The 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. The City of La Mesa is committed to energy efficiency in its facilities, as evidenced by its newly-built police station, which is expected to achieve Leadership in Energy and Environmental Design (LEED) certification. La Mesa also replaced its older street lights with high efficiency induction street lights, reducing the City's street light energy costs by approximately half. By evaluating energy usage in municipal buildings and facilities (sites) and identifying energy-saving opportunities, La Mesa can further reduce its energy-related operating costs and use the savings for other government services. This chapter highlights:

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

Energy Assessments

In 2011-2012, 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.

La Mesa could save over $35,000 each year from energy efficiency upgrades and rate changes identified at municipal sites.

Energy Report Cards were prepared for thirteen municipal sites (listed below) in late 2011. Each Energy Report Card is included in **Appendix A**. These preliminary assessments established each site's baseline energy use and benchmarked it against similar building types in the country.

- City Hall
- Community Center
- Police Department
- Senior Center
- Nan Couts Cottage
- Library and U.S. Post Office
- Municipal Pool
- Sunset Gym
- Public Works
- Fire Station 11
- Fire Station 12
- Fire Station 13
- City Parks

Benchmarking is a useful tool to judge a site's energy performance compared to the national or state averages. Two online tools were employed to help determine how "good" or "bad" a site was performing. 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).

For climate planning, La Mesa can track the performance of its buildings year over year, in terms of energy used and greenhouse gas emissions produced.

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

- City Hall
- Public Works
- Municipal Pool
- Sunset Gym
- Jr. Seau Field
- Fire Stations 11-13
- Police Department

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 are 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

La Mesa has the potential to realize over $17,000 in annual operations savings on its utility bills by implementing the energy conservation measures in the *Potential Savings by Energy Conservation Measure* table on page 8. In addition, the city has the potential to save almost $19,000 each year on its utility bills by switching to a relatively new outdoor lighting rate at Jr. Seau Field.

Regarding energy-saving retrofit projects, La Mesa could undertake upgrades at most of its audited municipal sites through SDG&E's On-Bill Financing Program.[1] 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 the zero-percent on-bill financing), the city's utility bills would reflect annual bill savings like those shown in the *Energy Conservation Measure Economics* table on page 8.

La Mesa could save almost $19,000 each year on its utility bills by switching utility rates for Jr. Seau Field.

Recommissioning City Hall

Through an in-depth analysis of energy usage at La Mesa's City Hall, annual bill savings of nearly $7,000 were estimated if the building underwent recommissioning.
A recommissioning program identifies savings opportunities through the systematic evaluation of electrically powered systems and the subsequent implementation of no- and low-cost measures. This process can result in:

- Improved system operation and lower energy costs
- Reduced maintenance and repair costs and extended equipment life
- Improved occupant comfort and productivity for tenants and employees

For City Hall, this would likely result in major HVAC upgrades, including an upgrade of the air handler serving the east side of the building, replacing pneumatic controls throughout the building with digital controls, and including the boiler and hot water pump in any new control system. These upgrades would achieve electricity, natural gas and GHG savings while improving the building's performance and operations. For further details, refer to the energy audit report in **Appendix C**.

Lowering City Utility Bills at Jr. Seau Field

An analysis was conducted to estimate potential savings for the City if outdoor area lighting was switched to one of SDG&E's optional outdoor lighting rate schedules.
The Jr. Seau Field was found to have potential annual bill savings of almost $19,000 by

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

switching to an outdoor lighting time of use (OL-TOU) utility rate. SDG&E must perform its own assessment to determine if sites can qualify "as-is" for this rate change, or if additional measures would be necessary.[2] The rate analyses are provided in **Appendix C**.

Potential Savings by Energy Conservation Measure

Location	Measure		*Annual Savings for City*		
		Electricity (kWh)	Demand (kW)	Bill Savings	Greenhouse Gases ($MTCO_2e$)
City Hall	Vending Misers	2,563	0	$263	0.84
	Recommission	39,610	11.3	$6,970	19.81
Public Works	Hibay Lighting	18,343	7.3	$1,899	6.05
Municipal Pool	Lighting	2,013	3.2	$208	0.67
	Pump Controls	32,416	0	$3,356	10.69
Sunset Gym	Lighting	1,367	0.3	$141	0.45
Multiple Sites: Fire Stations 11-13, Police Dept.	Replace generator block heaters with heat pumps	27,299	0	$4,211	9.00
	TOTALS	**123,584**	**26.5**	**$17,049**	**4.0**

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)
City Hall	Vending Misers	$339	$100	$239	0.9
	Recommission	$50,000	$8,038	$41,962	6.0
Public Works	Hibay Lights	$3,910	$2,300	$1,610	0.8
Municipal Pool	Lighting	$4,025	$426	$3,599	17.3
	Pump Controls	$1,200	$600	$600	0.2
Sunset Gym	HID Lights	$1,400	$200	$1,200	8.5
Multiple Sites: Fire Stations 11-13, Police Dept.	Replace generator block heaters with heat pumps	$22,800	$4,524	$18,276	4.3
	TOTALS	**$83,674**	**$16,188**	**$67,486**	**3.4**

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

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

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

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

Finance Options for Energy Projects

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

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

San Diego Gas & Electric® Rebates and Incentives

As part of the energy audit findings, EFM Solutions identified the appropriate SDG&E rebates and incentives[3] for each municipal site. Generally, programs that apply to commercial businesses also apply to public agencies. To review all of SDG&E's rebate and incentive programs, see chapter 7 of this Energy Roadmap or visit www.sdge.com/business/rebatesincentives/.

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

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

Through its On-Bill Financing Program,[4] SDG&E provides interest-free, unsecured financing to qualified commercial and taxpayer-funded customers for the installation of energy-efficient upgrades. Financed equipment must qualify for a rebate or incentive from SDG&E's rebate/incentive program(s). EFM Solutions and the city's SDG&E account representative 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 your Energy Roadmap coordinator, or visit www.sdge.com/obf.

Low-Interest Loans from the California Energy Commission

The Energy efficiency Financing Program provides financing for local governments, schools, and hospitals through low-interest loans for feasibility studies and installation of energy-saving measures. As of February 2013, 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 La Mesa with applying for this loan, if needed. For more program information, contact the California Energy Commission's Special Projects Office, (916) 654-4104, e-mail: pubprog@energy.state.ca.us, or www.energy.ca.gov/efficiency/financing.

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

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

2

Demonstrate Emerging Energy Technologies

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

If the municipality or community members living in La Mesa 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. For more information, contact Nathan Taylor, SDG&E's emerging technologies program manager directly at NTaylor@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 La Mesa maintains a fleet of approximately 140 vehicles that range from sedans and pick-up trucks to fire engines and other heavy-duty trucks. The City can achieve transportation-related energy savings through actions that promote fuel conservation, efficiency, and an increased use of clean, alternative fuels in its vehicle fleet.

The City of La Mesa has adopted practices to ensure its fleet is operated as efficiently as possible.

La Mesa has recognized that fleet operations contribute significantly to its total energy use, and has adopted practices to ensure the fleet is operated as efficiently as possible. As part of this effort, the fleet includes four hybrid vehicles that are driven by the City's building inspectors and parking enforcement. La Mesa also has replaced five of its heavier duty trucks with new models that produce significantly less emissions, and the City's fueling facility was upgraded to the California Air Resources Board's (ARB) Enhanced Vapor Recovery 2 specifications to reduce gasoline vapor emissions during fueling. This Roadmap chapter offers tools and information that can support La Mesa's efforts to maintain efficient fleet operations through the use of advanced technology and alternative fuel vehicles.

California Goals for Transportation Fuels

California has adopted several transportation fuel laws and goals, and the California Energy Commission (CEC) has been the responsible agency for the targets shown in the *California Goals for Transportation Fuels* table. In order to meet these goals the state allocates grant funds through the Assembly Bill 118 (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
Electric Vehicles in State Fleets	10 percent of light-duty fleet purchases must be zero-emissions vehicles by 2015, and 25 percent by 2020

La Mesa's Fleet

In 2011, the City of La Mesa spent approximately $350,000 on fuel, dispensing more than 23,000 gallons of diesel and 80,000 gallons of gasoline. Recognizing the importance of data collection to effectively manage fleet operations, the city plans to implement an automated fueling information system that will more accurately track fuel consumption and mileage on a per-vehicle basis. The tracking system can identify vehicles with poor mileage that the city can target for maintenance or eventual replacement. Another fleet management measure that La Mesa has implemented was to outfit some vehicles with deep-cycle batteries and more efficient lighting in order to reduce fuel consumed when idling.

When replacing vehicles, city staff evaluates vehicle duty requirements and selects the most efficient vehicle that can do the job. Hybrid vehicles have been adopted in appropriate applications such as building inspection. Using the fleet information system, 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 greening the city fleet. As more efficient and alternative fuel vehicles replace older, less efficient vehicles, La Mesa 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 La Mesa'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% 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.

La Mesa also can reduce fuel use by encouraging employees to use the 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 specific to La Mesa's fleet for cost-saving vehicle replacements are described below.

Vehicle Replacement: Alternative Fuel Options for La Mesa

SANDAG partnered with the California Center for Sustainable Energy (CCSE) to provide an assessment tailored to La Mesa's fleet and vehicle replacement protocols. La Mesa evaluates vehicles for replacement based on a number of factors including age, mileage, maintenance history, and condition. Consideration of high efficiency and alternative fuel options during the vehicle procurement process could help La Mesa achieve green fleet goals. The City recently replaced or retrofitted many of its heavy duty diesel vehicles to meet ARB requirements.

Hybrid and alternative fuel vehicles could offer savings of $500 to $2,000 a year based on typical vehicle usage in La Mesa.

The following *Potential Vehicle Replacements and Savings* table identifies alternative fuel replacement options that could be suitable for the pick-up and medium-duty trucks,

SUVs, and passenger vehicles in La Mesa's vehicle fleet. The assessment identifies potential fuel and cost savings on an annual and lifetime basis using mileage information. 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 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 your Energy Roadmap coordinator can provide additional information regarding these vehicles on request.

Potential Vehicle Replacements and Savings

Vehicle Type	Fuel Tech[1]	Annual Mileage	Gallons Fuel Reduced/ Displaced[2]	Estimated Annual Savings	Lifetime Savings (10 years)
Sedan	Hybrid	10,000	217	$860	$8,600
SUV	Hybrid	6,000	343	$1,330	$13,300
Truck- Half Ton	LPG	9,200	920	$1,500	$15,000
Truck- Half Ton	CNG	9,200	920	$2,010	$20,100
Truck- 3/4 Ton	LPG	6,000	1,000	$1,470	$14,700
Truck- 3/4 Ton	CNG	6,000	1,000	$2,190	$21,900
Truck Med. Duty	LPG	3,700	974	$1,120	$11,200
Truck Med. Duty	LPG	3,700	974	$1,890	$18,900

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

The vehicle replacement analysis used current fuel prices, mileage, and fuel consumption of La Mesa vehicles, details of which are provided in **Appendix D**. In general terms, the replacement of sedans and SUVs with suitable hybrid options amounted to an estimated annual savings of $500 to $1,300 per vehicle. Replacements of pick-up and medium duty trucks with propane fueled versions could result in annual savings of up to $1,500 per vehicle, and over $2,000 per vehicle for compressed natural gas (CNG).

Propane and CNG vehicles can cost between $8,000 and $20,000 more than their gasoline- or diesel-fueled counterparts and can 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. La Mesa 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 La Mesa

Additional fueling infrastructure is needed for widespread adoption of alternative fuel vehicles. In particular, for the vehicle replacements described above, La Mesa would need additional electricity, CNG, and propane infrastructure. Currently available refueling sites near La Mesa are identified in the *Summary of Alternative Fuel Infrastructure Availability* table below. **Appendix D** contains details on each location and the costs of installing each type of fueling infrastructure.

Summary of Alternative Fuel Infrastructure Availability

Fuel	Existing Fueling/Charging Sites within Ten Miles of La Mesa's Public Works Yard[1]	Availability of Production-Distribution Infrastructure
Electricity	The EV Project has deployed over 1,000 level 2 electric vehicle chargers across San Diego County through June 2013.	Existing electricity grid and distributed energy sources.
Biodiesel	B5 available at a cardlock facility in El Cajon and B20 is available in San Diego. Other blends could be delivered to the City.	Storage and blending terminals, port off-loading sites needed. Local producer is New Leaf Biofuel.
CNG	Three public and one private access station.	Existing natural gas pipeline network.
Propane (LPG)	Two public access sites, one in Lemon Grove and one in San Diego.	Existing.
E85	Two public stations are located near the city.	Storage and distribution facilities needed in order to scale-up consumption.
LNG	No fueling sites in or near the city	Existing, but West Coast off-shore LNG terminals needed.
Hydrogen	No fueling sites in or near the city	Significant investment required.

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

Notes:

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

State Grants and Rebates

The 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 about $85 million in rebates and projects through the Air Quality Improvement Program (www.arb.ca.gov/msprog/aqip/aqip.htm).

The CEC has allocated funding for light-, medium-, and heavy-duty vehicles that use natural gas ($6.5 million), as well as light- and medium-duty vehicles that use propane ($5.2 million). Incentives amounts are displayed below in the table *CEC Gaseous Vehicle Buydown Incentives*. Expanding alternative fuel infrastructure is another funding priority with allocations for electric chargers, CNG station upgrades/expansions, and additional E85 dispensers.

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 $15 million in funding for FY 2011-2012. 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
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 *HVIP Voucher Amounts for Trucks and Buses* tables below. In addition to the rebates described in the tables, the first three vouchers redeemed by a fleet per funding year are eligible for the following additional voucher amount:

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

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

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

HVIP Voucher Amounts for *Hybrid* Trucks & Busses

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

Regional Electric Vehicle Planning

San Diego Regional Electric Vehicle Infrastructure Working Group

Through a CEC grant, SANDAG and CCSE established the San Diego Regional Electric Vehicle Infrastructure Working Group (REVI) to develop a readiness plan for the San Diego region. The ability for public agencies to site plug-in electric vehicle chargers on public property is one barrier that REVI is developing a template and best practice to address. La Mesa participates on REVI.

La Mesa participates in regional readiness planning for plug-in electric vehicles.

The Electric Vehicle Project

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

Many public sites throughout the region were identified as potential locations for EV charging stations including restaurants, community and regional shopping centers, large venue entertainment centers, transportation corridors, schools, hotels, airports, convenience retail, and retail shopping. Over the next five years, most major automobile manufacturers are expected to introduce plug-in electric vehicles. All vehicles will be compatible with the standardized EV chargers installed through the EV Project.

4

Develop Employee Knowledge of Energy Efficiency

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

Overview

This chapter identifies free educational seminars and trainings available to city employees through the SDG&E Energy Innovation Center (EIC), located in Clairemont Mesa. Energy code training for planners, permit checkers and building inspectors is taught regularly. In addition to the EIC, local colleges and universities host educational programs and professional certifications in energy management. If La Mesa staff is interested in training opportunities, your Energy Roadmap coordinator can help facilitate participation and assist with related enrollment costs.

Getting Started

As a first step in identifying educational, training, and certification opportunities, the city is asked to 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)
- Workshops or trainings that La Mesa may be interested in hosting at a city facility

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

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

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	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.seminars.sdge.com.	
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. 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

5

Promote Commuter Benefits to City Employees

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

Regional commuter options for La Mesa include: *transit, ridesharing, and biking.*

Based on the initial needs assessment, La Mesa can make informed decisions as to how it may like to promote alternative transportation options to its employees. iCommute offers resources and tools to design and implement a customized commuter program, also known as a transportation demand management (TDM) program. Promoting commuter programs can be an easy and cost-effective way to reduce greenhouse gas emissions and petroleum consumption. There are many ways that La Mesa can take part, many of which are for little or no cost to the city.

How Commuter Programs Work

An employee commuter program provides workers with alternative transportation options, as well as incentives for using them. A custom program could include everything from helping connect employees who want to carpool or vanpool with one another, to offering flexible work schedules, to providing free or reduced-cost transit passes.

Some of the programs are offered free by SANDAG. Others are inexpensive or come with subsidies. For example, SANDAG provides a $400 per month subsidy for qualifying vanpools to manage the costs of the van rental. Additionally, all agencies participating in the Energy Roadmap program were offered the opportunity to participate in a *Carpool Incentive Pilot Project*. The *Guaranteed Ride Home Program* is another SANDAG incentive that makes choosing an alternative commute easy. Commuters who carpool, vanpool, take an Express Bus, ride the COASTER, walk, or bike to work three or more

times a week are eligible for a taxi ride or rental car to get home from work, for just a $3 co-pay, in the event of emergency or unscheduled overtime.

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

Benefits of Participation

Alternative transportation is good business. Cities can:

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

Commuter Program Recommendations for La Mesa

La Mesa is well served by transit (trolley and bus) and has adequate bicycle infrastructure and amenities. Based on an assessment of the local transportation options available and discussions with city staff, iCommute has prepared the following TDM recommendations for consideration in a commuter benefit program. Recommendations that would help reduce traffic congestion from employee commutes focus on:

- Transit benefits
- Ridesharing Incentives
- Bicycling pre-tax benefit

Transit and Ridesharing

1) **Pre-Tax Benefit (No cost to city):** 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 $245 per month per employee (in 2013). 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.

2) **Discounted Transit Passes (Minimal cost):** 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, La Mesa 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:

Annual Quantity	Average Monthly Users	Monthly Discount
1) 300 to 1,200 passes/ year	25 – 100	10 percent
2) 1,201 to 4,800 passes/year	101 – 400	20 percent
3) 4,801 and above passes/year	401 plus	25 percent

3) **Carpooling (No cost to city):** iCommute ran a Carpool Incentive Pilot Project in 2012. Participants received $50 per month per carpooler for three months. While SANDAG determines how to continue offering incentives, easy online tools remain to enable commuters to start or join a carpool. RideMatcher is a simple and secure way to find carpool partners online. It is a database of thousands of commuters from across the region.

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

   a. 20 miles round-trip commute = $1,000/year
   b. 50 miles round-trip commute = $4,400/year

5) **Guaranteed Ride Home (No cost to city):** Commuters who carpool, vanpool, take an Express Bus, ride the COASTER, walk, or bike to work three or more times a week and track their trips in the iCommute online system have a safety net with the Guaranteed Ride Home program. iCommute will provide a taxi or rental car up to three times per enrollment year by registered participants, for just a $3 co-pay, in the event of:

   - Personal or family illness or emergency
   - Unscheduled overtime (with a supervisor's approval)
   - Your rideshare partner is unavailable

Bicycle Encouragement

1) **Pre-Tax Benefit for bicycle commuters (No cost to city):** The 2008 Energy Act added "qualified bicycle commuting reimbursement" to the list of qualified transportation fringe benefits. As of 2009, any employer may reimburse an employee up to $20 per month tax free for reasonable expenses incurred by the employee for the purchase of a bicycle and bicycle improvements, as well as repair and storage if the bicycle is regularly used for travel between the employee's residence and place of employment.

2) **Bike to Work Month (No cost to city):** To encourage bicycle commuting, La Mesa could host a Bike to Work Day Pit Stop, participate in the Bike to Work Month Corporate Challenge, and/or offer bike commuter safety and education courses for employees (sponsored and coordinated by iCommute).

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

Teleworking

Teleworking allows eligible employees to work from home or a remote location one or more days per week. Telework has specific benefits for employees and employers that take advantage of the program. Benefits to employers can include improved productivity, reduced overhead, improved retention and recruitment, and reduced absenteeism. If the City is interested in telework options, your Energy Roadmap coordinator can provide additional information.

Getting Started

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

iCommute can help La Mesa survey its employees to identify local commuting habits and preferences.

Additionally, the iCommute on-line system offers employers and employees a free and convenient tool that makes it easy to access, evaluate, and compare transportation choices. The "Commute Cost Calculator" provides commuters with the actual cost of

their current commute and the potential savings from choosing alternative forms of transportation. “RideMatcher,” a tool within the Web site, helps commuters securely find a vanpool, carpool, or bicycle partner. The “TripTracker” tool allows commuters to log their commute trips on an interactive calendar that calculates the financial and environmental costs of their daily commute patterns.

The site also allows your agency to create customized incentive programs for employees that participate in your commuter program. TripTracker’s convenient reporting feature can detail how many city employees are participating and can measure the city’s and employees’ financial and environmental savings, including the amount of air pollution and greenhouse gas emissions avoided, cost savings, and fuel savings. A sample TripTracker report is provided in **Appendix E**.

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

Commuter Program Support Offered by iCommute

At any time, La Mesa can request assistance from iCommute to engage its employees in alternative transportation options and to establish municipal commuter policies. Actions could include:

- Meet with iCommute and go over free online tools and functionality of the iCommute Web site.
- Establish a point person (usually a representative from Human Resources) to work with your iCommute representative to set up your employer network in www.icommutesd.com.
- Survey staff on current commuting habits and preferences (provided for free by iCommute).
- Map employee commutes to determine which commuting choices may make sense to promote to staff (provided for free by iCommute).
- Formalize a commuter benefit policy that outlines the commuter benefits that the city can offer (iCommute has samples for you).
- Once you’ve decided which commute choices to promote and/or incentivize, have iCommute give a presentation to staff and/or hold an iCommute registration drive. *Registration drives are most effective when the message comes from agency leadership, via letter or e-mail message.*
- Include commuter benefit information in new employee orientation packets and link to iCommute on your intranet site.

- Participate in and promote iCommute annual events such as Rideshare Week, Bike to Work Day, and Walk and Bike to School Day. Join the Rideshare Week and Bike to Work Corporate Challenges to showcase your commitment to sustainable commute choices. (A sample proclamation for National Bike Month is included in **Appendix E.**)

For more information or to continue developing and implementing your commuter program, contact your Energy Roadmap coordinator or Antoinette Meier, SANDAG iCommute, (619) 699-7381, Antionette.Meier@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.

2012 La Mesa General Plan Update
"A city that is an environmental leader in the region through implementation of sustainable principles that maintain and enhance quality of life."
Conservation & Sustainability Element

La Mesa is using its planning and development review authority to promote sustainability and energy savings in its current General Plan update (GPU). Other city initiatives include its Sustainable Building Policies that state that, "All newly constructed or renovated city facilities and buildings shall strive to meet a minimum LEED Silver rating and exceed current State of California Title 24 Energy Code requirements." La Mesa also promotes walkable communities through its Walkability Plan (2006), University Avenue Revitalization Plan, and Sidewalk Master Plan (2008). For a listing of these various activities related to sustainability and climate protection, see **Appendix F.**

General Plan Update

In March 2012, La Mesa released a draft of its Centennial General Plan. The GPU provides a blueprint for growth and development that lays out specific strategies and reflects the community's values. The Conservation & Sustainability Element contains goals, objectives, and policies related to resource conservation, environmental and public health, economic development, and transportation. This Energy Roadmap supports goals and objectives contained in the draft Conservation & Sustainability Element. Once the GPU's Environmental Impact Report is certified, the City Council will adopt the updated 2012 La Mesa General Plan.

Sustainable Communities Strategy

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

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 one-half mile of a major transit stop or a high quality transit corridor included in the 2050 RTP. **Appendix G** contains larger definitions for what could qualify for CEQA streamlining.

SANDAG, working closely with all local jurisdictions, will undertake an update to its RCP as a combined plan with the next RTP and SCS. San Diego Forward: The Regional Plan is being developed over 2013-2015, and will include a review of smart growth designated areas in relation to the SCS. La Mesa will be actively engaged in this process.

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.

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

La Mesa Sustainable Building Policies

"It is the intent of the City to adopt best design and management practices to reduce storm water run-off, water consumption, traffic congestion, energy consumption, and landfill waste."

Sustainable Building Policy - Purpose

Objective CS-1.1 of La Mesa's draft Conservation & Sustainability Element seeks to "create compact, missed-use projects with amenities to enhance the city's natural setting." This objective includes policies to "encourage infill along the city's transit corridors." Redevelopment and infill within central transit corridors will place city's residents and the workforce within walking distance of transit, shopping, recreational facilities and other public amenities, thereby reducing vehicle miles traveled and associated energy use and GHG emissions.

The Energy Roadmap supports this objective and the City's existing efforts to integrate smart growth principles into local plans for redevelopment areas. Two examples of planned projects are the Grossmont Trolley Station and the Downtown La Mesa infill development project. These sites were included in a region wide Smart Growth Concept Map, last updated by SANDAG in 2011.

1. **Grossmont Trolley Station** is a joint project by the City of La Mesa, a private sector developer and Metropolitan Transit System to transform the transit stop and parking lot at the Grossmont transit station into a transit-oriented development. The project includes 527 apartment units in three- and four-story structures over two levels of parking and 3,000 square feet of commercial uses oriented toward the transit station. Eighty rent-restricted affordable units are included in the project. Two Trolley lines and five bus routes connect at the Trolley station. Structured parking for 600 spaces will support the parking needs of the transit station. Improvements to the transit station include pedestrian access via elevator to facilitate travel between the station and a nearby hospital and medical office complex and a regional shopping center.

2. **Downtown La Mesa** is a combination of existing and planned infill development of residential and commercial uses in the historic La Mesa Village, which is located

adjacent to the downtown La Mesa transit center. A Trolley station and three bus routes serve this neighborhood.

Future development in La Mesa is expected to be concentrated along the city's transit corridors. Redevelopment and infill within these transit corridors will place city's residents and the workforce within walking distance of transit, shopping, recreational facilities and other public amenities, thereby reducing vehicle miles traveled and associated energy use and GHG emissions.

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 to the policies articulated in the draft GPU, **Appendix G** contains further sample policies that encourage smart growth development. La Mesa could determine which measures may be appropriate for the City and consider these measures to help implement its current GPU. This appendix also contains the existing and potential "smart growth opportunity areas" that La Mesa provided SANDAG for inclusion in the regional Smart Growth Concept Map (2011).

2. Energy Efficient Building Upgrades

The *California Long Term Energy Efficiency Strategic Plan*, the California Public Utility 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.

2012 La Mesa General Plan Update
"Retrofitting existing buildings can be a low risk investment with long term savings for property owners."
Conservation & Sustainability Element

Objective CS-1.4 of the draft Conservation & Sustainability Element is to "collaborate with partner agencies, utilities, and businesses to support a range of energy efficiency and conservation measures." This section of the Energy Roadmap can directly support the achievement of this objective by providing information and resources for La Mesa citizens and decision makers. **Appendix H** provides a series of energy-related policy measures that reflect the goals of state agencies like the California Energy Commission, 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 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

EUC (www.energyupgradeca.org) is a statewide umbrella under which all energy-saving building retrofit programs are housed. The program coordinates federal, state, utility, and local retrofit program outreach, incentives, training, and qualifications. Locally, the California Center for Sustainable Energy (CCSE) is collaborating with SDG&E to coordinate the EUC program. CCSE manages additional EUC rebates offered by some of the local governments in San Diego County; as well as workforce training that qualifies local contractors to perform the work.

La Mesa Sustainable Building Policies
"The City will provide information about sustainable building and develop sustainable building incentives when feasible."

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

The Energy Roadmap Program can provide materials on Energy Upgrade California for La Mesa's residents.

The San Diego Regional Energy Partnership (SDREP) has tasked CCSE with continuing several local EUC programs through 2014 that were previously funded through ARRA grants from the City of Chula Vista, City of San Diego and County of San Diego. Those jurisdictions, along with SANDAG, have dedicated grant funds to the SDREP to provide additional EUC resources to all local jurisdictions in San Diego County. SANDAG's contribution is to:

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

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

3. Clean and Efficient Transportation Options

Transportation Demand Management

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

Conservation & Sustainability Objective CS-3.1 in La Mesa's draft GPU addresses the need to "facilitate a reduction of automobile dependency in favor of affordable alternative, sustainable modes of travel" and articulates a policy to "encourage businesses, organizations, and residents to participate in the implementation of regional transportation demand management, including carpooling programs." The following resources can support these policies and objectives

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.

The SANDAG iCommute tools can help La Mesa meet its conservation and sustainability objectives.

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, La Mesa 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. La Mesa is currently finalizing their Bicycle Master Plan and Circulation Element update in accordance with Assembly Bill (AB 1358) ("Complete Streets") legislation funded by a $75,000 SANDAG grant awarded in July 2009.

SANDAG recently completed a study, *Integrating Transportation Demand Management into the Planning and Development Process - A Reference for Cities.* The report is available as part of the Smart Growth Toolbox at the following link: http://www.sandag.org/uploads/publicationid/publicationid_1663_14425.pdf.

Parking Management

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

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. Currently, there are no alternative fuel stations located within the City of La Mesa. There are propane filling stations located in Lemon Grove and El Cajon as well as a Mossy Nissan in El Cajon for charging electric vehicles. The nearest biodiesel fueling station is located in San Diego at Pearson Fuel Depot, 5 miles from La Mesa.

Support for alternative fuel infrastructure also can help attract private investment associated with alternative transportation to the region. The San Diego Regional Clean Cities Coalition, along with its members including the County, SANDAG, local cities, 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. The EV Project, a federally-funded Department of Energy program, brought an influx of residential and publicly accessible EVSE installations to the San Diego region from 2010 to 2012.

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

Sample mandatory and voluntary ordinances 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 La Mesa with internet links to existing energy efficiency and fuel-saving resources that the city could include on its municipal Web site and online newsletter. The city could integrate these links into the "Sustain La Mesa" Web site in order to further enable La Mesa to serve as a conduit to its constituents on energy-saving residential, commercial, and school programs. 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 La Mesa'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 online newsletter La Mesa FOCUS or similar media.
3. Provide educational materials on saving energy at city venues such as the permit desk, parks and recreation areas, libraries, and the civic center. SDG&E, CCSE, and SANDAG iCommute can provide materials about programs and services for residents and businesses.
4. Invite SDG&E, SANDAG iCommute, and/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 and Training at the Energy Innovation Center	SDG&E conducts hundreds of expert-facilitated seminars on a broad spectrum of energy topics at the Energy Innovation Center (EIC) in central San Diego. The online calendar lists workshops from both organizations and venues. http://www.sdge.com/energy-innovation-center/seminars
SANDAG iCommute	Free online gateway to commuter choices in the San Diego region; hosted by SANDAG. Includes 511, transit trip planner, online ride matching service, and cost of commute calculator. www.icommutesd.com/
Energy Upgrade California	www.energyupgradecalifornia.org

Local Educational Resources

SDG&E Energy Innovation Center

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

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, La Mesa 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 online cost-of-commute calculator.

- Participate in annual events and campaigns that encourage commute alternatives to driving alone such as Bike to Work Day, Dump the Pump, Rideshare Week, Walk and Bike to School Day:
  - Adopt proclamations and celebrate these events in your community
  - Participate in the Bike to Work and Rideshare Week Corporate Challenges to demonstrate your commitment to sustainable commute choices
  - Host a Bike to Work Day pit stop(s)
- Recognize and/or honor local commuters and employers who have demonstrated a commitment to sustainable commute choices.

SANDAG SchoolPool Program

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

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.

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 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/sustainable-communities-overview/
SDG&E Solar Initiative	http://www.sdge.com/clean-energy/going-solar/solar-rebate-programs
Net Energy Metering	www.sdge.com/nem/
Self-Generation Incentive Programs	www.energycenter.org/index.php/incentive-programs/self-generation-incentive-program
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/save-money/no-cost-audits/business-energy-assessment-program
Energy efficiency Seminars	www.sdge.com/training
PACE Financing: CaliforniaFIRST	www.californiafirst.org

New Construction

Savings by Design	www.sdge.com/clean-energy/savings-design/savings-design
Sustainable Communities Program	www.sdge.com/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. *Most residential PACE programs are currently on hold nationwide. Commercial programs are emerging. www.pacenow.org

Energy Efficiency and Demand Response

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

New Construction Programs

Advanced Home Program	http://www.californiaadvancedhomes.com/

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

Low Income Assistance

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

Energy and Water

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

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8

Support Green Jobs and Workforce Training

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

La Mesa 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.

Training and Education Resources

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

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.

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

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 Boulevard, San Diego, CA 92117. Contact (800) 411-7343 or visit www.sdge.com/eic.

Statewide Resources for Training and Education

Grid Alternatives

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

Solar Training Institute

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

California Community Colleges Economic and Workforce Development

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

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Looking Forward

This Energy Roadmap provides a framework to save energy in government operations and the community. It can support the sustainability components of La Mesa's General Plan Update and complements city climate planning. After participating in the SANDAG Energy Roadmap Program; there could be local, state, and federal funding opportunities for La Mesa 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 (CCSE). 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, La Mesa 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 energy efficiency services, or take on another course of action.

Local Government Energy Efficiency Partnerships have three focus areas:

1. Identify energy efficiency savings in municipal sites,
2. Utilize core energy efficiency programs, and
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 retrofits for energy efficiency improvements,
- Strengthened building energy codes and code enforcement,

- Land use planning and design,
- Education and outreach,
- Green building, permit expedite, and fee reduction programs,
- Peer-to-peer best practices and networking,
- Staff training programs, and
- Energy plan development.

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 solicitations that support transportation, residential, commercial, agricultural, industrial, institutional energy efficiency, and renewable energy programs.

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

Clean Vehicle Rebate Project

The Clean Vehicle Rebate Project (CVRP) is funded by the California Air Resources Board (CARB) and administered statewide by the CCSE. A total of $45.2 million has been appropriated for FY 2009-2013 to promote the production and use of zero-emission vehicles (ZEV), including electric, plug-in hybrid electric, and fuel cell vehicles. Rebates of up to $2,500 per light-duty vehicle are available for individuals and business owners who purchase or lease new eligible zero-emission or plug-in hybrid electric vehicles.

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

Assembly Bill 118 (AB 118): Alternative and Renewable Fuel and Vehicle Technology Program authorizes the California Energy Commission (CEC) to develop and deploy alternative and renewable fuels and advanced transportation technologies to help

attain the state's climate change policies. CEC has an annual program budget of approximately $100 million to support projects that:

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

Additional information on AB 118 and the associate investment plan can be found on the CEC Web site: www.energy.ca.gov/altfuels.

TransNet: Smart Growth Incentive Program and Active Transportation Grants

The *TransNet* Smart Growth Incentive Program (SGIP) funds transportation-related infrastructure improvements and planning efforts that support smart growth development. The SGIP awards two percent of the annual *TransNet* revenues for the next 40 years to local governments through a competitive grant program to support projects that will help better coordinate transportation and land use in the San Diego region. Additional information on the current funding cycle is available at www.sandag.org/smartgrowth.

The goal of the Active Transportation Grant Program is to encourage local jurisdictions to plan and build facilities that promote multiple travel choices for residents and connectivity to transit, schools, retail centers, parks, work, and other community gathering places. The grant program also encourages local jurisdictions to provide bicycle parking, education, encouragement, and awareness programs that support pedestrian and bicycle infrastructure. More information on current funding opportunities is available at www.sandag.org/active.

Non-Financial Resources for Local Governments

The Beacon Award

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

The City of La Mesa has already applied for this award and as such, it is designated as a Beacon Award program participant, and is now working toward achieving the first Beacon Award level.

Department of Energy Clean Cities Program

Clean Cities advances the nation's economic, environmental, and energy security by supporting local actions to reduce petroleum consumption in transportation. A national network of nearly 100 Clean Cities coalitions brings together stakeholders in the public and private sectors to deploy alternative and renewable fuels, idle-reduction measures, fuel economy improvements, and emerging transportation technologies. A variety of Clean Cities tools and resources are available on the DOE Web site (http://www1.eere.energy.gov/cleancities/). The local affiliate of the DOE Clean Cities program is the San Diego Regional Clean Cities Coalition at www.sdcleanfuels.org.

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 through its Energy Innovation Center

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, Antionette.Meier@sandag.org or visit www.icommutesd.com.

Statewide Energy Efficiency Best Practices Coordinator

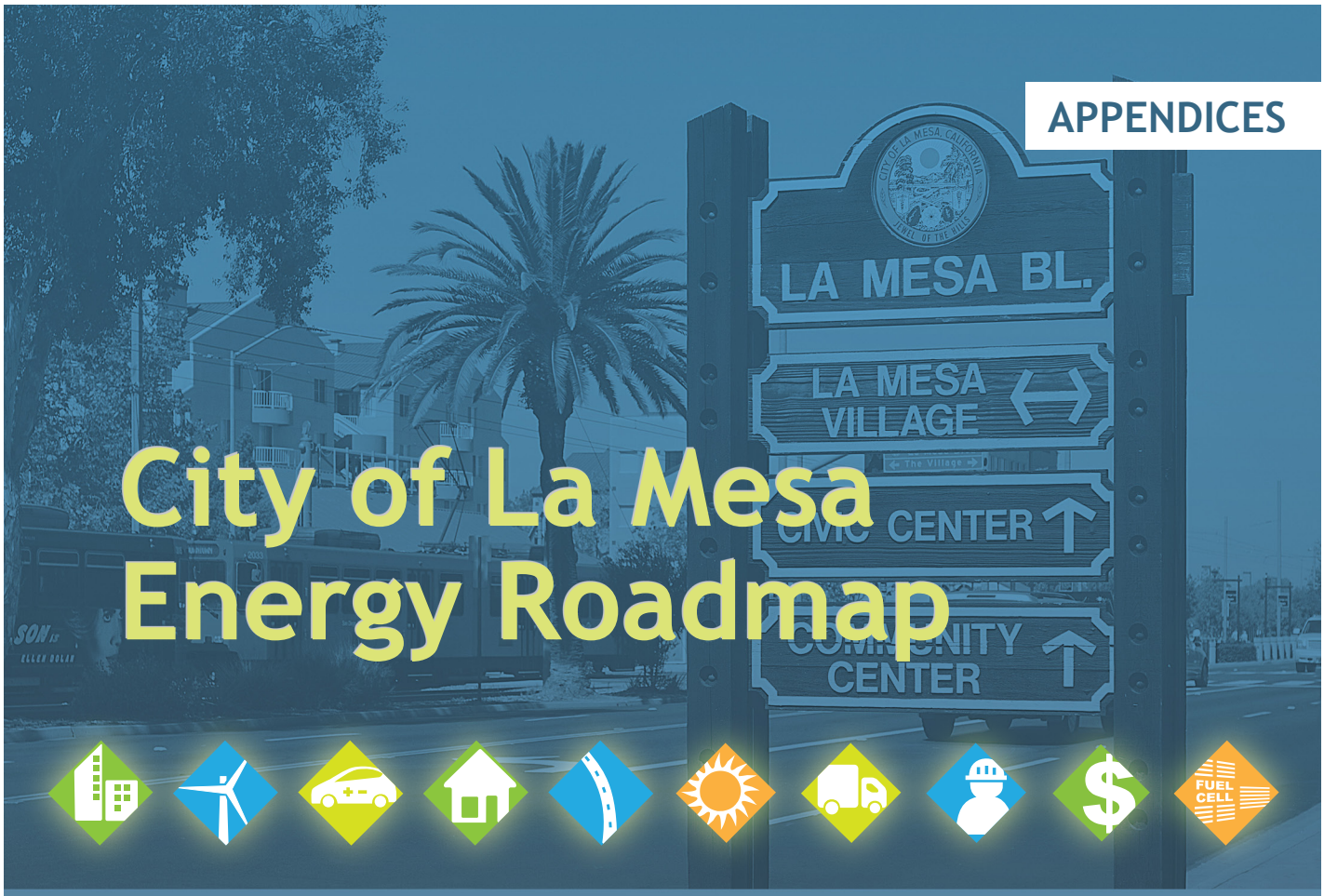
Patrick Stoner serves as the Statewide Local Government Energy Efficiency Best Practices coordinator. The position is part of the California Public Utilities Commission's 2010 through 2012 statewide energy-efficiency programs. Like SANDAG is available to you locally, Mr. Stoner is a statewide resource. 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 is providing recognition for cities and counties through the Beacon Award

APPENDICES



City of La Mesa Energy Roadmap

Prepared through the SANDAG Energy Roadmap Program

March 2013

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

SANDAG

SDGE

A Sempra Energy utility®

APPENDICES

Energy Roadmap for the City of La Mesa

Table of Contents

A. Energy Report Cards (Preliminary Assessments of Municipal Sites)

B. City of La Mesa Priority Site List

C. City of La Mesa Phase 2 Site Reports: Energy Audit Findings, Outdoor Lighting Study, and Utility Rate Analysis

D. Petroleum Reduction, Alternative Fuels, and Local Infrastructure Options

E. Transportation Demand Management Resources

F. Climate Protection Actions Taken by La Mesa

G. Sample Smart Growth Policies and Resources

H. Sample Energy-Saving Policies and Resources

I. Sample Clean and Efficient Transportation Policies and Resources

Program Contacts

The following staff of SANDAG and the California Center for Sustainable Energy (CCSE) had primary responsibility for the preparation of this document:

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San Diego Gas & Electric® Energy Efficiency Programs:
Joshua Brock, JBrock@semprautilities.com, (858) 503-5129

Building Energy Audits:
Jason Knight, EFM Solutions, jason.knight@efm-solutions.com, (619) 549-6695

City of La Mesa

Complete Facility List

Phase 1: Energy Report Cards

8130 Allison Ave
La Mesa, CA 91942

Prepared by

10310 Camino Agadir
San Diego, CA 92131
858.566.4306

SANDAG
Energy Roadmap
Program

This program is funded by California customers under the auspices of the California Public Utilities Commission.

ENERGY REPORT CARDS

Introduction to Report Card

Billing Analysis
Benchmarking
GHG Emission
Building Energy Use by System
Phase 1 Audit Summary: List of systems inspected
Potential Energy Conservation Measures

FACILITY SITE LIST

City Hall
Library & US Post Office
Police Station
Fire Station 11
Public Works
Fire Station 12
Fire Station 13
Senior Center
Community Center
Nan Couts Cottage
Municipal Pool
Sunset Gym
City Parks

Introduction to Report Cards

Welcome to the Building Energy Assessment component of the SANDAG Energy Roadmap Program.

This is the Phase 1 Assessment defined as the Energy Report Card, commencing your City's energy assessments. These assessments are funded by San Diego Gas & Electric and come at no out of pocket cost to the City. The San Diego Association of Governments is implementing this project and has contracted with EFM Solutions to conduct both Phase 1 and Phase 2 Energy Assessments. It is our hope that you will find the following Phase 1 Energy Report Card helpful in better understanding the energy usage patterns throughout your City's facilities.

What is the purpose of a Phase 1 Energy Report Card?

The Energy Roadmap Program has chosen to utilize a two-pronged approach to providing energy assessment assistance to cities throughout the San Diego Region. The purpose of this dual phase approach is to provide a brief overview of the current facility energy usage patterns and predict the strongest candidates for cost-effective energy efficiency projects. These Report Cards are meant to be a simplified overview of the facilities and a guide for further investigation. The goals of the Energy Report Cards are to state the billing details for a given facility, compare it to similar types of facilities, benchmark this facility against similar facilities, and ultimately develop a simple list of energy conservation measures that are deemed worthy of investigation. The end goal of the Energy Report Card is to provide information to your City that will help you understand what systems are using the most energy in a given building and what the likely candidates are for improving your building operation. These Energy Report Cards will be discussed between your City, EFM Solutions, SANDAG, and SDG&E to identify those energy conservation measures that the City would like to further explore for a more detailed energy assessment.

Please find enclosed a 2-page Energy Report Card for each City Facility that was discussed during the program kickoff event.

City of La Mesa Energy Report Card

City Hall
8130 ALLISON AVE LA MESA, CA 91942-5502

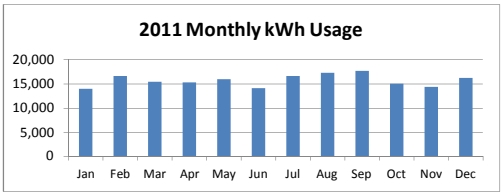
Billing Analysis and Benchmarking
10/13/2011

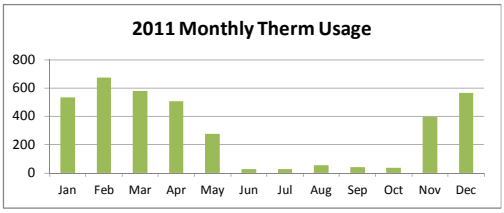
BILLING DATA

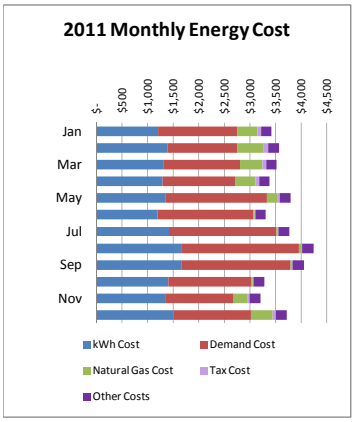
Site Data	
Facility Square Footage	18,070 sqft
Electrical Meter No. *	1682799
Electrical Rate Tariff	ALTOU
Gas Meter No. *	518797
Gas Rate Tariff	GN3

12 Month Consumption Summary	
Annual Electrical Consumption	189,180 kWh/yr
Max Demand	93.6 kW
Annual Gas Consumption	3,725 Therms/yr

12 Month Energy Cost Summary	
Electrical Energy Cost	$16,812
Electrical Demand Cost	$20,674
Natural Gas Cost	$2,801
Taxes and Fees	$499
Other Costs	$2,516
Total	**$43,302**







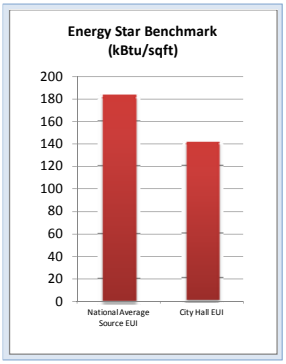
* Additional Meter Numbers are listed on the back side of the Energy Report Card

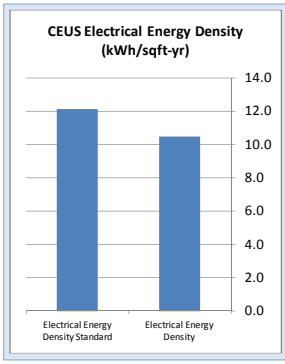
BASELINE

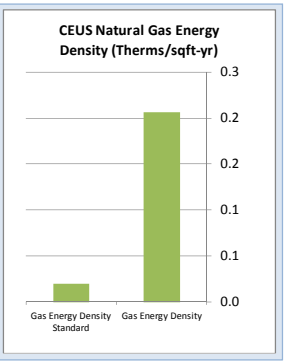
Energy Star Benchmarking (Energy Use Intensity)	
National Average Source EUI	183.1 kBtu/sqft
City Hall EUI	141.8 kBtu/sqft
Difference	-22.6%

California End-User Survey (CEUS) Energy Density Data	
Building Type	Small Office
Electrical Energy Density	10.5 kWh/sqft-yr
Electrical Energy Density Standard	12.1 kWh/sqft-yr
Gas Energy Density	0.21 Therms/sqft-yr
Gas Energy Density Standard	0.02 Therms/sqft-yr

12 Month GHG Emissions	
Direct GHG Emissions	19.8 (MtCO2e)
Indirect GHG Emissions	62.4 (MtCO2e)
Total GHG Emissions	82.2 (MtCO2e)







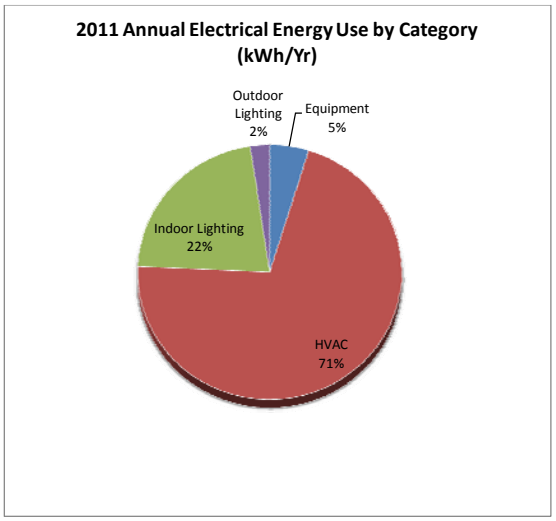
BUILDING ENERGY USE BY SYSTEM

Electrical Energy Use Itemization

Description	System Category	Hrs/Yr	kWh/Yr	Percent of Total Load
Heating	HVAC	800	8,132	4.3%
Cooling	HVAC	1350	45,175	23.8%
Ventilation	HVAC	2600	74,087	39.0%
Refrigeration	Equipment	1500	904	0.5%
Interior Lighting	Indoor Lighting	2500	48,789	25.7%
Office Equipment	Equipment	2500	8,132	4.3%
Exterior Lighting	Outdoor Lighting	4380	4,518	2.4%
Total			**189,735**	**100.0%**

Natural Gas Energy Use Itemization

Description	System Category	Hrs/Yr	Therms	Percent of Total Load
Water heating	DHW		450	12.1%
Heater	HVAC		3,275	87.9%
Total			**3,725**	**100.0%**



Prepared by EFM Solutions through SANDAG Energy Roadmap Program, 2011.

City Hall
8130 ALLISON AVE LA MESA, CA 91942-5502

Site Audit Date
8/31/2011

ADDITIONAL SITE DATA

Contact Person	Ken Rothstein
Contact Info	619 667 1497
	krothstein@ci.la-mesa.ca.us

Additional Utility Meters	
1937530	ALTOU

Additional Utility Meters

PHASE 1 AUDIT SUMMARY

Targeted Systems and Observations

The La Mesa City Hall is a 14,998 sqft facility built in the 1950's which houses city department offices, city official offices and council chambers. The building operates approximately 45 to 50 hours per week.

The following systems were included in the phase 1 audit:

HVAC
Indoor Lighting
Outdoor Lighting
Domestic Water Heating
Other Equipment

HVAC - The east side of the building is served by Trane 25 ton remote split system condenser and a fan coil in the attic space. The Trane unit is much newer than the fan coils. The fan coils and evaporator coils are original equipment for the building. The west side of the building is served by two Carrier package air conditioners installed on the ground, 3.5 ton and a 7.5 ton units. Individual conditioned zones are controlled by pneumatic VAV boxes and mechanical thermostats. A power exhaust is used to offset the outside air in the building. A central digital timer shuts the entire cooling system down when the building is expected to be unoccupied. No override is in place. The entire building is heated by a single natural gas boiler. Heating hot water is circulated throughout the building to reheat VAV boxes by a 1/2 hp pump. The boiler cycles based on heating demand and the circulation pump runs continuously. Facility personnel shut the boiler and pump off during summer months.

Indoor Lighting - Indoor lighting at City Hall is provided by T8 fluorescent lamps and electronic ballasts in a variety of fixtures. In private offices and bullpen areas recessed troffers with two lamps per fixture are installed into T-bar ceilings. Public spaces are lit by suspended fixtures with two lamp cross sections and louvers. Lighting levels throughout the spaces were in line with standard office light levels.

Outdoor Lighting - All of the parking lot lights around City Hall are recently retrofitted to induction lamps and generators. Wall packs are CFL. Outdoor lighting is controlled by a digital timer.

Domestic Water Heating - Domestic hot water is provided by a residential gas water heater located in the attic space near the fan coils. The unit is a 32,000 Btu 30 gallon model.

Other Equipment - The City Hall break room has two vending machines; one beverage machine and one non-perishable snack machine.

Potential Energy Conservation Measures

ECM 1: Install Vending Misers on all vending machines. Vending Misers learn the habits of the occupants and shuts down the vending machines that do not contain perishable goods when it determines the machine will not be used. This measure will not work in areas with 24/7 occupation or outdoors.

ECM 2: Consider recommissioning the City Hall building. The evaporator coils serving the east side of the building are original equipment. Facility personnel report that the system works well without comfort complaints, however the outdoor unit is much newer and may not be matched well to the existing evaporator coils. The package air conditioners serving the west side of City Hall are placed on the ground beside the building. The duct work may not be insulated properly where exposed to outdoor elements. The control system for the VAV terminals is based on a pneumatic system powered by a commercial air compressor. The controls do not include the heating hot water boiler or the heating hot water pump, both are controlled manually. The controls are original equipment in the building. It is not clear if the air handler on the east side of the building has a functioning economizer. Modeling will be required to accurately predict savings from a recommissioning. If a recommissioning is not economically feasible a retro-commissioning may yield improved efficiency and indoor air quality.

ECM 3: Investigate cause of high demand cost. The electrical demand cost at City Hall is a much higher portion compared to most buildings. This should be investigated in an effort to reduce those costs.

Prepared by EFM Solutions through SANDAG Energy Roadmap Program, 2011.

City of La Mesa Energy Report Card
Library/U.S. Post Office
8074 ALLISON AVE LA MESA, CA 91942-6531

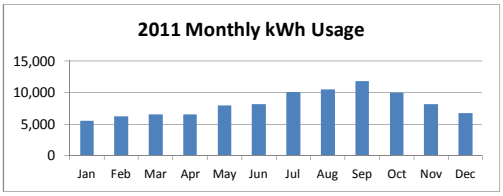
Billing Analysis and Benchmarking
10/13/2011

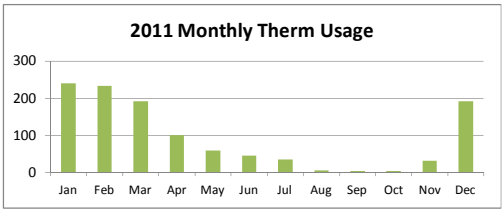
BILLING DATA

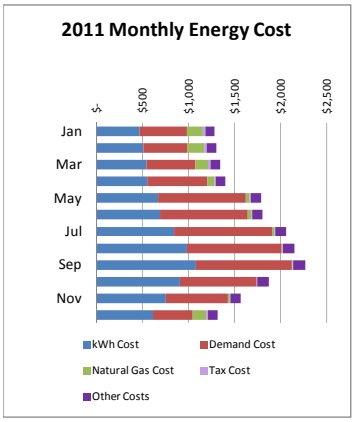
Site Data	
Facility Square Footage	17,725 sqft
Electrical Meter No. *	1800929
Electrical Rate Tariff	ALTOU
Gas Meter No. *	1151000
Gas Rate Tariff	GN3

12 Month Consumption Summary	
Annual Electrical Consumption	98,500 kWh/yr
Max Demand	44.0 kW
Annual Gas Consumption	1,141 Therms/yr

12 Month Energy Cost Summary	
Electrical Energy Cost	$8,644
Electrical Demand Cost	$9,153
Natural Gas Cost	$861
Taxes and Fees	$176
Other Costs	$1,339
Total	**$20,172**







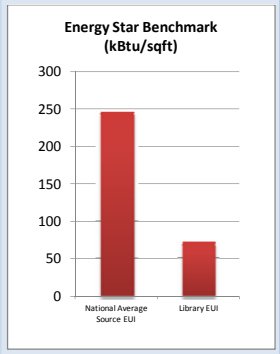
* Additional Meter Numbers are listed on the back side of the Energy Report Card

BASELINE

Energy Star Benchmarking (Energy Use Intensity)	
National Average Source EUI	246.0 kBtu/sqft
Library EUI	71.4 kBtu/sqft
Difference	-71.0%

California End-User Survey (CEUS) Energy Density Data	
Building Type	N/A
Electrical Energy Density	5.6 kWh/sqft-yr
Electrical Energy Density Standard	N/A
Gas Energy Density	0.06 Therms/sqft-yr
Gas Energy Density Standard	N/A

12 Month GHG Emissions	
Direct GHG Emissions	6.1 (MtCO2e)
Indirect GHG Emissions	32.5 (MtCO2e)
Total GHG Emissions	38.6 (MtCO2e)



This Space Not Used

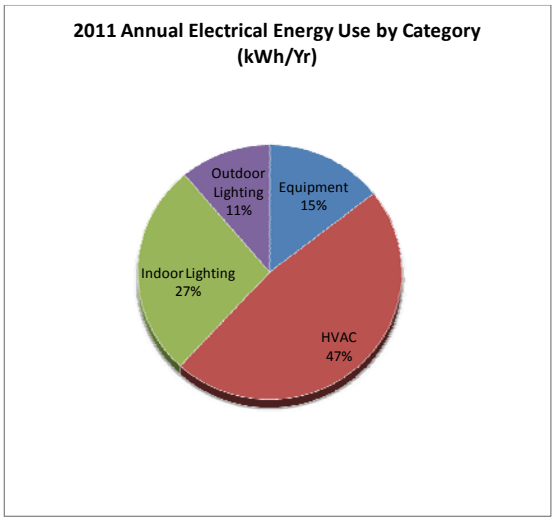
BUILDING ENERGY USE BY SYSTEM

Electrical Energy Use Itemization

Description	System Category	Hrs/Yr	kWh/Yr	Percent of Total Load
Heating	HVAC	800	1,773	1.8%
Cooling	HVAC	1350	14,712	15.0%
Ventilation	HVAC	2500	30,133	30.6%
Refrigeration	Equipment	1500	886	0.9%
Interior Lighting	Indoor Lighting	2500	26,588	27.0%
Office Equipment	Equipment	2500	13,294	13.5%
Exterior Lighting	Outdoor Lighting	4380	10,990	11.2%
Total			**98,374**	**100.0%**

Natural Gas Energy Use Itemization

Description	System Category	Hrs/Yr	Therms	Percent of Total Load
Water heating	DHW		75	6.6%
Heater	HVAC		1,066	93.4%
Total			**1,141**	**100.0%**



Prepared by EFM Solutions through SANDAG Energy Roadmap Program, 2011.

Library/U.S. Post Office
8074 ALLISON AVE LA MESA, CA 91942-6531

Site Audit Date
8/31/2011

ADDITIONAL SITE DATA

Contact Person	Ken Rothstein
Contact Info	619 667 1497
	krothstein@ci.la-mesa.ca.us

Additional Utility Meters
None

Additional Utility Meters
None

PHASE 1 AUDIT SUMMARY

Targeted Systems and Observations

Library/Post Office

The La Mesa Library and Post Office is a 17,725 sqft building built in 2008. The building is split between the Post Office and the Library, each with their own electrical and gas meters. Billing data for the library was found, however billing data for the Post Office was not in the city records. This will result in an exaggerated benchmark when compared to other buildings locally and nationally. The building operates approximately 45 to 50 hours per week.

The following systems were included in the phase 1 audit:

HVAC
Indoor Lighting
Outdoor Lighting

HVAC - The Library is served by four rooftop package air conditioned systems and a ductless split system (two 15 ton, two 6 ton, and a 1.5 ton ductless). The post office is served by three other rooftop air conditioners but are not maintained by the city. The air conditioners are controlled by digital programmable thermostats.

Indoor Lighting - The Library is lit by linear fluorescents and CFL. The lower T-bar ceiling in office and staff areas of the library have 2ft x 2ft recessed troffers with two 2ft T8 lamps per fixture and electronic ballasts. The stacks are lit by linear fluorescent fixtures with two T8 lamps per cross section and electronic ballast. Area lighting and accent lights is provided by recessed can fixtures with CFL.

Outdoor Lighting - The parking lot is lit with induction lamps and generators on pole tops controlled by digital timer for dusk to dawn control.

Potential Energy Conservation Measures

No energy conservation measures found at this time.

Prepared by EFM Solutions through SANDAG Energy Roadmap Program, 2011.

City of La Mesa Energy Report Card

Police Station | **Billing Analysis and Benchmarking**

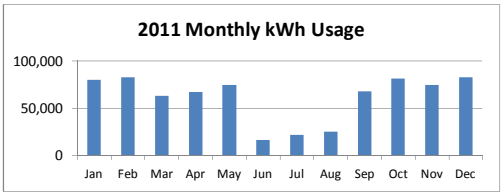
8085 UNIVERSITY AVE LA MESA, CA 91942-5548 | 10/13/2011

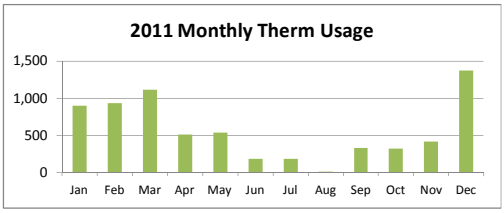
BILLING DATA

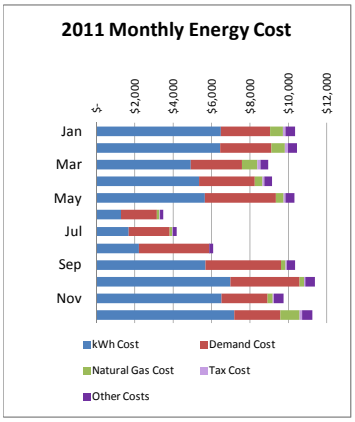
Site Data	
Facility Square Footage	83,606 sqft
Electrical Meter No. *	1982522
Electrical Rate Tariff	ALTOU
Gas Meter No. *	929860
Gas Rate Tariff	GN3

12 Month Consumption Summary	
Annual Electrical Consumption	738,720 kWh/yr
Max Demand	185.6 kW
Annual Gas Consumption	6,798 Therms/yr

12 Month Energy Cost Summary	
Electrical Energy Cost	$60,589
Electrical Demand Cost	$34,424
Natural Gas Cost	$5,050
Taxes and Fees	$1,091
Other Costs	$4,716
Total	**$105,869**







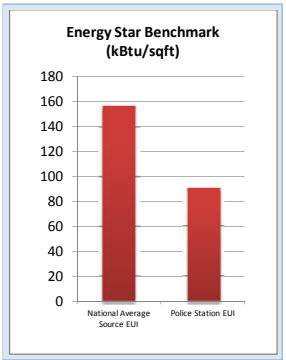
* Additional Meter Numbers are listed on the back side of the Energy Report Card

BASELINE

Energy Star Benchmarking (Energy Use Intensity)	
National Average Source EUI	157.0 kBtu/sqft
Police Station EUI	90.9 kBtu/sqft
Difference	-42.1%

California End-User Survey (CEUS) Energy Density Data	
Building Type	N/A
Electrical Energy Density	8.8 kWh/sqft-yr
Electrical Energy Density Standard	N/A
Gas Energy Density	0.08 Therms/sqft-yr
Gas Energy Density Standard	N/A

12 Month GHG Emissions	
Direct GHG Emissions	36.2 (MtCO2e)
Indirect GHG Emissions	243.7 (MtCO2e)
Total GHG Emissions	279.8 (MtCO2e)



This Space Not Used

BUILDING ENERGY USE BY SYSTEM

Electrical Energy Use Itemization

Description	System Category	Hrs/Yr	kWh/Yr	Percent of Total Load
Phase 1 Audit did not include all systems - building still under warantee from builder.				

Natural Gas Energy Use Itemization

Description	System Category	Hrs/Yr	Therms	Percent of Total Load

This Space Not Used

Prepared by EFM Solutions through SANDAG Energy Roadmap Program, 2011.

Police Station
8085 UNIVERSITY AVE LA MESA, CA 91942-5548

Site Audit Date
10/31/2011

ADDITIONAL SITE DATA

Contact Person	Ken Rothstein
Contact Info	619 667 1497
	krothstein@ci.la-mesa.ca.us

Additional Utility Meters
None

Additional Utility Meters
None

PHASE 1 AUDIT SUMMARY

Targeted Systems and Observations

The Police Station is a 83,606 sqft building built in 2010 as a LEED Silver building. The building operates 24 hours per day. The building is still under warrantee from the builder.

The following systems were included in the phase 1 audit:

Outdoor Lighting
Backup Generator

Outdoor Lighting - The exterior of the Police Station is lit by CFL wallpacks. The parking lots and walking areas around the Police Station are lit by pole top induction lamps and fixtures. All exterior lighting is controlled by timer for dusk to dawn control.

Backup Generator - The backup generator at the police station is maintained in a ready state with an electric block heater to maintain the temperature of the oil to ensure the generator is ready to run and produce power.

Potential Energy Conservation Measures

ECM 1: Replace the electric resistance heater on the generator engine block with a heat pump. Savings will be achieved by reducing the power required to maintain the engine block temperature.

No equipment change outs are recommended at this time. The building warranty will be voided.

Prepared by EFM Solutions through SANDAG Energy Roadmap Program, 2011.

City of La Mesa Energy Report Card
Fire Station #11
8054 ALLISON AVE LA MESA, CA 91942-6531

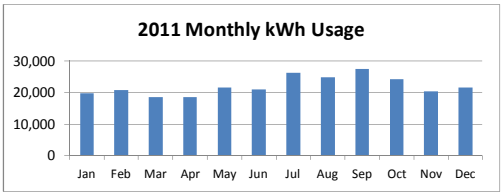
Billing Analysis and Benchmarking
10/13/2011

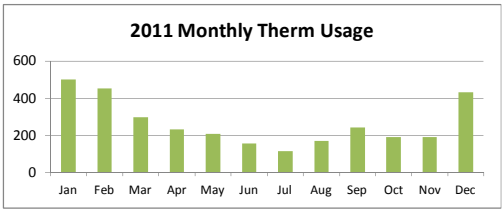
BILLING DATA

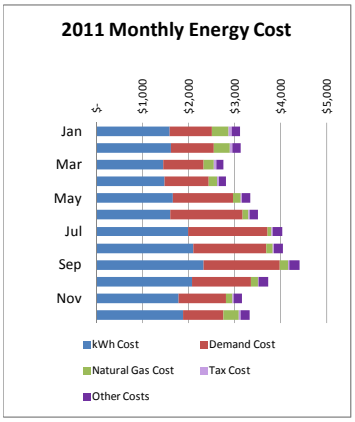
Site Data	
Facility Square Footage	21,844 sqft
Electrical Meter No. *	1856522
Electrical Rate Tariff	ALTOU
Gas Meter No. *	1082671
Gas Rate Tariff	GN3

12 Month Consumption Summary	
Annual Electrical Consumption	264,880 kWh/yr
Max Demand	64.8 kW
Annual Gas Consumption	3,180 Therms/yr

12 Month Energy Cost Summary	
Electrical Energy Cost	$21,644
Electrical Demand Cost	$14,692
Natural Gas Cost	$2,406
Taxes and Fees	$467
Other Costs	$2,214
Total	**$41,423**







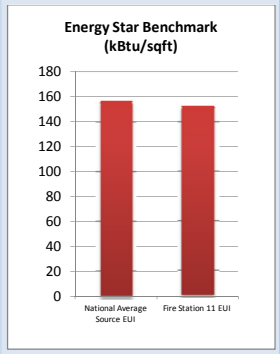
* Additional Meter Numbers are listed on the back side of the Energy Report Card

BASELINE

Energy Star Benchmarking (Energy Use Intensity)	
National Average Source EUI	157.0 kBtu/sqft
Fire Station 11 EUI	152.8 kBtu/sqft
Difference	-2.7%

California End-User Survey (CEUS) Energy Density Data	
Building Type	N/A
Electrical Energy Density	12.1 kWh/sqft-yr
Electrical Energy Density Standard	N/A
Gas Energy Density	0.15 Therms/sqft-yr
Gas Energy Density Standard	N/A

12 Month GHG Emissions	
Direct GHG Emissions	16.9 (MtCO2e)
Indirect GHG Emissions	87.4 (MtCO2e)
Total GHG Emissions	104.3 (MtCO2e)



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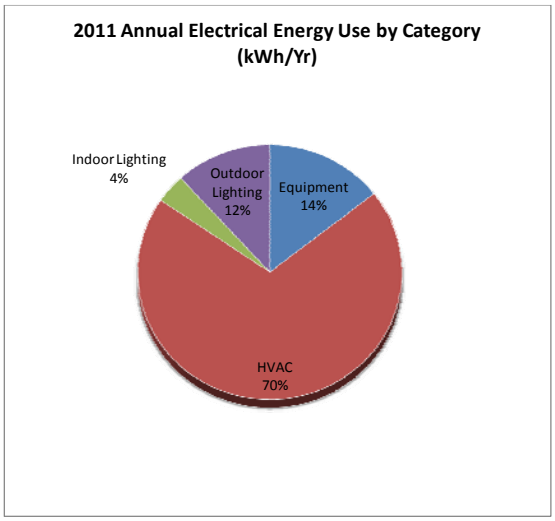
BUILDING ENERGY USE BY SYSTEM

Electrical Energy Use Itemization

Description	System Category	Hrs/Yr	kWh/Yr	Percent of Total Load
Chiller	HVAC	1350	111,404	42.1%
HVAC circulation pumps	HVAC	1350	30,582	11.5%
Fan Coils	HVAC	4350	43,688	16.5%
Garage Lighting	Indoor Lighting	4350	6,772	2.6%
Residential Lighting	Indoor Lighting	1000	2,949	1.1%
Parking Lot Lighting	Outdoor Lighting	4380	21,844	8.2%
Wall Packs	Outdoor Lighting	4380	9,393	3.5%
FD Support Equipment	Equipment	1500	38,227	14.4%
Total			**264,859**	**100.0%**

Natural Gas Energy Use Itemization

Description	System Category	Hrs/Yr	Therms	Percent of Total Load
Water heating	DHW		1,400	44.0%
Heating	HVAC		1,780	56.0%
Total			**3,180**	**100.0%**



Prepared by EFM Solutions through SANDAG Energy Roadmap Program, 2011.

Fire Station #11
8054 ALLISON AVE LA MESA, CA 91942-6531

Site Audit Date
9/8/2011

ADDITIONAL SITE DATA

Contact Person	Ken Rothstein
Contact Info	619 667 1497
	krothstein@ci.la-mesa.ca.us

Additional Utility Meters
None

Additional Utility Meters
None

PHASE 1 AUDIT SUMMARY

Targeted Systems and Observations

Fire Station 11 is 21,098 sqft building built in 2006. It has two auxiliary buildings also built in 2006. Fire Station 11 also serves as the headquarters for the La Mesa Fire Department and hosts the call center. The building is occupied 24 hours per day.

The following systems were included in the phase 1 audit:

HVAC
Indoor Lighting
Outdoor Lighting
Backup Generator

HVAC - Fire Station 11 is conditioned by a 4-pipe fan coil system with an air cooled chiller and natural gas boiler providing chilled water and heating hot water to thirteen fan coils. During the phase 1 audit station personnel reported that some offices were too cold and vents were taped shut with cardboard.

Indoor Lighting - Offices are lit with 2x4 recessed troffer fluorescent fixtures and T8 lamps with electronic ballasts. Hallways and dorms are lit with CFL lamps in recessed cans. Offices are equipped with occupancy sensors.

Outdoor Lighting - The parking lot is lit with induction lamps and generators. The building has CFL wallpacks. The outdoor lighting is controlled by timer for dusk to dawn operation.

Backup Generator - The backup generator at the police station is maintained in a ready state with an electric block heater to maintain the temperature of the oil to ensure the generator is ready to run and produce power.

Potential Energy Conservation Measures

ECM 1: Replace the electric resistance heater on the generator engine block with a heat pump. Savings will be achieved by reducing the power required to maintain the engine block temperature.

ECM 2: Further investigation of the fire station chiller and cooling equipment is recommended to determine if further ECM's are available.

Prepared by EFM Solutions through SANDAG Energy Roadmap Program, 2011.

City of La Mesa Energy Report Card
Public Works Campus
8152 COMMERCIAL ST 200 LA MESA, CA 91942-2926

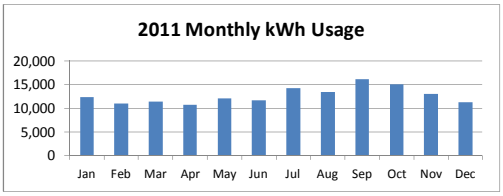
Billing Analysis and Benchmarking
10/13/2011

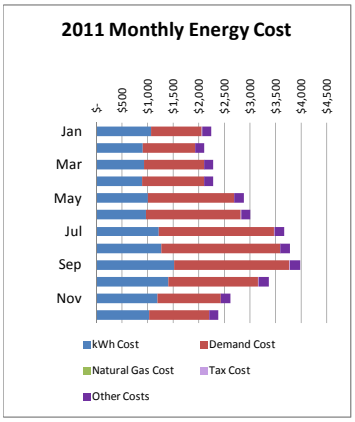
BILLING DATA

Site Data	
Facility Square Footage	34,543 sqft
Electrical Meter No. *	1666452
Electrical Rate Tariff	ALTOU
Gas Meter No. *	-
Gas Rate Tariff	-

12 Month Consumption Summary	
Annual Electrical Consumption	152,880 kWh/yr
Max Demand	94.4 kW
Annual Gas Consumption	0 Therms/yr

12 Month Energy Cost Summary	
Electrical Energy Cost	$13,467
Electrical Demand Cost	$18,915
Natural Gas Cost	$0
Taxes and Fees	$76
Other Costs	$2,206
Total	**$34,663**





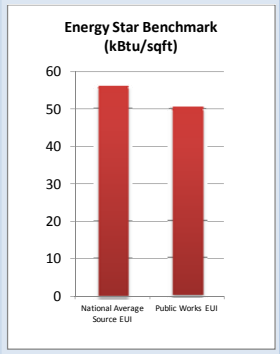
* Additional Meter Numbers are listed on the back side of the Energy Report Card

BASELINE

Energy Star Benchmarking (Energy Use Intensity)	
National Average Source EUI	56.0 kBtu/sqft
Public Works EUI	50.5 kBtu/sqft
Difference	-9.8%

California End-User Survey (CEUS) Energy Density Data	
Building Type	N/A
Electrical Energy Density	4.4 kWh/sqft-yr
Electrical Energy Density Standard	N/A
Gas Energy Density	0.00 Therms/sqft-yr
Gas Energy Density Standard	N/A

12 Month GHG Emissions	
Direct GHG Emissions	0.0 (MtCO2e)
Indirect GHG Emissions	50.4 (MtCO2e)
Total GHG Emissions	50.4 (MtCO2e)



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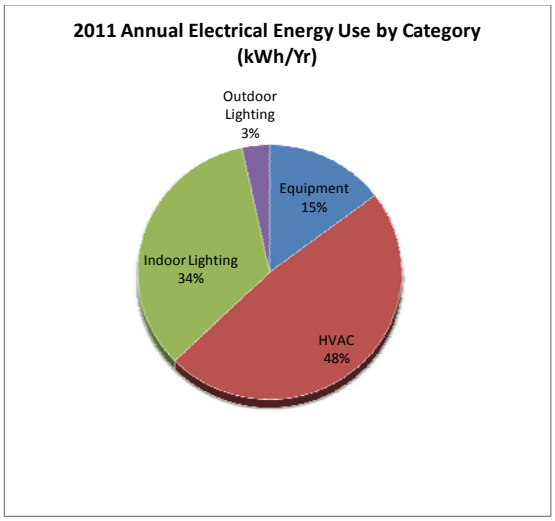
BUILDING ENERGY USE BY SYSTEM

Electrical Energy Use Itemization

Description	System Category	Hrs/Yr	kWh/Yr	Percent of Total Load
Heating	HVAC	800	5,181	3.4%
Cooling	HVAC	1350	25,907	16.9%
Ventilation	HVAC	2500	42,315	27.7%
Refrigeration	Equipment	1500	1,727	1.1%
Interior Lighting	Indoor Lighting	2500	51,815	33.9%
Office Equipment	Equipment	2500	3,454	2.3%
Exterior Lighting	Outdoor Lighting	4380	5,181	3.4%
Vehicle Repair Support Equipment	Equipment	1000	17,272	11.3%
Total			**152,853**	**100.0%**

Natural Gas Energy Use Itemization

Description	System Category	Hrs/Yr	Therms	Percent of Total Load
Total				



Prepared by EFM Solutions through SANDAG Energy Roadmap Program, 2011.

Public Works Campus
8152 COMMERCIAL ST 200 LA MESA, CA 91942-2926

Site Audit Date
9/8/2011

ADDITIONAL SITE DATA

Contact Person	Ken Rothstein
Contact Info	619 667 1497
	krothstein@ci.la-mesa.ca.us

Additional Utility Meters	
1982303	ALTOU

Additional Utility Meters

PHASE 1 AUDIT SUMMARY

Targeted Systems and Observations

The Public Works yard is a 4.3 acre property with six buildings. The Public Works yard is used for storage, office space and fleet maintenance.
The following systems were included in the phase 1 audit:

HVAC
Indoor Lighting
Other Equipment
Outdoor Lighting

Public Works Administration Building

The Administration building is 8,340 sqft and was built in 2000. The building is home to administrative offices and meeting rooms. The building is in use approximately 45 hours per week.
HVAC - The building is served by two Trane Voyager package air conditioners controlled by digital programmable thermostats. The units are heating and cooling units. The thermostats are programmed with setbacks, no other HVAC controls are present in the building.
Indoor Lighting - The interior is lit with suspended bi-directional fixtures with 2 and 3 T8 lamps per fixture. All fixture has electronic ballasts. Office lights are all equipped with occupancy sensors

Shop Building #100

Shop Building #100 is 6,048 sqft and was built in 1958; it was remodeled in 2000. There is no HVAC system at this building. The building houses a small workshop and a storage area. The building is used approximately 25 to 35 hours per week and may vary depending on projects to be done.
Indoor Lighting - The building is lit with suspended industrial hood fixtures with 3 T8 lamps per fixture and electronic ballasts. There are no occupancy sensors in this building.

Sign Shop Modular #600

The Sign Shop is a 2,160 sqft building that was built in 2000. The building has no HVAC. The building houses a sign shop and a storage area. The building is used approximately 25 to 35 hours per week and may vary depending on projects to be done.
Indoor Lighting - The building is lit with suspended industrial hood fixtures with 3 T8 lamps per fixture and electronic ballasts. There are no occupancy sensors in this building.

Public Works Fleet Maintenance
The Fleet Maintenance building is 11,332 sqft and was built in 2000. The building has no HVAC. The building is used for maintaining and repairing city owned vehicles and equipment. The building is in use 40 to 45 hours per week.
Indoor Lighting - The Fleet Maintenance building is lit with metal halide highbay fixtures. The lights are controlled by wall switch and are run during normal operating hours. Storage and employee break areas are lit with suspended industrial hood fluorescent fixtures with 2 T8 lamps per fixture and electronic ballasts. These lights operate during normal operating hours.
Other Equipment - Fleet Maintenance has a compressed air system with a reciprocating air compressor. There are vehicle exhaust fans on retractable hoses installed over each maintenance bay. The exhaust fans are controlled by a switch on the wall near the door of each bay.

Storage Building #200
Storage Building #200 is a 5,760 sqft building built in 1960. The building is used exclusively for storage. There is no HVAC.
Indoor Lighting - The building is lit by suspended industrial hood fixtures with 3 T8 fluorescent lamps per fixture and electronic ballasts. The lights are controlled by wall switch and were on at the time of the phase 1 audit while the building was unoccupied. There is no occupancy sensor in the building.

Storage Building #500
Storage building #500 is a 903 sqft building built in 2000. The building is used exclusively for storage. There is no HVAC.
Indoor Lighting - The building is lit by suspended industrial hood fluorescent fixtures with 3 T8 fluorescent lamps per fixture and electronic ballasts. There is no occupancy sensor in this building.
Outdoor Lighting - The Public Works lot does not have pole lighting in the lot or around the buildings. The buildings have wallpacks with high pressure sodium lamps and ballasts. The lights are controlled by timer for dusk to dawn control.

Potential Energy Conservation Measures

ECM 1: Replace 400 watt metal halide hibay fixture in Fleet Maintenance building with fluorescent lamps and fixtures. Savings will be achieved by reducing the wattage of each fixture.

ECM 2: Install occupancy sensors on lights of all storage areas and individual offices. Savings may be achieved by reducing the hours the lights are on. Areas where power tools are being used should not be equipped with an occupancy sensor for safety purposes.

Prepared by EFM Solutions through SANDAG Energy Roadmap Program, 2011.

City of La Mesa Energy Report Card
Fire Station #12
8844 DALLAS ST LA MESA, CA 91942-3404

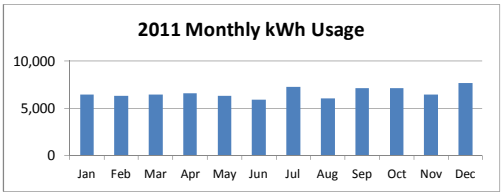
Billing Analysis and Benchmarking
10/13/2011

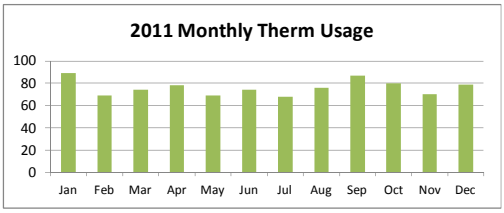
BILLING DATA

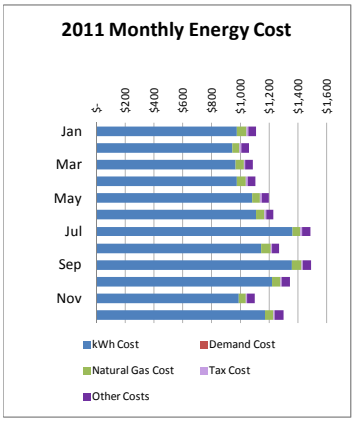
Site Data	
Facility Square Footage	9,286 sqft
Electrical Meter No. *	1919861
Electrical Rate Tariff	A
Gas Meter No. *	882120
Gas Rate Tariff	GN3

12 Month Consumption Summary	
Annual Electrical Consumption	79,840 kWh/yr
Max Demand	18.4 kW
Annual Gas Consumption	913 Therms/yr

12 Month Energy Cost Summary	
Electrical Energy Cost	$13,319
Electrical Demand Cost	$0
Natural Gas Cost	$694
Taxes and Fees	$135
Other Costs	$656
Total	**$14,804**







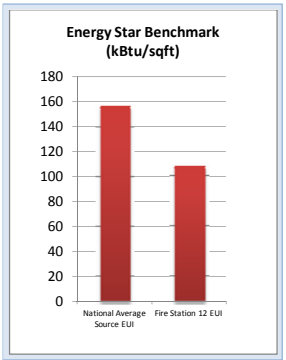
* Additional Meter Numbers are listed on the back side of the Energy Report Card

BASELINE

Energy Star Benchmarking (Energy Use Intensity)	
National Average Source EUI	157.0 kBtu/sqft
Fire Station 12 EUI	108.1 kBtu/sqft
Difference	-31.1%

California End-User Survey (CEUS) Energy Density Data	
Building Type	N/A
Electrical Energy Density	8.6 kWh/sqft-yr
Electrical Energy Density Standard	N/A
Gas Energy Density	0.10 Therms/sqft-yr
Gas Energy Density Standard	N/A

12 Month GHG Emissions	
Direct GHG Emissions	4.9 (MtCO2e)
Indirect GHG Emissions	26.3 (MtCO2e)
Total GHG Emissions	31.2 (MtCO2e)



This Space Not Used

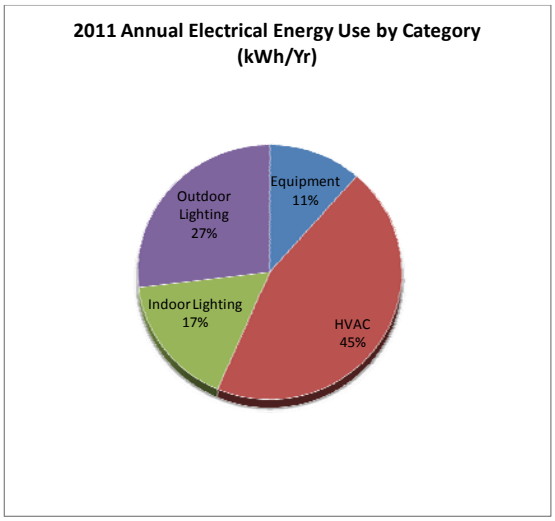
BUILDING ENERGY USE BY SYSTEM

Electrical Energy Use Itemization

Description	System Category	Hrs/Yr	kWh/Yr	Percent of Total Load
Air Conditioners	HVAC	1350	35,950	45.0%
Garage Lighting	Indoor Lighting	4350	9,950	12.5%
Residential Lighting	Indoor Lighting	1000	3,350	4.2%
Parking Lot Lighting	Outdoor Lighting	4380	13,215	16.5%
Wall Packs	Outdoor Lighting	4380	8,282	10.4%
FD Support Equipment	Equipment	1500	9,111	11.4%
Total			**79,858**	**100.0%**

Natural Gas Energy Use Itemization

Description	System Category	Hrs/Yr	Therms	Percent of Total Load
Water heating	DHW		816	89.1%
Heater	HVAC		100	10.9%
Total			**916**	**100.0%**



Prepared by EFM Solutions through SANDAG Energy Roadmap Program, 2011.

Fire Station #12
8844 DALLAS ST LA MESA, CA 91942-3404

Site Audit Date
9/8/2011

ADDITIONAL SITE DATA

Contact Person	Ken Rothstein
Contact Info	619 667 1497
	krothstein@ci.la-mesa.ca.us

Additional Utility Meters
None

Additional Utility Meters
None

PHASE 1 AUDIT SUMMARY

Targeted Systems and Observations

Fire Station 12 is a 8,950 sqft building built in 1998. The building is a typical fire station housing 10 to 15 firefighters and fire equipment. The building is occupied 24 hours per day.

The following systems were included in the phase 1 audit:

HVAC
Indoor Lighting
Outdoor Lighting
Backup Generator

HVAC - The building is served by four split air conditioners and one package air conditioner, each with gas heat. The units are controlled by digital programmable thermostats.

Indoor Lighting - The interior of the fire station is lit by T8 lamps and electronic ballasts in recessed troffer fixtures and recessed can fixtures with CFL throughout the offices, hallways and dorms. The garage is lit by industrial 2 lamp fixtures with T8 fluorescent lamps and electronic ballasts. There are no occupancy sensors in Fire Station 12.

Outdoor Lighting - The parking lot is lit by 250 watt high pressure sodium (HPS) lamps and fixtures on 25' poles. Wall sconces are lit by CFL. Well lights in front of the building and at the flag pole are 150 watt metal halide (MH). All outdoor lighting is controlled by timer for dusk to dawn operation.

Backup Generator - The backup generator at Fire Station 12 is maintained in a ready state with an electric block heater to maintain the temperature of the oil to ensure the generator is ready to run and produce power.

Potential Energy Conservation Measures

ECM 1: Replace the electric resistance heater on the generator engine block with a heat pump. Savings will be achieved by reducing the power required to maintain the engine block temperature.

Prepared by EFM Solutions through SANDAG Energy Roadmap Program, 2011.

City of La Mesa Energy Report Card
Fire Station #13
9110 GROSSMONT BLVD LA MESA, CA 91941-4142

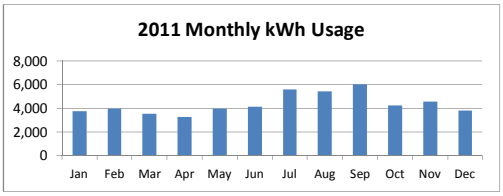
Billing Analysis and Benchmarking
10/13/2011

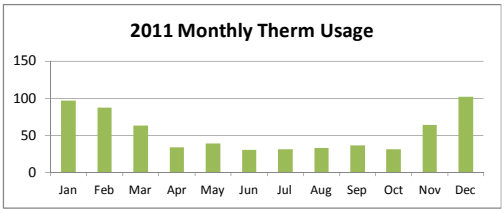
BILLING DATA

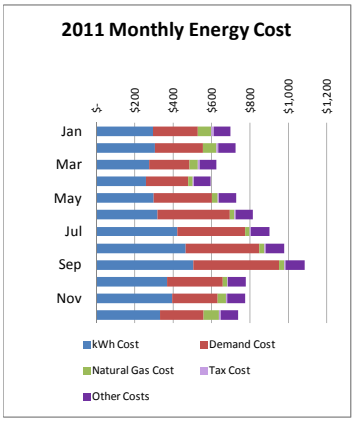
Site Data	
Facility Square Footage	5,183 sqft
Electrical Meter No. *	1981940
Electrical Rate Tariff	ALTOU
Gas Meter No. *	1227614
Gas Rate Tariff	GN3

12 Month Consumption Summary	
Annual Electrical Consumption	52,380 kWh/yr
Max Demand	17.4 kW
Annual Gas Consumption	647 Therms/yr

12 Month Energy Cost Summary	
Electrical Energy Cost	$4,251
Electrical Demand Cost	$3,527
Natural Gas Cost	$489
Taxes and Fees	$95
Other Costs	$1,095
Total	**$9,457**







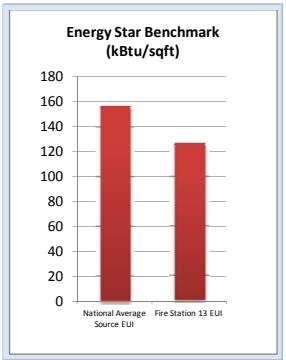
* Additional Meter Numbers are listed on the back side of the Energy Report Card

BASELINE

Energy Star Benchmarking (Energy Use Intensity)	
National Average Source EUI	157.0 kBtu/sqft
Fire Station 13 EUI	127.0 kBtu/sqft
Difference	-19.1%

California End-User Survey (CEUS) Energy Density Data	
Building Type	N/A
Electrical Energy Density	10.1 kWh/sqft-yr
Electrical Energy Density Standard	N/A
Gas Energy Density	0.12 Therms/sqft-yr
Gas Energy Density Standard	N/A

12 Month GHG Emissions	
Direct GHG Emissions	3.4 (MtCO2e)
Indirect GHG Emissions	17.3 (MtCO2e)
Total GHG Emissions	20.7 (MtCO2e)



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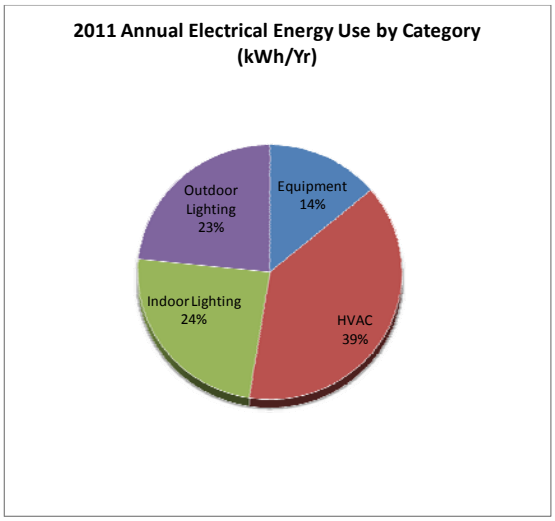
BUILDING ENERGY USE BY SYSTEM

Electrical Energy Use Itemization

Description	System Category	Hrs/Yr	kWh/Yr	Percent of Total Load
Air Conditioners	HVAC	1370	20,253	#REF!
Fire Station Support Equipment	Equipment	2000	5,442	#REF!
Appliances	Equipment	4000	1,814	#REF!
Interior lighting	Indoor Lighting	1500	12,650	#REF!
Outdoor lighting	Outdoor Lighting	4380	12,250	#REF!
				#REF!
				#REF!
				#REF!
				#REF!
				#REF!
				#REF!
Total			**52,409**	**#REF!**

Natural Gas Energy Use Itemization

Description	System Category	Hrs/Yr	Therms	Percent of Total Load
Water heating	DHW	-	375	58.0%
Heater	HVAC	-	272	42.0%
Total			**647**	**100.0%**



Prepared by EFM Solutions through SANDAG Energy Roadmap Program, 2011.

Fire Station #13
9110 GROSSMONT BLVD LA MESA, CA 91941-4142

Site Audit Date
9/8/2011

ADDITIONAL SITE DATA

Contact Person	Ken Rothstein
Contact Info	619 667 1497
	krothstein@ci.la-mesa.ca.us

Additional Utility Meters
None

Additional Utility Meters
None

PHASE 1 AUDIT SUMMARY

Targeted Systems and Observations

Potential Energy Conservation Measures

ECM 1: Replace the electric resistance heater on the generator engine block with a heat pump. Savings will be achieved by reducing the power required to maintain the engine block temperature.

Prepared by EFM Solutions through SANDAG Energy Roadmap Program, 2011.

City of La Mesa Energy Report Card

Senior Center | **Billing Analysis and Benchmarking**

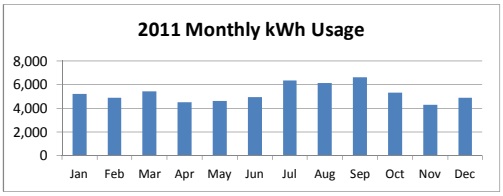
8450 LA MESA BLVD LA MESA, CA 91942-5306 | 10/13/2011

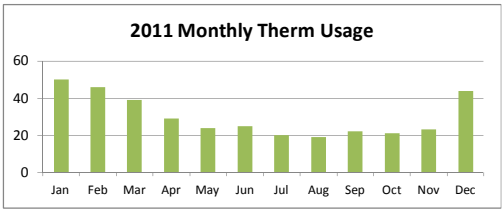
BILLING DATA

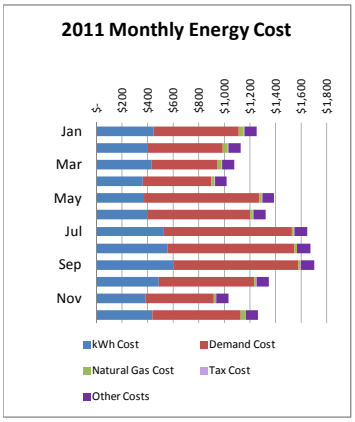
Site Data	
Facility Square Footage	7,367 sqft
Electrical Meter No. *	1571870
Electrical Rate Tariff	ALTOU
Gas Meter No. *	502124
Gas Rate Tariff	GN3

12 Month Consumption Summary	
Annual Electrical Consumption	63,280 kWh/yr
Max Demand	40.8 kW
Annual Gas Consumption	362 Therms/yr

12 Month Energy Cost Summary	
Electrical Energy Cost	$5,423
Electrical Demand Cost	$8,957
Natural Gas Cost	$274
Taxes and Fees	$70
Other Costs	$1,153
Total	**$15,877**







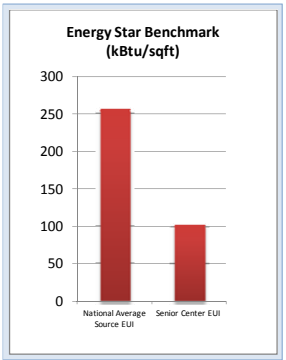
* Additional Meter Numbers are listed on the back side of the Energy Report Card

BASELINE

Energy Star Benchmarking (Energy Use Intensity)	
National Average Source EUI	256.8 kBtu/sqft
Senior Center EUI	103.0 kBtu/sqft
Difference	-59.9%

California End-User Survey (CEUS) Energy Density Data	
Building Type	N/A
Electrical Energy Density	8.6 kWh/sqft-yr
Electrical Energy Density Standard	N/A
Gas Energy Density	0.05 Therms/sqft-yr
Gas Energy Density Standard	N/A

12 Month GHG Emissions	
Direct GHG Emissions	1.9 (MtCO2e)
Indirect GHG Emissions	20.9 (MtCO2e)
Total GHG Emissions	22.8 (MtCO2e)



This Space Not Used

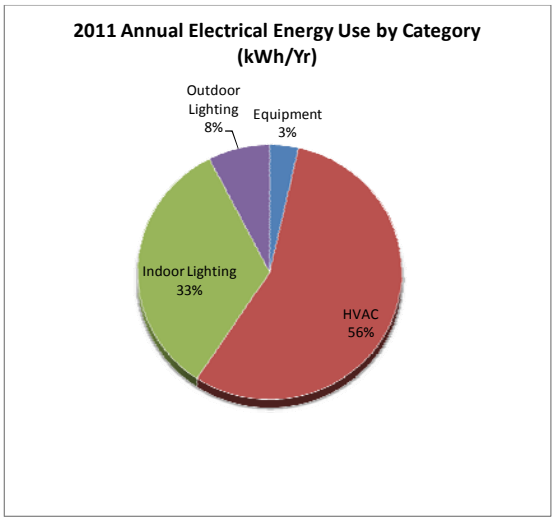
BUILDING ENERGY USE BY SYSTEM

Electrical Energy Use Itemization

Description	System Category	Hrs/Yr	kWh/Yr	Percent of Total Load
Heating	HVAC	800	737	1.2%
Cooling	HVAC	1350	14,292	22.6%
Ventilation	HVAC	2500	20,259	32.0%
Refrigeration	Equipment	1500	1,473	2.3%
Interior Lighting	Indoor Lighting	2500	20,996	33.2%
Office Equipment	Equipment	2500	737	1.2%
Exterior Lighting	Outdoor Lighting	4380	4,789	7.6%
Total			**63,283**	**100.0%**

Natural Gas Energy Use Itemization

Description	System Category	Hrs/Yr	Therms	Percent of Total Load
Water heating	DHW		228	63.0%
Heater	HVAC		134	37.0%
Total			**362**	**100.0%**



Prepared by EFM Solutions through SANDAG Energy Roadmap Program, 2011.

Senior Center
8450 LA MESA BLVD LA MESA, CA 91942-5306

Site Audit Date
9/8/2011

ADDITIONAL SITE DATA

Contact Person	Ken Rothstein
Contact Info	619 667 1497
	krothstein@ci.la-mesa.ca.us

Additional Utility Meters
None

Additional Utility Meters
None

PHASE 1 AUDIT SUMMARY

Targeted Systems and Observations

The Adult Center is also known as the Senior Center. It is a 7,367 sqft building built in 1965. An additional historical building is also on the property, the 972 sqft Shuffle Board Club House. It is served by the same meter as the Adult Center. The Adult Center hosts lunch for senior citizens as well as community events. The Adult Center and Shuffle Board Club House operates 40 to 45 hours per week.

The following systems were included in the phase 1 audit:

HVAC
Indoor Lighting
Outdoor Lighting
Other Equipment

HVAC - The Adult Center is served by four package air conditioners and one split system with heat pump modes. The air conditioners are controlled by mechanical thermostats and mechanical timers. The Shuffle Board Club House does not have air conditioning but does have a gas heater.

Indoor Lighting - The Adult Center is lit by T8 fluorescent fixtures and electronic ballasts in 3-lamp recessed troffers. The lighting is controlled by wall switches and is on during all hours the building is open to the public. Exit signs are lit by LED. The light levels in the lobby were measured at 48 foot-candles.

Outdoor Lighting - The parking lot and areas around the adult center are lit with decorative pole lights with 175 watt high pressure sodium lamps. These lamps are scheduled to be replaced with induction lamps as part of a city wide outdoor lighting project. Wall packs are lit by CFL. All outdoor lighting is controlled by timer for dusk to dawn operation.

Other Equipment - The Adult Center has one beverage vending machine and a refrigerated drinking fountain.

Potential Energy Conservation Measures

ECM 1: Install Vending Misers on all vending machines. Vending Misers learn the habits of the occupants and shuts down the vending machines that do not contain perishable goods when it determines the machine will not be used. This measure will not work in areas with 24/7 occupation or outdoors.

ECM 2: Replace mechanical thermostats with digital programmable thermostats. Savings may be achieved by turning off equipment when spaces are not occupied.

Prepared by EFM Solutions through SANDAG Energy Roadmap Program, 2011.

City of La Mesa Energy Report Card

Community Center | **Billing Analysis and Benchmarking**

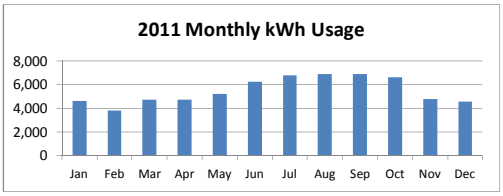
4975 MEMORIAL DR A LA MESA, CA 91942-9308 | 10/13/2011

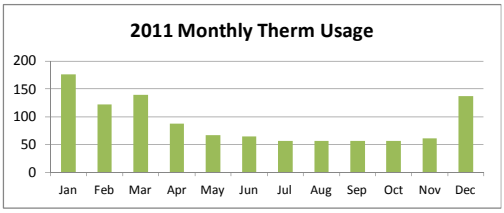
BILLING DATA

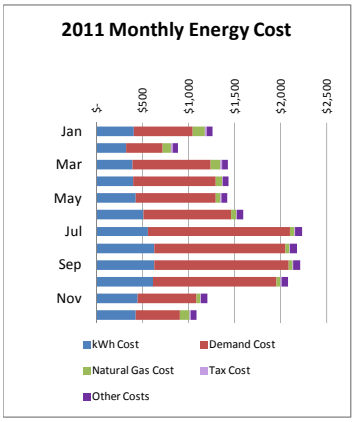
Site Data	
Facility Square Footage	19,011 sqft
Electrical Meter No. *	1482369
Electrical Rate Tariff	AD
Gas Meter No. *	930597
Gas Rate Tariff	GN3

12 Month Consumption Summary	
Annual Electrical Consumption	65,920 kWh/yr
Max Demand	69.6 kW
Annual Gas Consumption	1,079 Therms/yr

12 Month Energy Cost Summary	
Electrical Energy Cost	$5,804
Electrical Demand Cost	$11,478
Natural Gas Cost	$817
Taxes and Fees	$147
Other Costs	$801
Total	**$19,048**







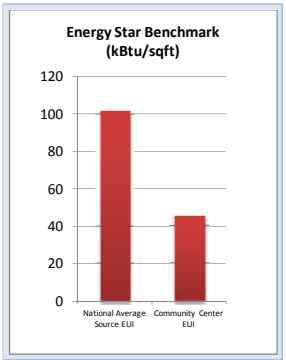
* Additional Meter Numbers are listed on the back side of the Energy Report Card

BASELINE

Energy Star Benchmarking (Energy Use Intensity)	
National Average Source EUI	102.0 kBtu/sqft
Community Center EUI	45.5 kBtu/sqft
Difference	-55.4%

California End-User Survey (CEUS) Energy Density Data	
Building Type	N/A
Electrical Energy Density	3.5 kWh/sqft-yr
Electrical Energy Density Standard	N/A
Gas Energy Density	0.06 Therms/sqft-yr
Gas Energy Density Standard	N/A

12 Month GHG Emissions	
Direct GHG Emissions	5.7 (MtCO2e)
Indirect GHG Emissions	21.7 (MtCO2e)
Total GHG Emissions	27.5 (MtCO2e)



This Space Not Used

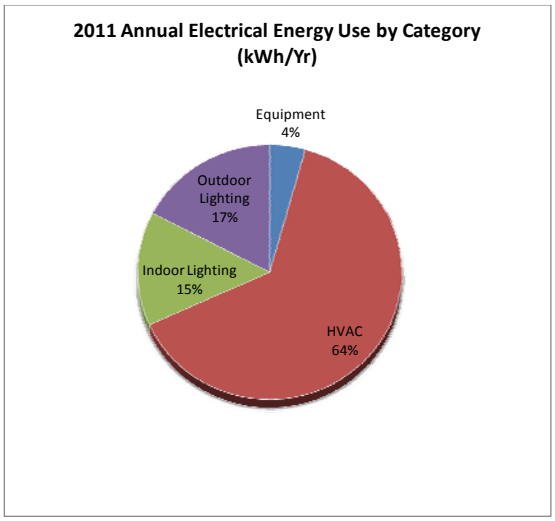
BUILDING ENERGY USE BY SYSTEM

Electrical Energy Use Itemization

Description	System Category	Hrs/Yr	kWh/Yr	Percent of Total Load
Heating	HVAC	800	1,901	2.9%
Cooling	HVAC	1350	16,330	24.8%
Ventilation	HVAC	2500	23,764	36.1%
Kitchen Appliances	Equipment	1500	951	1.4%
Interior Lighting	Indoor Lighting	1800	9,506	14.5%
Office Equipment	Equipment	2500	1,901	2.9%
Exterior Lighting	Outdoor Lighting	4380	11,407	17.3%
Total			**65,759**	**100.0%**

Natural Gas Energy Use Itemization

Description	System Category	Hrs/Yr	Therms	Percent of Total Load
Water heating	DHW		680	63.0%
Heating	HVAC		399	37.0%
Total			**1,079**	**100.0%**



Prepared by EFM Solutions through SANDAG Energy Roadmap Program, 2011.

Community Center
4975 MEMORIAL DR A LA MESA, CA 91942-9308

Site Audit Date
8/31/2011

ADDITIONAL SITE DATA

Contact Person	Ken Rothstein
Contact Info	619 667 1497
	krothstein@ci.la-mesa.ca.us

Additional Utility Meters
None

Additional Utility Meters
None

PHASE 1 AUDIT SUMMARY

Targeted Systems and Observations

The Recreation Center and the Community Center are at the same address and share an electric and gas meter. The Recreation Center is a 7,380 sqft studio used for dance and other meetings. The Community Center is 11,631 sqft and contains a banquet hall, recreation rooms and offices. The Community Center operates approximately 45 hours per week. The Recreation Center is used by appointment and event schedules and operates approximately 30 hours per week.

The following systems were included in the phase 1 audit:

HVAC
Indoor Lighting
Outdoor Lighting
Other Equipment

HVAC - The Community Center is conditioned by three Carrier package air conditioners with gas heating (22 ton, 15 ton, 12 ton). The air conditioners are controlled by digital programmable thermostats. The Recreation Center is not conditioned. Manually controlled exhaust fans are used to circulate fresh air inside the studio when it is in use on warm days. There is no heating in the Recreation Center

Indoor Lighting - The Community Center interior is lit by T8 fluorescent lighting in recessed troffers. Lighting levels are kept low around the front desk because daylight is adequate. Recessed cans with compact fluorescent lamps are used near entrances and exits. The banquet rooms are lit with recessed troffer fluorescent fixtures in a t-bar ceiling and are controlled by wall switches near the doors. Exit signs are lit with LED. Offices are not equipped with occupancy sensors.

Outdoor Lighting - Parking lots are lit with pole top high pressure sodium (HPS) lamps and fixtures. They are controlled by timer for dusk to dawn operation. Building wall packs have compact fluorescent lamps and are also controlled dusk to dawn.

Other Equipment - The Recreation Center has two vending machines. One beverage machine and one non-perishable snack machine. Domestic hot water is provided by a residential style natural gas water heater.

Potential Energy Conservation Measures

ECM 1: Install Vending Misers on all vending machines. Vending Misers learn the habits of the occupants and shuts down the vending machines that do not contain perishable goods when it determines the machine will not be used. This measure will not work in areas with 24/7 occupation or outdoors.

Prepared by EFM Solutions through SANDAG Energy Roadmap Program, 2011.

City of La Mesa Energy Report Card

Nan Couts Cottage | **Billing Analysis and Benchmarking**

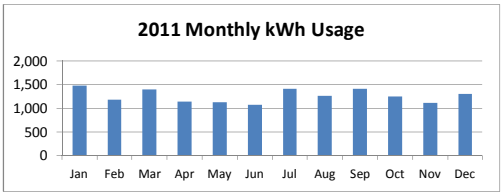
4975 MEMORIAL DR LA MESA, CA 91942-9308 | 10/13/2011

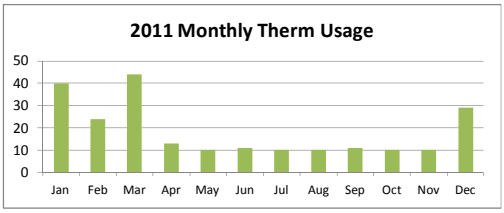
BILLING DATA

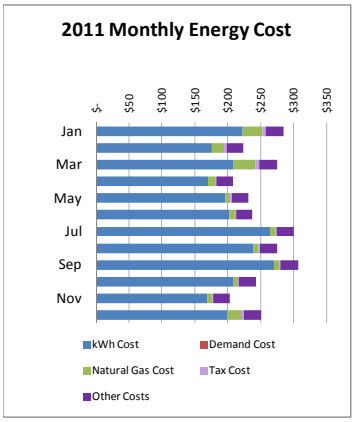
Site Data	
Facility Square Footage	2,170 sqft
Electrical Meter No. *	5952543
Electrical Rate Tariff	A
Gas Meter No. *	1226366
Gas Rate Tariff	GN3

12 Month Consumption Summary	
Annual Electrical Consumption	15,161 kWh/yr
Max Demand	0.0 kW
Annual Gas Consumption	222 Therms/yr

12 Month Energy Cost Summary	
Electrical Energy Cost	$2,527
Electrical Demand Cost	$0
Natural Gas Cost	$168
Taxes and Fees	$31
Other Costs	$315
Total	**$3,041**







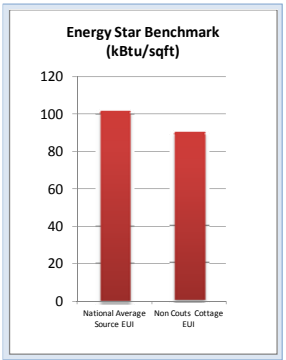
* Additional Meter Numbers are listed on the back side of the Energy Report Card

BASELINE

Energy Star Benchmarking (Energy Use Intensity)	
National Average Source EUI	102.0 kBtu/sqft
Non Couts Cottage EUI	90.3 kBtu/sqft
Difference	-11.4%

California End-User Survey (CEUS) Energy Density Data	
Building Type	N/A
Electrical Energy Density	7.0 kWh/sqft-yr
Electrical Energy Density Standard	N/A
Gas Energy Density	0.10 Therms/sqft-yr
Gas Energy Density Standard	N/A

12 Month GHG Emissions	
Direct GHG Emissions	1.2 (MtCO2e)
Indirect GHG Emissions	5.0 (MtCO2e)
Total GHG Emissions	6.2 (MtCO2e)



This Space Not Used

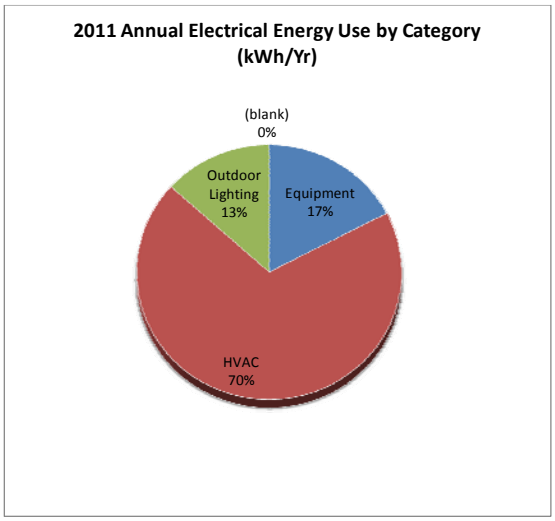
BUILDING ENERGY USE BY SYSTEM

Electrical Energy Use Itemization

Description	System Category	Hrs/Yr	kWh/Yr	Percent of Total Load
Air Conditioners	HVAC	1350	6,000	39.6%
Kitchen Equipment	Equipment	1500	1,500	9.9%
Indoor Lights	Indoor Lighhting	2000	6,510	42.9%
Outdoor Lights	Outdoor Lighting	4380	1,150	7.6%
Total			**15,160**	**100.0%**

Natural Gas Energy Use Itemization

Description	System Category	Hrs/Yr	Therms	Percent of Total Load
Water heating	DHW		128	57.7%
Heater	HVAC		94	42.3%
Total			**222**	**100.0%**



Prepared by EFM Solutions through SANDAG Energy Roadmap Program, 2011.

Nan Couts Cottage
4975 MEMORIAL DR LA MESA, CA 91942-9308

Site Audit Date
8/31/2011

ADDITIONAL SITE DATA

Contact Person	Ken Rothstein
Contact Info	619 667 1497
	krothstein@ci.la-mesa.ca.us

Additional Utility Meters
None

Additional Utility Meters
None

PHASE 1 AUDIT SUMMARY

Targeted Systems and Observations

The Nan Couts Cottage is a 2,170 sqft building built in 1956. The building is used as a meeting space for clubs and parties. The building consists of a large hall with a small residential style kitchen. The building is occupied approximately 30 hours per week.

The following systems were included in the phase 1 audit:

HVAC
Indoor Lighting
Outdoor Lighting

HVAC - Nan-Couts Cottage is conditioned by two rooftop package air conditioners with gas heat. They are controlled by digital programmable thermostats. The air conditioners are less than 10 years old. The HVAC list provided by city personnel lists a third split system not seen during the phase 1 audit. This unit serves the kitchen.

Indoor Lighting - The inside of Nan-Couts Cottage is lit by T8 fluorescent lamps and electronic ballasts in surface mounted 2-lamp fixtures. The lighting is controlled by wall switches.

Outdoor Lighting - The building has CFL wallpacks that are controlled by timer for dusk to dawn control. There are no lights in the parking lot of the Cottage.

Potential Energy Conservation Measures

No energy conservation measures found at this time.

Prepared by EFM Solutions through SANDAG Energy Roadmap Program, 2011.

City of La Mesa Energy Report Card

Municipal Pool | **Billing Analysis and Benchmarking**

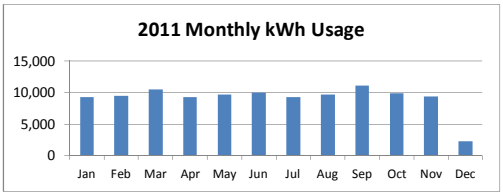
5100 MEMORIAL DR NL LA MESA, CA 91942-9356 | 10/13/2011

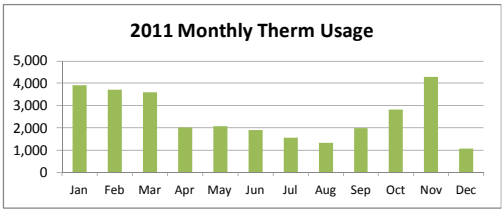
BILLING DATA

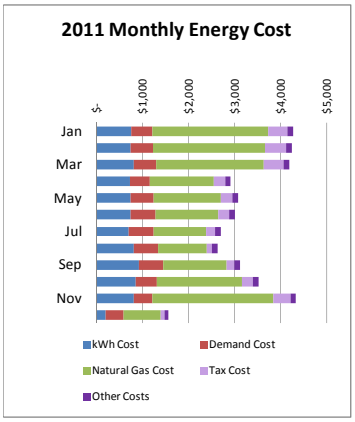
Site Data	
Facility Square Footage	3,832 sqft
Electrical Meter No. *	1564910
Electrical Rate Tariff	ALTOU
Gas Meter No. *	986449
Gas Rate Tariff	GN3

12 Month Consumption Summary	
Annual Electrical Consumption	109,920 kWh/yr
Max Demand	24.0 kW
Annual Gas Consumption	30,256 Therms/yr

12 Month Energy Cost Summary	
Electrical Energy Cost	$8,908
Electrical Demand Cost	$5,753
Natural Gas Cost	$20,322
Taxes and Fees	$3,244
Other Costs	$1,396
Total	**$39,623**







* Additional Meter Numbers are listed on the back side of the Energy Report Card

BASELINE

Energy Star Benchmarking (Energy Use Intensity)	
No National Source EUI Available	
Reason:	No Comparison Category
Minicipal Pool EUI	1153.6 kBtu/sqft

California End-User Survey (CEUS) Energy Density Data	
Building Type	N/A
Electrical Energy Density	28.7 kWh/sqft-yr
Electrical Energy Density Standard	N/A
Gas Energy Density	7.90 Therms/sqft-yr
Gas Energy Density Standard	N/A

12 Month GHG Emissions	
Direct GHG Emissions	161.0 (MtCO2e)
Indirect GHG Emissions	36.3 (MtCO2e)
Total GHG Emissions	197.2 (MtCO2e)

This Space Not Used

This Space Not Used

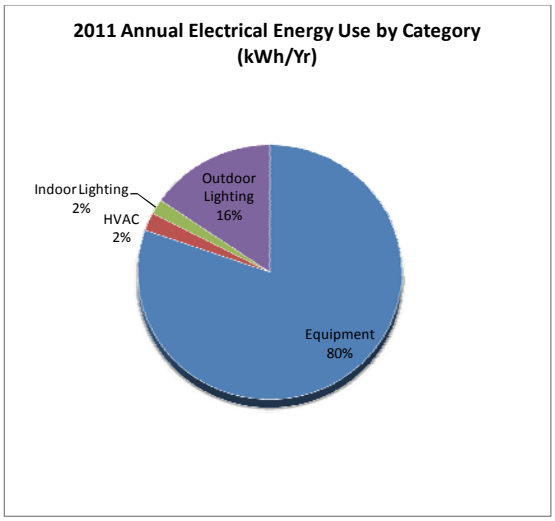
BUILDING ENERGY USE BY SYSTEM

Electrical Energy Use Itemization

Description	System Category	Hrs/Yr	kWh/Yr	Percent of Total Load
Pool deck lighting	Outdoor Lighting	500	10,500	9.6%
Submersed pool lighting	Outdoor Lighting	500	2,500	2.3%
Parking lot lighting	Outdoor Lighting	4380	4,000	3.6%
Pool office and locker room lighting	Indoor Lighting	2000	2,100	1.9%
Pool filter pumps	Equipment	8500	88,300	80.3%
Split Air Conditioner serving office	HVAC	1350	2,500	2.3%
Total			**109,900**	**100.0%**

Natural Gas Energy Use Itemization

Description	System Category	Hrs/Yr	Therms	Percent of Total Load
Water heating	DHW		3,000	100.0%
Total			**3,000**	**100.0%**



Prepared by EFM Solutions through SANDAG Energy Roadmap Program, 2011.

Municipal Pool
5100 MEMORIAL DR NL LA MESA, CA 91942-9356

Site Audit Date
8/31/2011

ADDITIONAL SITE DATA

Contact Person	Ken Rothstein
Contact Info	619 667 1497
	krothstein@ci.la-mesa.ca.us

Additional Utility Meters
None

Additional Utility Meters
None

PHASE 1 AUDIT SUMMARY

Targeted Systems and Observations

The Municipal Pool is a 300,000 gallon pool and 10,000 gallon spa open to the public and used for team sports. The pool was built in 1952. The pool operates nearly year round except a 6 week period when the pool is drained and any required maintenance is performed. The pool schedule offers pool access 11.5 hours per day during the season starting from 6:30 am and lasting until 6:00 pm. A pool cover is not used.

The following systems were included in the phase 1 audit:

HVAC
Indoor Lighting
Outdoor Lighting
Pool Equipment

HVAC - A single 1.5 ton Mitsubishi ductless air conditioner serves the pool office. The unit is controlled by a thermostat inside the office.

Indoor Lighting - The lobby and office are lit by T8 fluorescent lamps and electronic ballasts in recessed troffer fixtures. The locker rooms are lit by T8 fluorescent lamps with electronic ballasts and skylights. There are no occupancy sensors.

Outdoor Lighting - The pool deck is lit by four high pressure sodium (HPS) lamps and fixtures with polycarbonate plates in front of them for protection against vandalism. The pool is lit by seven 500 watt incandescent lamps in submersed fixtures. The pool deck lighting and the submersed lighting is controlled from inside the office when the pool is occupied in the late hours of fall and winter. The exterior of the building has HPS flood lights of various sizes and CFL wallpacks. The building perimeter lights are controlled by timer for dusk to dawn operation.

Pool Equipment - The main pool is served with a 15 hp filter pump. The pool circulation rate is between 200 and 250 GPM depending on how long it has been since the filter has been back flushed. The spa is served by a 1 hp filter pump. The pumps both run at full speed year round except during the 5 to 6 weeks that the pool is drained for service.

Potential Energy Conservation Measures

ECM 1: Install a variable speed drive (VFD) on the pool filtration pump motors. The filtration pumps may be able to run at a slower speed when the pool is occupied and a much slower speed when the pool is not occupied. Further study is required. Savings may be achieved by reducing the power consumption and hours of the filtration pump motors.

ECM 2: Replace submersed pool lights with LED submersible fixtures and lamps. Savings will be achieved by decreasing the wattage of each fixture.

ECM 3: Replace HID deck lighting with alternative technologies such as LED, T5HO or induction. Savings will be achieved by reducing the wattage of each fixture.

ECM 4: Use pool covers to reduce heat loss overnight and during cool seasons. Savings will be achieved in natural gas costs.

Prepared by EFM Solutions through SANDAG Energy Roadmap Program, 2011.

City of La Mesa Energy Report Card
Sunset Gym (Challenge Center)
5540 LAKE PARK WAY LA MESA, CA 91942-1607

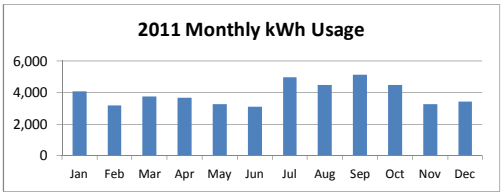
Billing Analysis and Benchmarking
10/13/2011

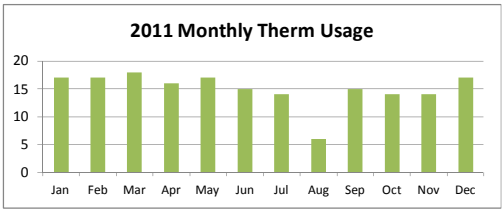
BILLING DATA

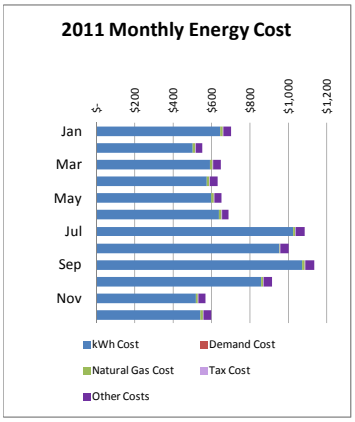
Site Data	
Facility Square Footage	5,253 sqft
Electrical Meter No. *	1666118
Electrical Rate Tariff	ATOU
Gas Meter No. *	1226369
Gas Rate Tariff	GN3

12 Month Consumption Summary	
Annual Electrical Consumption	46,880 kWh/yr
Max Demand	25.6 kW
Annual Gas Consumption	180 Therms/yr

12 Month Energy Cost Summary	
Electrical Energy Cost	$8,534
Electrical Demand Cost	$0
Natural Gas Cost	$136
Taxes and Fees	$42
Other Costs	$482
Total	**$9,195**







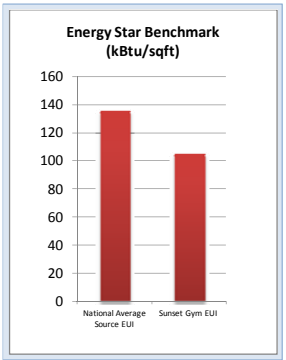
* Additional Meter Numbers are listed on the back side of the Energy Report Card

BASELINE

Energy Star Benchmarking (Energy Use Intensity)	
National Average Source EUI	136.0 kBtu/sqft
Sunset Gym EUI	105.3 kBtu/sqft
Difference	-22.6%

California End-User Survey (CEUS) Energy Density Data	
Building Type	N/A
Electrical Energy Density	8.9 kWh/sqft-yr
Electrical Energy Density Standard	N/A
Gas Energy Density	0.03 Therms/sqft-yr
Gas Energy Density Standard	N/A

12 Month GHG Emissions	
Direct GHG Emissions	1.0 (MtCO2e)
Indirect GHG Emissions	15.5 (MtCO2e)
Total GHG Emissions	16.4 (MtCO2e)



This Space Not Used

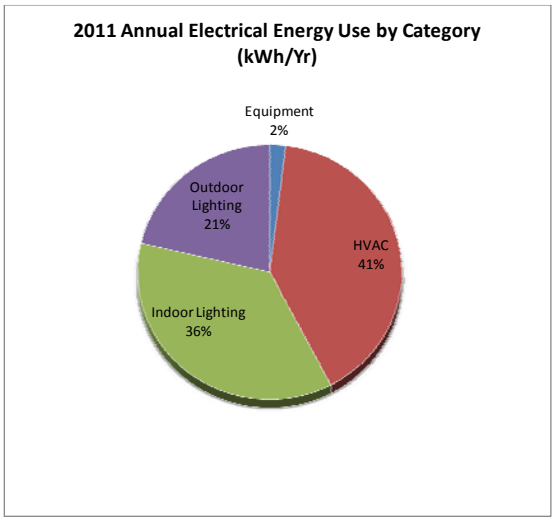
BUILDING ENERGY USE BY SYSTEM

Electrical Energy Use Itemization

Description	System Category	Hrs/Yr	kWh/Yr	Percent of Total Load
Air conditioners	HVAC	1350	18,900	40.4%
Indoor lights	Indoor Lighting	2500	17,000	36.3%
Wallkway lights	Outdoor Lighting	4380	8,000	17.1%
Breakroom appliances	Equipment	1500	900	1.9%
Wallpacks	Outdoor Lighting	4380	2,000	4.3%
Total			**46,800**	**100.0%**

Natural Gas Energy Use Itemization

Description	System Category	Hrs/Yr	Therms	Percent of Total Load
Water heating	DHW		150	83.3%
Heater	HVAC		30	16.7%
Total			**180**	**100.0%**



Prepared by EFM Solutions through SANDAG Energy Roadmap Program, 2011.

Sunset Gym (Challenge Center)
5540 LAKE PARK WAY LA MESA, CA 91942-1607

Site Audit Date
9/8/2011

ADDITIONAL SITE DATA

Contact Person	Ken Rothstein
Contact Info	619 667 1497
	krothstein@ci.la-mesa.ca.us

Additional Utility Meters
None

Additional Utility Meters
None

PHASE 1 AUDIT SUMMARY

Targeted Systems and Observations

Also known as the Challenge Center because of its tenants, the Sunset Gym is a 5,253 sqft building built in 1964. The building is currently used as a community gym and physical rehabilitation center. The Sunset Gym is occupied 40 to 45 hours per week.

The following systems were included in the phase 1 audit:

HVAC
Indoor Lighting
Outdoor Lighting

HVAC - The Sunset Gym is conditioned by two package air conditioners installed in retrofitted restrooms on the northeast side of the building. The air conditioners are controlled by digital programmable thermostats with setback programs. The retrofitted restrooms are very closed off and each is equipped with a 1 hp exhaust fan that runs constantly to bring fresh air into the space with the air conditioners. The spaces were found to be 10 to 15 degrees F warmer than the air outside.

Indoor Lighting - The inside of the Sunset Gym is lit with 2x4 recessed troffer fixtures in a t-bar ceiling with 2 T8 fluorescent lamps per fixture and electronic ballasts. The lighting is controlled by wall switches near the manager's office.

Outdoor Lighting - The walkway from the parking lot to the gym entrance is lined with pole top high pressure sodium (HPS) lamps in louvered fixtures.

Potential Energy Conservation Measures

ECM 1: Open old restrooms where package air conditioners are installed. The walls may be replaced with a column support and chain link fencing for security. Savings will be achieved by increasing the efficiency of the units by running them in cooler ambient air. The 1 hp exhaust fans serving the existing spaces may be removed.

ECM 2: Replace high intensity discharge (HID) outdoor lights with alternative technologies such as LED, T5HO or induction. Savings will be achieved by reducing the wattage of each fixture.

Prepared by EFM Solutions through SANDAG Energy Roadmap Program, 2011.

City of La Mesa Energy Report Card
La Mesa City Parks

Billing Analysis and Benchmarking
4/5/2013

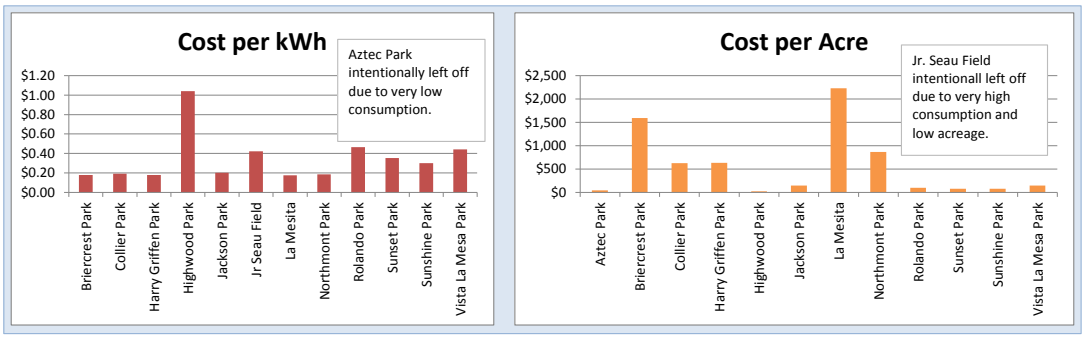
FACILITY DATA

Park	Address	Meter Types Found	Meter Rate	Park Size (Acres)	Park Ammenities
Aztec Park	7945 Morocco Dr	E	A	3.75	RR
Briercrest Park	9000 Wakarusa	E	A	2.8	RR, ODL
Collier Park	4401 Palm Ave	E	A	2.5	TC
Harry Griffen Park	9550 Milden St	E	A	6.6	RR
Highwood Park	7777 Jr. High Dr	E	A	8	TC, BB, ODL
Jackson Park	5870 Jackson Dr	E	A	7.2	RR
Jr Seau Field	9001 Park Plaza Dr	E	ALTOU	3	RR, FF
La Mesita	8855 Dallas St	E, G	A, GN3	9.5	BF
Northmont Park	6030 Severin Dr.	E	A	2.9	ODL
Rolando Park	6600 Vigo Dr	E	OL1	3.3	ODL, RR
Sunset Park	5540 Lake Park Way	E	OL1	3.1	ODL, RR
Sunshine Park	4554 70th St	E	A	5.1	RR
Vista La Mesa Park	3900 King St	E	A	1.8	RR

E - Electrical Meter G - Gas Meter RR - Restrooms TC - Lighted Tennis Courts BF - Lighted Ball BB - Lighted Basketball
ODL - Outdoor Lighting CS - Consession Stand CP - Community Pool FF - Lighted Football Field SF - Lighted Soccer Field

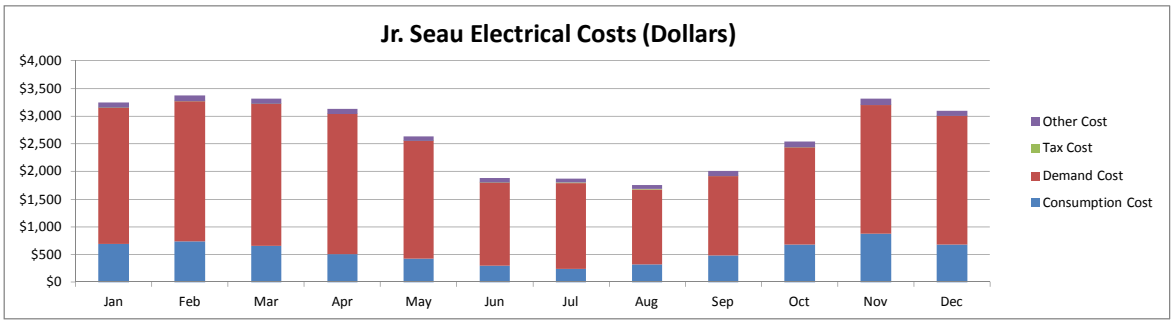
BASELINE

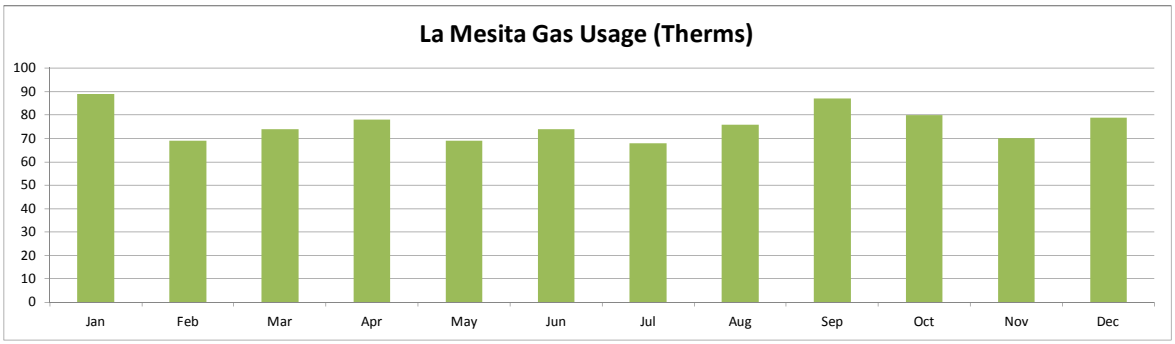
Park	Annual kWh	GHG (mt CO2e)	Annual kWh/Acre	Annual Energy Cost	Electrical Cost per kWh	Annual Cost per Acre
Aztec Park	40	0.01	11	$169	**$4.24**	$45
Highwood Park	187	0.06	23	$194	**$1.04**	$24
Rolando Park	697	0.23	211	$323	**$0.46**	$98
Vista La Mesa Park	591	0.19	328	$261	**$0.44**	$145
Jr Seau Field	96,560	31.85	32,187	$40,856	**$0.42**	$13,619
Sunset Park	697	0.23	225	$245	**$0.35**	$79
Sunshine Park	1,287	0.42	252	$384	**$0.30**	$75
Jackson Park	5,139	1.70	714	$1,040	**$0.20**	$144
Collier Park	8,193	2.70	3,277	$1,568	**$0.19**	$627
Northmont Park	13,544	4.47	4,670	$2,504	**$0.18**	$863
Briercrest Park	24,898	8.21	8,892	$4,451	**$0.18**	$1,590
Harry Griffen Park	23,362	7.71	3,540	$4,162	**$0.18**	$631
La Mesita	113,680	37.50	11,966	$21,181	**$0.18**	$2,230



Prepared by EFM Solutions through SANDAG Energy Roadmap Program, 2011.

PHASE 1 AUDIT SUMMARY





Potential Energy Conservation Measures

ECM 1: Replace HID overhead lighting with an alternative technology such as induction, LED or T5HO.

ECM 2: Perform rate analysis on all parks to determine the best utility rate available for each park. Energy savings will not be achieved however cost savings will be achieved.

ECM 3: Identify what is using natural gas at La Mesita Park .

Prepared by EFM Solutions through Prepared by EFM Solutions through SANDAG Energy Roadmap Program, 2011.

City of La Mesa

Priority Site List for Phase 2 Assessments

8130 Allison Ave
La Mesa, CA 91942

Prepared by

10310 Camino Agadir
San Diego, CA 92131
858.566.4306

SANDAG
Energy Roadmap
Program

This program is funded by California customers under the auspices of the California Public Utilities Commission.

Priority Site List: Sites Recommended for Phase 2 Assessment

Site	Phase 2 Recommneded	Phase 2 Not Required for Implementation	Data Logging Required	Rate Analysis
City hall	+		+	
Library & U.S. Post Office				
Police Station				
Fire Station 11	+			
Public Works	+			
Fire Station 12				
Fire Station 13				
Senior Center		+		
Community Center		+		
Nan Couts Cottage				
Municipal Pool	+			
Sunset Gym	+		+	
City Parks	+			+
Outdoor Lighting	+			
Backup Generator Block Heaters	O		+	
Total	**8**	**2**	**3**	**1**

How Phase 2 Recommendations Are Made

The Phase 2 Assessments are the second phase of the energy assessment assistance provided to the City as part of the SANDAG Energy Roadmap Program. Using the overview of current energy usage patterns at the 16 City sites established by the Phase 1 Energy Report Cards ("Phase 1") as a guide for further investigation, the 12 sites identified above are recommended for a more in-depth Phase 2 Assessment.

After discussion of the Priority Site List with the City and upon receipt of the City's permission to proceed, the Phase 2 Assessments will examine the feasibility of implementing potential energy conservation measures (ECMs) identified during Phase 1. The potential ECMs identified for each of the 12 sites are listed on the pages that follow. A Phase 2 Assessment is not recommended for the other four sites because either no ECMs were identified or a Phase 2 Assessment is not needed for their implementation.

The Priority Site List was developed by EFM Solutions in consultation with SANDAG. Final decisions regarding Phase 2 Assessments are made by City decision makers.

City Hall

ECM 1: Install Vending Misers on all vending machines. Vending Misers learn the habits of the occupants and shuts down the vending machines that do not contain perishable goods when it determines the machine will not be used. This measure will not work in areas with 24/7 occupation or outdoors.

ECM 2: Consider recommissioning the City Hall building. The evaporator coils serving the east side of the building are original equipment. Facility personnel report that the system works well without comfort complaints, however the outdoor unit is much newer and may not be matched well to the existing evaporator coils. The package air conditioners serving the west side of City Hall are placed on the ground beside the building. The duct work may not be insulated properly where exposed to outdoor elements. The control system for the VAV terminals is based on a pneumatic system powered by a commercial air compressor. The controls do not include the heating hot water boiler or the heating hot water pump, both are controlled manually. The controls are original equipment in the building. It is not clear if the air handler on the east side of the building has a functioning economizer. Modeling will be required to accurately predict savings from a recommissioning. If a recommissioning is not economically feasible a retro-commissioning may yield improved efficiency and indoor air quality.

ECM 3: Investigate cause of high demand cost. The electrical demand cost at City Hall is a much higher portion compared to most buildings. This should be investigated in an effort to reduce those costs.

Fire Station 11

ECM 1: Replace the electric resistance heater on the generator engine block with a heat pump. Savings will be achieved by reducing the power required to maintain the engine block temperature.

ECM 2: Further investigation of the fire station chiller and cooling equipment is recommended to determine if further ECM's are available.

Public Works

ECM 1: Replace 400 watt metal halide hibay fixture in Fleet Maintenance building with fluorescent lamps and fixtures. Savings will be achieved by reducing the wattage of each fixture.

ECM 2: Install occupancy sensors on lights of all storage areas and individual offices. Savings may be achieved by reducing the hours the lights are on. Areas where power tools are being used should not be equipped with an occupancy sensor for safety purposes.

Municipal Pool

ECM 1: Install a variable speed drive (VFD) on the pool filtration pump motors. The filtration pumps may be able to run at a slower speed when the pool is occupied and a much slower speed when the pool is not occupied. Further study is required. Savings may be achieved by reducing the power consumption and hours of the filtration pump motors.

ECM 2: Replace submersed pool lights with LED submersible fixtures and lamps. Savings will be achieved by decreasing the wattage of each fixture.

ECM 3: Replace HID deck lighting with alternative technologies such as LED, T5HO or induction. Savings will be achieved by reducing the wattage of each fixture.

ECM 4: Use pool covers to reduce heat loss overnight and during cool seasons. Savings will be achieved in natural gas costs.

Sunset Gym

ECM 1: Open old restrooms where package air conditioners are installed. The walls may be replaced with a column support and chain link fencing for security. Savings will be achieved by increasing the efficiency of the units by running them in cooler ambient air. The 1 hp exhaust fans serving the existing spaces may be removed.

ECM 2: Replace high intensity discharge (HID) outdoor lights with alternative technologies such as LED, T5HO or induction. Savings will be achieved by reducing the wattage of each fixture.

City Parks

ECM 1: Replace HID overhead lighting with an alternative technology such as induction, LED or T5HO.

ECM 2: Perform rate analysis on all parks to determine the best utility rate available for each park. Energy savings will not be achieved however cost savings will be achieved.

ECM 3: Identify what is using natural gas at La Mesita Park.

Phase 1 Sites and Energy Conservation Measures (ECM) not requiring Phase 2 Audit

Senior center

ECM 1: Install Vending Misers on all vending machines. Vending Misers learn the habits of the occupants and shuts down the vending machines that do not contain perishable goods when it determines the machine will not be used. This measure will not work in areas with 24/7 occupation or outdoors.

ECM 2: Replace mechanical thermostats with digital programmable thermostats. Savings may be achieved by turning off equipment when spaces are not occupied.

Community Center

ECM 1: Install Vending Misers on all vending machines. Vending Misers learn the habits of the occupants and shuts down the vending machines that do not contain perishable goods when it determines the machine will not be used. This measure will not work in areas with 24/7 occupation or outdoors.

City of La Mesa

Phase 2 Audit Findings

8130 Allison Ave
La Mesa, CA

Prepared by

10310 Camino Agadir
San Diego, CA 92131
858.566.4306

SANDAG

Energy Roadmap

Program

This program is funded by California customers under the auspices of the California Public Utilities Commission.

Summary of Findings

Electrical Demand Reduction	26.5 kW
Electrical Energy Savings	123,584 kWh/yr
Natural Gas Energy Savings	1,267 Therms/yr
GHG Emission Reduction	47.51 mt CO2e/yr
Cost Savings from Energy Reduction....	$35,890/yr
Rebate	$16,188
Estimated Cost	$83,674
Net Estimated Implementation Cost	$67,486
Estimated Combined Simple Payback ..	1.9 yrs
SDG&E On Bill Financing Available.....	Yes

November 2011

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AUDIT PROCESS

In 2011, two types of energy auditing services were provided at no cost to the City of La Mesa: 1) Preliminary energy assessments, called "Energy Report Cards," of sites determined by city personnel, and 2) More in depth Energy Audits (Phase 2) for a subset of government buildings based on their Energy Report Cards and personnel input.

Energy Report Cards are designed to produce energy and greenhouse gas (GHG) emission baselines for each city site, and to evaluate which sites should undergo more comprehensive Energy Audits (Phase 2). The goal of Phase 2 audits is to identify potential savings for energy conservation measures (ECM) and estimate energy savings and the associated economics. GHG Emissions are quantified in units of metric tons of CO2 equivalent for regional direct combustion and indirect energy use. Calculations are based on constants and methods used by the Energy Star Portfolio Manager. In cases where collected data will not reliably predict savings or where savings is estimated to be too small ECM will be presented as an additional measure (AM) and will not be included in the savings totals. A third type of measure that will be presented is a cost savings measure (CSM). These measures typically do not save energy but changes will likely result in lower operating costs. These measures are often associated with rate changes.

ON BILL FINANCING

On Bill Financing (OBF) is a loan that helps taxpayer-funded customers pay for energy efficiency improvements through their SDG&E bill. The loan term for the project is determined by the repayment period of the equipment selected through the eligible programs and is calculated based on estimated annual energy savings not to exceed the maximum loan term. Loan funds must be used for the purchase and installation of qualifying energy efficiency measures. The City of La Mesa may be able to obtain up to $250,000 on projects that pay back in 10 years or less.

OBSERVATIONS

The City of La Mesa is currently undergoing an outdoor lighting retrofit to replace all existing high pressure sodium lamps and ballasts with induction lamps and generators. Qualifying fixtures at all city sites are already planned for replacement at the time of the energy audits. The project is being managed by city engineering project manger Kathy Feilen, PE.

Fire Station 11 was recommended for a phase 2 audit because it was not clear at the end of the phase 1 audit how the central plant was being controlled. During the phase 2 audit the system was more closely observed and data was collected on individual components. A packaged air cooled chiller with built in chilled water pumps is at the heart of the chiller plant. The system is monitored by Johnson Metasys controls. No action is recommended at this time for this system.

AUDIT RESULTS - ALL SAVINGS

Table of Energy and Cost Conservation Measure Savings

Location	ECM No.	Name	kW	kWh	Therm	GHG (mtCO2e)	Annual Cost Saving	Rebate	Estimated Cost	Estimated Net Cost	Simple Payback (yrs)
City Hall	1	Install Vending Misers	0.0	2,536	0	0.84	$263	$100	$339	$239	0.9
City Hall	2	Recommission	11.3	39,610	1267	19.81	$6,970	$8,038	$50,000	$41,963	6.0
Sub Total			11.3	42,146	1267	20.64	$7,233	$8,138	$50,339	$42,202	5.8
Public Works	3	Replace Hibay Lights	7.3	18,343	0	6.05	$1,899	$2,300	$3,910	$1,610	0.8
Sub Total			7.3	18,343	0	6.05	$1,899	$2,300	$3,910	$1,610	0.8
Municipal Pool	4	Install Pump Controls	0.0	32,416	0	10.69	$3,356	$600	$1,200	$600	0.2
Municipal Pool	5	Replace HID Lights	0.2	207	0	0.07	$21	$35	$1,400	$1,365	65.0
Municipal Pool	6	Replace Pool Lights	3.0	1,806	0	0.60	$187	$391	$2,625	$2,234	11.9
Sub Total			3.3	34,429	0	11.36	$3,564	$1,026	$5,225	$4,199	1.2
Sunset Gym	7	Replace HID LIghts	0.3	1,367	0	0.45	$141	$200	$1,400	$1,200	8.5
Sub Total			0.3	1,367	0	0.45	$141	$200	$1,400	$1,200	8.5
Jr. Seau Field		Electrical Rate Change	0.0	0	0	0.00	$18,842	$0	$0	$0	0.0
Sub Total			0.0	0	0	0.00	$18,842	$0	$0	$0	0.0
Generator Block Heater	8	Replace Generator Block Heater	4.3	27,299	0	9.00	$4,211	$4,524	$22,800	$18,276	4.3
Sub Total			4.3	27,299	0	9.00	$4,211	$4,524	$22,800	$18,276	4.3
City Wide Totals			26.5	123,584	1,267	47.51	$35,890	$16,188	$83,674	$67,486	1.9

AUDIT RESULTS - ENERGY SAVINGS BY SITE

Table of Energy Conservation Measure Savings by Site for On Bill Financing

Location	ECM No.	Name	kW	kWh	Therm	GHG (mtCO2e)	Annual Cost Saving	Rebate	Estimated Cost	Estimated Net Cost	Simple Payback (yrs)
City Hall	1	Install Vending Misers	0.0	2,536	0	0.84	$263	$100	$339	$239	0.9
City Hall	2	Recommission	11.3	39,610	1267	19.81	$6,970	$8,038	$50,000	$41,963	6.0
Sub Total			11.3	42,146	1267	20.64	$7,233	$8,138	$50,339	$42,202	5.8
Public Works	3	Replace Hibay Lights	7.3	18,343	0	6.05	$1,899	$2,300	$3,910	$1,610	0.8
Sub Total			7.3	18,343	0	6.05	$1,899	$2,300	$3,910	$1,610	0.8
Municipal Pool	4	Install Pump Controls	0.0	32,416	0	10.69	$3,356	$600	$1,200	$600	0.2
Municipal Pool	5	Replace HID Lights	0.2	207	0	0.07	$21	$35	$1,400	$1,365	65.0
Municipal Pool	6	Replace Pool Lights	3.0	1,806	0	0.60	$187	$391	$2,625	$2,234	11.9
Sub Total			3.3	34,429	0	11.36	$3,564	$1,026	$5,225	$4,199	1.2
Sunset Gym	7	Replace HID LIghts	0.3	1,367	0	0.45	$141	$200	$1,400	$1,200	8.5
Sub Total			0.3	1,367	0	0.45	$141	$200	$1,400	$1,200	8.5
Fire Station 11	8	Replace Generator Block Heater	1.0	6,357	0	2.10	$1,052	$1,050	$6,800	$5,750	5.5
Sub Total			1.0	6,357	0	2.10	$1,052	$1,050	$6,800	$5,750	5.5
Fire Station 12	8	Replace Generator Block Heater	0.5	3,674	0	1.21	$608	$605	$3,000	$2,395	3.9
Sub Total			0.5	3,674	0	1.21	$608	$605	$3,000	$2,395	3.9
Fire Station 13	8	Replace Generator Block Heater	0.5	3,311	0	1.09	$548	$544	$2,000	$1,456	2.7
Sub Total			0.5	3,311	0	1.09	$548	$544	$2,000	$1,456	2.7
Police Department	8	Replace Generator Block Heater	2.3	13,957	0	4.60	$2,004	$2,326	$11,000	$8,674	4.3
Sub Total			2.3	13,957	0	4.60	$2,004	$2,326	$11,000	$8,674	4.3
Agregate Totals			26.5	123,584	1,267	47.51	$17,049	$16,188	$83,674	$67,486	4.0

CITY HALL

The La Mesa City Hall is a 14,998 sqft facility built in the 1950's which houses city department offices, city official offices and council chambers. The building operates approximately 45 to 50 hours per week.

The following systems were included in the phase 2 audit:

- HVAC
- Other Equipment

HVAC - The east side of the building is served by Trane 25 ton remote split system condenser and a fan coil in the attic space. The Trane unit is much newer than the fan coils. The fan coils and evaporator coils are original equipment for the building. The west side of the building is served by two Carrier package air conditioners installed on the ground, 3.5 ton and a 7.5 ton units. Pneumatic VAV boxes and mechanical thermostats control individual conditioned zones. A power exhaust is used to offset the outside air in the building. A central digital timer shuts the entire cooling system down when the building is expected to be unoccupied. No override is in place. A single natural gas boiler heats the entire building. Heating hot water is circulated throughout the building to reheat VAV boxes by a 1/2 hp pump. The boiler cycles based on heating demand and the circulation pump runs continuously. Facility personnel shut the boiler and pump off during summer months.

Other Equipment - The City Hall break room has two vending machines; one beverage machine and one non-perishable snack machine.

ECM 1: INSTALL VENDING MISERS ON ALL VENDING MACHINES

VendingMiser is a small plug-and-play device that installs in minutes. A motion sensor installs above the vending machine and informs a microprocessor of the occupancy patterns around the vending machines. A unit that goes between the wall power outlet and the vending machine plug turns the vending machine off when it expects the area around the machine to unoccupied for an extended period of time, overnight for example. Savings are achieved by reducing the hours of operation of the vending machines.

Results of your location's projected savings with VendingMiser® installed:				
COLD DRINK MACHINES	Current	Projected	Total Savings	% Savings
kWh	3,494	1,449	2,045	59%
Cost of Operation	$362	$150	$212	59%
SNACK MACHINES	Current	Projected	Total Savings	% Savings
kWh	699	208	491	70%
Cost of Operation	$72	$22	$51	70%

Location's Total Annual Savings				
	Current	Projected	Total Savings	% Savings
kWh	4193	1,657	2,536	60%
Cost of Operation	$434	$172	$263	60%
Total Project Cost			Simple Payback (yrs)	
Equipment Price	$339		0.9	
Rebate Code and Value	R-O1	$100		

ECM 2: RECOMMISIONING

The evaporator coils serving the east side of the building are original equipment. Facility personnel report that the system works well without comfort complaints, however the outdoor unit is much newer and may not be matched well to the existing evaporator coils. The package air conditioners serving the west side of City Hall are placed on the ground beside the building. The control system for the VAV terminals is based on a pneumatic system powered by a commercial air compressor. The controls do not include the heating hot water boiler or the heating hot water pump, both are controlled manually. The controls are original equipment in the building. It is not clear if the air handler on the east side of the building has a functioning economizer. eQuest Computer modeling was used to predict savings from a recommissioning. Full simulation outputs are available in the appendix of this report.

Recommissioning will involve the replacement of the evaporator coils in the air handler serving the east side of the building, ensuring that the air handler has a working economizer, replacing the pneumatic controls throughout the building with digital controls and including the boiler and heating hot water pump in the new control system.

The results of the recommissioning computer simulation is shown below.

Measure No.	Description	Energy demand (kW)	Energy use (kWh/yr)	Gas energy usage (therms/yr)	Incremental demand savings (kW)	Incremental Energy savings (kWh/yr)	Incremental gas savings (therms/yr)	Estimated Annual Cost Savings
basecase	Basecase existing building	80.41	189,450	3,729	0	0	0	$0
1	Upgrade AHU	77.22	181,180	3,729	3.19	8,270	0	$1,323
2	Repair/install economizers	75.18	173,170	5,458	2.04	8,010	-1,729	-$19
3	Add DDC controls	69.12	151,840	2,462	6.06	21,330	2,996	$5,666
Total					**11.29**	**37,610**	**1,267**	**$6,970**

Cost per kW	$20.0458	**kW Savings**	**11.29**
Cost per kWh	$0.1035	**Annual kWh Savings**	**37,610**
		Annual Therm Savings	**1,267**
SDG&E Incentive Code.....	EEBI AC & Refrigeration	**Annual Cost Savings**	**$6,970**
SDG&E kWh Incentive Value.....	$0.15	Rebate Value	$8,038
SDG&E kW Incentive Value	$100	Estimated Implementation Cost	$50,000
SDG&E Natural Gas Therm Incentive Value	$1	**Net Implementation Cost**	**$41,963**
		Simple Payback	**6.0 yrs**

If a full recommissioning is not attractive a less aggressive retrocommissioning will also yield improved efficiency and indoor air quality. A retrocommission of the building will involve the same controls upgrade and economizer work but will not include replacing any cooling or heating equipment.

The results of the retrocommissioning computer simulation is shown below.

Measure No.	Description	Energy demand (kW)	Energy use (kWh/yr)	Gas energy usage (therms/yr)	Incremental demand savings (kW)	Incremental Energy savings (kWh/yr)	Incremental gas savings (therms/yr)	Estimated Annual Cost Savings
basecase	Basecase existing building	80.41	189,450	3,729	0	0	0	$0
1	Repair/install economizers	78.37	181,440	5,458	2.04	8,010	-1,729	-$19
2	Add DDC controls	72.31	160,110	2,462	6.06	21,330	2,996	$5,666
Total					**8.1**	**29,340**	**1,267**	**$5,647**

Cost per kW	$20.0458	**kW Savings**	**8.10**
Cost per kWh	$0.1035	**Annual kWh Savings**	**29,340**
		Annual Therm Savings	**1,267**
SDG&E Incentive Code.....	EEBI AC & Refrigeration	**Annual Cost Savings**	**$5,647**
SDG&E kWh Incentive Value.....	$0.15	Rebate Value	$6,478
SDG&E kW Incentive Value	$100	Estimated Implementation Cost	$25,000
SDG&E Natural Gas Therm Incentive Value	$1	**Net Implementation Cost**	**$18,522**
		Simple Payback	**3.3 yrs**

PUBLIC WORKS

The Public Works yard is a 4.3 acre property with six buildings. The Public Works yard is used for storage, office space and fleet maintenance.

The following systems were included in the phase 1 audit:

- HVAC
- Indoor Lighting
- Other Equipment

Public Works Administration Building

The Administration building is 8,340 sqft and was built in 2000. The building is home to administrative offices and meeting rooms. The building is in use approximately 45 hours per week.

HVAC - The building is served by two Trane Voyager package air conditioners controlled by digital programmable thermostats. The units are heating and cooling units. The thermostats are programmed with setbacks, no other HVAC controls are present in the building.

Indoor Lighting - The interior is lit with suspended bi-directional fixtures with 2 and 3 T8 lamps per fixture. All fixture has electronic ballasts. Office lights are all equipped with occupancy sensors

Shop Building #100

Shop Building #100 is 6,048 sqft and was built in 1958; it was remodeled in 2000. There is no HVAC system at this building. The building houses a small workshop and a storage area. The building is used approximately 25 to 35 hours per week and may vary depending on projects to be done.

Indoor Lighting - The building is lit with suspended industrial hood fixtures with 3 T8 lamps per fixture and electronic ballasts. There are no occupancy sensors in this building.

Sign Shop Modular #600

The Sign Shop is a 2,160 sqft building that was built in 2000. The building has no HVAC. The building houses a sign shop and a storage area. The building is used approximately 25 to 35 hours per week and may vary depending on projects to be done.

Indoor Lighting - The building is lit with suspended industrial hood fixtures with 3 T8 lamps per fixture and electronic ballasts. There are no occupancy sensors in this building.

Public Works Fleet Maintenance

The Fleet Maintenance building is 11,332 sqft and was built in 2000. The building has no HVAC. The building is used for maintaining and repairing city owned vehicles and equipment. The building is in use 40 to 45 hours per week.

Indoor Lighting - The Fleet Maintenance building is lit with metal halide highbay fixtures. The lights are controlled by wall switch and are run during normal operating hours. Storage and employee break areas are lit with suspended industrial hood fluorescent fixtures with 2 T8 lamps per fixture and electronic ballasts. These lights operate during normal operating hours.

Other Equipment - Fleet Maintenance has a compressed air system with a reciprocating air compressor. There are vehicle exhaust fans on retractable hoses installed over each maintenance bay. The exhaust fans are controlled by a switch on the wall near the door of each bay.

Storage Building #200

Storage Building #200 is a 5,760 sqft building built in 1960. The building is used exclusively for storage. There is no HVAC.

Indoor Lighting - The building is lit by suspended industrial hood fixtures with 3 T8 fluorescent lamps per fixture and electronic ballasts. The lights are controlled by wall switch and were on at the time of the phase 1 audit while the building was unoccupied. There is no occupancy sensor in the building.

Storage Building #500

Storage building #500 is a 903 sqft building built in 2000. The building is used exclusively for storage. There is no HVAC.

Indoor Lighting - The building is lit by suspended industrial hood fluorescent fixtures with 3 T8 fluorescent lamps per fixture and electronic ballasts. There is no occupancy sensor in this building.

ECM 3: REPLACE HIBAY LIGHTING IN FLEET MAINTENANCE BUILDING

The existing lighting in the garage is 400 watt metal halide (MH). MH hibay lighting is often replaced with fluorescent highbay fixtures with T8 or T5 lamps. T8 lamps tend to yield a quicker simple payback because of lower initial costs and lower lamp replacement costs. Savings will be achieved by reducing the wattage of each fixture.

Technology Simple Savings and Payback

Existing and Replacement Conditions	System Watts	Mean Catalog Lumens per Fixture	Modified Lumens*	Modified Lumens per Fixture	Qty	kW
One 400 watt metal halide hibay fixture, lamp & ballast	456	22,600	27,587	19,311	23	10.49
One 6-lamp hibay fixture with T8 lamps and ballasts	137	15,960	20,314	18,282	23	3.15

Cost per kW	$20.0458	Annual Hours	2,500
Cost per kWh	$0.1035	**kW Savings**	**7.34**
		Annual kWh Savings	**18,343**
SDG&E Rebate Code.....	L-H21	**Annual Cost Savings**	**$1,899**
Rebate Unit.....	Fixture	Rebate Value	$2,300
Rebate Value.....	$100	Estimated Implementation Cost	$3,910
		Net Implementation Cost	**$1,610**
		Simple Payback	**0.8 yrs**

AM1: INSTALL OCCUPANCY CONTROLS ON INDOOR LIGHTING

The most effective way to reduce the amount of energy consumed by a lighting system is to turn off the lights when they are not needed. Good habits ensure that lights are turned off when a space is empty, but when a space is used intermittently throughout a day lights are often left on. Occupancy sensors are very effective in spaces where people move in and out frequently in unpredictable patterns. During the phase 1 audit of La Mesa Public Works several storage spaces were found with no one present and lights left on. These spaces will likely benefit from occupancy sensors. Savings may be achieved by reducing the hours of operation of these lights. Personnel habits will vary from one facility to the next and even at the same facility over time and will effect potential savings. It is possible that this measure will not result in any savings if building occupants enter these areas often enough during the building hours.

Occupancy sensors should be used in the following locations:

Shop Building #100 - Install in storage area only. Installing occupancy sensors in areas where power tools are being used is a potential injury risk.

Storage Building #200 - Install on all indoor lighting

Storage Building #500 - Install on all indoor lighting

MUNICIPAL POOL

The Municipal Pool is a 300,000 gallon pool and 10,000 gallon spa open to the public and used for team sports. The pool was built in 1952. The pool operates nearly year round except a six week period in the winter during which time the pool is drained for five weeks and any required maintenance is performed. The pool schedule offers pool access between 12 and 13 hours per day during depending on the time of year. A pool cover is on site and is only used at the discretion of the pool staff.

The following systems were included in the phase 2 audit:

- Outdoor Lighting
- Pool Equipment

Outdoor Lighting - The pool deck is lit by four high pressure sodium (HPS) lamps and fixtures with polycarbonate plates in front of them for protection against vandalism. The pool is lit by seven 500 watt incandescent lamps in submersed fixtures. The pool deck lighting and the submersed lighting is controlled from inside the office when the pool is occupied in the late hours of fall and winter. The exterior of the building has HPS flood lights of various sizes and CFL wallpacks. The building perimeter lights are controlled by timer for dusk to dawn operation.

Pool Equipment - The main pool is served with a 15 hp filter pump. The pool circulation rate is between 200 and 250 GPM depending on how long it has been since the filter has been back flushed. The spa is served by a 1 hp filter pump. The pumps both run at full speed year round except during the 5 to 6 weeks that the pool is drained for service.

ECM 4: INSTALL CONTROLS ON FILTRATIONS PUMPS

According to information provided from pool personnel slowing the pump motor during the day with a variable frequency drive is not feasible. Instead, savings will be achieved by turning off the filtration pumps during the night when the pool is unoccupied. The County of San Diego Public Health Codes concerning public pools does not require the filtration pumps to run during unoccupied hours. Pool management has reported that the pool is drained five weeks out of the year and the remainder of the year is open to the public. This leaves the pumps running approximately 7,920 hours per year. With the pool open to the public 3,768 hours per year that leaves 4,515 hours per year, or 90 hours per week, that the pumps may be shut off. For the purpose of this calculation the pool pumps are assumed to run for 2 hours prior to the time the pool facility opens and 30 minutes after. This is to ensure that chlorine levels and temperature are where they are expected to be prior to being open to the public. Savings will be achieved by reducing the number hours the pool pumps run.

Install Controls on Filtration Pumps

Pool	Current Annual Hours Open to Public	Current Annual Pumping Hours	Pump Motor Power (kW)	Measured Pump Motor (kW)	Existing Annual Pumping Energy (kWh)
Municipal Pool, Lap Pool	3,405	7,920	11.2	8.1	64,495
Municipal Pool, Spa	3,405	7,920	0.7	0.5	3,960
				Total Existing Annual Pumping Energy (kWh)	**68,455**

Pool	Current Annual Hours Open to Public	Recommended Pumping Hours	Pump Motor Power (kW)	Measured Pump Motor (kW)	Recommended Annual Pumping Energy (kWh)
Municipal Pool, Lap Pool	3,405	4,170	11.2	8.1	33,954
Municipal Pool, Spa	3,405	4,170	0.7	0.5	2,085
				Total Recommended Annual Pumping Energy (kWh)	**36,039**

		kW Savings	**0.00**
Cost per kW	$20.0458	**Annual kWh Savings**	**32,416**
Cost per kWh	$0.1035	**Annual Cost Savings**	**$3,356**
		Rebate Value	$600
SDG&E Incentive Code	EEBI Other-Motor	Estimated Implementation Cost	$1,200
SDG&E kWh Incentive Value	$0.09	**Net Implementation Cost**	**$600**
SDG&E kW Incentive Value	$100	**Simple Payback**	**0.2 yrs**

Alternative schedules may be used based on recommendations from pool staff and will yield varying savings. The shutdown hours used for this ECM is bolded for comparison

Filtration Controls: Alternative Shut Down Times by Week

Weekly Shutdown Hours	Rated: Lap Pool Pump Motor kW	Rated: Spa Pump Motor kW	Measured: Lap Pool Pump Motor kW	Measured: Spa Pump Motor kW	Annual Energy Saved	Annual Cost Saved
90	11.2	0.7	8.1	0.5	38,895	$4,027
85	11.2	0.7	8.1	0.5	36,734	$3,803
75	**11.2**	**0.7**	**8.1**	**0.5**	**32,416**	**$3,356**
65	11.2	0.7	8.1	0.5	28,091	$2,908
55	11.2	0.7	8.1	0.5	23,769	$2,461
45	11.2	0.7	8.1	0.5	19,448	$2,013
35	11.2	0.7	8.1	0.5	15,126	$1,566
25	11.2	0.7	8.1	0.5	10,804	$1,119
15	11.2	0.7	8.1	0.5	6,483	$671
5	11.2	0.7	8.1	0.5	2,161	$224

ECM 5: REPLACE POOL DECK LIGHTING WITH ALTERNATIVE TECHNOLOGY

The pool deck is lit with four 250 watt high pressure sodium (HPS) lamps and fixtures. The deck lighting is controlled from the office and is used when the pool is occupied after dusk.

The available replacement technologies were compared on the basis of light output and lifecycle cost over 20 years at the current annual operating hours. Based on these criteria, T5HO fluorescent lamps and fixtures are an appropriate replacement for the existing lamps and fixtures.

Savings will be achieved by reducing the wattage per fixture; however will be very low because of low operating hours. Replacing these fixtures for energy savings alone is not economically feasible.

Counts and wattages of individual fixture types are listed in the tables below.

Lifecycle Costs Comparison															Annual Hours	850
Technology	System Watts	Catalog Lumens	Fixture Efficiency	Task Modified Lumens	Lumens delivered to the ground	Estimated Lamp Life	Annual kWh/Fixture	Initial Lamp & Fixture Costs	Lamp Costs	Disposal Fee	Energy Cost	Years /Lamp	No. of Lamps in 20 years	Energy Cost in 20 years	Maintenance Cost in 20 Years	Total Cost in 20 Years
HPS 250	295	25,200	70%	19,842	13,890	24,000	251	$0	$20	$2	$26	28.2	1	$698	$22	$720
T5HO (2) Lamps	**117**	**9,200**	**90%**	**11,710**	**10,539**	**18,000**	**99**	**$350**	**$12**	**$6**	**$10**	**21.2**	**1**	**$277**	**$18**	**$645**
IND 150	150	12,750	75%	16,228	12,171	100,000	128	$800	$120	$6	$13	117.6	0	$355	$0	$1,155
LED 120	139		95%	-	10,263	50,000	118	$500	$500	$2	$12	58.8	0	$329	$0	$829

Technology Simple Savings and Payback						
Existing and Replacement Conditions	System Watts	Mean Catalog Lumens per Fixture	Modified Lumens*	Modified Lumens per Fixture	Qty	kW
One 250W High Pressure Sodium Flood Lamp, pole mount	178	22,600	10,839	7,587	4	0.71
Two T5HO Fluorescent lamps in single fixture, pole mount	117	9,200	11,710	10,539	4	0.47

Cost per kW ……	$20.0458	Annual Hours	850
Cost per kWh ……	$0.1035	**kW Savings**	**0.24**
		Annual kWh Savings	**207**
SDG&E Incentive Code……	EEBI Lighting	**Annual Cost Savings**	**$21**
SDG&E kWh Incentive Value……	$0.05	Rebate Value	$35
SDG&E kW Incentive Value ……	$100	Estimated Implementation Cost	$1,400
		Net Implementation Cost	**$1,365**
		Simple Payback	**65.0 yrs**
		Estimated 20 Year Savings	$75

ECM 6: REPLACE SUBMERSED LIGHTS WITH LED

Replace the 500 watt incandescent pool lights with LED lamps. LED pool lights are available as a direct replacement for conventional incandescent lamps. The payback period for these lamps is long due to the low hours the submersed lights are used.

Technology Simple Savings and Payback			
Existing and Replacement Conditions	**System Watts**	**Qty**	**kW**
One 500w Incandescent Pool Light, submersed fixture	500	7	3.50
One 70w LED Pool Light, submersed fixture	70	7	0.49
Cost per kW	$20.0458	Annual Hours	600
Cost per kWh	$0.1035	**kW Savings**	**3.01**
		Annual kWh Savings	**1,806**
SDG&E Incentive Code.....	EEBI Lighting	**Annual Cost Savings**	**$187**
SDG&E kWh Incentive Value.....	$0.05	Rebate Value	$391
SDG&E kW Incentive Value	$100	Estimated Implementation Cost	$2,625
		Net Implementation Cost	**$2,234**
		Simple Payback	**11.9 yrs**

AM 2: REGULAR USE OF POOL COVER

Using a cover can significantly reduce pool heating costs. Approximately 30% of the energy lost from swimming pools is lost to radiation to the surrounding ground and to the sky. The other 70% of the energy lost is from evaporation. Evaporation rates vary from region to region based on air temperature and relative humidity and wind speed over the surface of the water. Implementation of a pool cover policy and regular use can help reduce energy loss by radiation and by evaporation.

SUNSET GYM

Also known as the Challenge Center because of its tenants, the Sunset Gym is a 5,253 sqft building built in 1964. The building is currently used as a community gym and physical rehabilitation center. The Sunset Gym is occupied 40 to 45 hours per week.

The following systems were included in the phase 2 audit:

- HVAC
- Outdoor Lighting

HVAC - The Sunset Gym is conditioned by two package air conditioners installed in retrofitted restrooms on the northeast side of the building. Digital programmable thermostats with setback programs control the air conditioners. The retrofitted restrooms are very closed off and each is equipped with a 1 hp exhaust fan that is controlled to run when the air conditioner is cycled on to bring fresh air into the space with the air conditioners. The spaces were found to be 10 to 15 degrees F warmer than the air outside during the phase 1 audit. The day of the phase 1 audit was a warm day and the air conditioners were running frequently.

Outdoor Lighting - The walkway from the parking lot to the gym entrance is lined with pole top high pressure sodium (HPS) lamps in louvered fixtures. These fixtures are equipped with photocells and controlled for dusk to dawn operation.

ECM 7: REPLACE OUTDOOR AREA LIGHTING WITH ALTERNATIVE TECHNOLOGY

The front pathway to the Sunset Gym is lit by high pressure sodium (HPS). HPS lighting is an effective technology when accurate color rendering is not a priority. HPS lamps last from 16,000 hours for the smallest wattages to 24,000 for the larger lamps. These lamps usually need to be changed every 4 to 5 years. Replacing HPS lamps with whiter lights provides a great improvement to color rendering. The improved color rendering allows a lower wattage lamp to replace existing HPS lamps without sacrificing perceived light levels.

The City of La Mesa is already installing induction lamps and generators on pole top fixtures at several sites. The plan is to eventually retrofit all pole-top fixtures with similar lamps and fixtures. The Sunset Gym pole-top lights should replaced with induction lamps, generators and fixtures as well to match the city's existing induction fixtures.

Technology Simple Savings and Payback

Existing and Replacement Conditions	System Watts	Mean Catalog Lumens per Fixture	Modified Lumens*	Modified Lumens per Fixture	Qty	kW
One 250W High Pressure Sodium Flood Lamp, pole mount	178	22,600	10,839	7,587	4	0.71
One 100W Induction Lamp and Generator, pole mount	100	8,500	10,819	8,114	4	0.40

Cost per kW	$20.0458	Annual Hours	4,380
Cost per kWh	$0.1035	**kW Savings**	**0.31**
		Annual kWh Savings	**1,367**
SDG&E Rebate Code.....	L-D91	**Annual Cost Savings**	**$141**
Rebate Units.....	Fixture	Rebate Value	$200
Rebate Value.....	$50	Estimated Implementation Cost	$1,400
		Net Implementation Cost	**$1,200**
		Simple Payback	**8.5 yrs**
		Estimated 20 Year Savings	$1,708

AM3: INCREASE FRESH AIR CIRCULATION TO AIR CONDITIONER ROOMS

The old restrooms on the northeast side of the building have been converted to air conditioner rooms. The doorways have been fitted with high security screens and previous window openings approximately 12" x 24" are used as power exhaust vents. The exhaust fans are interlocked to the compressor on the air conditioners and will run when the air conditioners are cooling. A thermostat is installed to override the interconnect when the space is cool enough. The set point is low and the interconnect is rarely interrupted during warmer months. During the logging period between October 21 and November 17 the air conditioner was observed to run for 124 hours while the exhaust fan was observed to run for 85 hours.

According to facility personnel part of the wall enclosing the rooms will be removed. Making more extensive structural changes to the rooms that allow enough natural circulation to remove the exhaust fans may save energy. An alternative approach may be to relocate the air conditioners to the rooftop. Additional savings may be achieved from this measure by reducing the load factor on the air conditioner compressors.

After logging the air conditioners and exhaust fans for the Sunset Gym it has been found that savings for this measure will be very low due to the low energy consumption of the exhaust fans. The exhaust fans were originally thought to run much longer with less control. A change of this size to the building will require the involvement of a

structural engineer and may also require the services of a mechanical design engineer if the air conditioners are relocated. The simple payback for this measure will likely be prohibitively long.

Exhaust Fan Data Logging Results	
Volts	230
Phase	3
Max kW	1.0
Total Observed Hours	650.75
Total Observed Days	27.1
Total Logged kWh	85
Running Hours*	85.75

If the exhaust fans run 2,500 hours per year the savings from removing them would be approximately $800 annually. A remodel of this size may cost as much as $15,000, resulting in a simple payback over 18 years.

*The data logger recording the current to the exhaust fan motor was set to take a measurement every 15 minutes. The exhaust fan motor was considered to be "on" if the current to the motor exceeded 0.25 amps.

Most sports parks with high wattage lights pay for energy on a 'time of use' rate, usually identified in billing as a TOU rate. These rates often differentiate electrical energy consumption during peak, semi-peak and off-peak hours. These hours change between summer and winter. In addition to the electrical energy consumption cost a demand cost is associated with it as well. These rate types have traditionally caused very high electrical energy rates for parks with soccer or ballpark lighting, often resulting in a blended rate of up to $0.42 per kWh. Typical commercial buildings pay a blended rate of around $0.125 to $0.16 per kWh. SDG&E has begun to offer rates that are specifically designed for these parks to bring their blended dollar per kWh rate in line with other commercial or public buildings.

Two rates are currently available for consideration. Both will require an on-site visit from SDG&E personnel to verify that the requirements for the rate are met. This report will show the rate analysis for all qualifying city parks. The existing rates will be compared to an OL-2 rate and an OL-TOU rate offered by SDG&E.

SDG&E Schedule OL-2 is sometimes difficult to qualify for if a snack shack is located at the park. From SDG&E Schedule OL-2, *"This is an optional schedule provided by the utility. Applicable to metered service of outdoor area lighting load for customer-owned facilities, controlled for dusk to dawn operation and used for the purpose of lighting sports and recreation areas." "Service under this Schedule requires the control of lamps in a manner acceptable to SDG&E so that lamps will not be lighted daily from dawn to dusk. Customer shall install, own, operate, and maintain the control device. SDG&E shall have the right to periodically inspect the control device to ensure its correct operation and maintenance." "Incidental, non-lighting loads may be served under this Schedule only where such connected loads for that meter do not exceed 15 percent of the customer's total connected load. Incidental loads must also be controlled for dusk to dawn operation exclusively."*

An alternative to the SDG&E Schedule OL-2 is the Schedule OL-TOU. OL-TOU is a time of use rate and will not save as much as OL-2, however analysis shows significant savings are possible from OL-TOU. From SDG&E Schedule OL-TOU, *"Applicable to metered outdoor sports and recreation area lighting load, not including street or highway lighting, controlled exclusively for nighttime operation. Incidental, non-outdoor area lighting load shall be served under this schedule if the incidental load meets the following conditions: 1) does not exceed 15 percent of the customer's Maximum Monthly Demand and 2) does not exceed 20 kW, regardless of the time such incidental load operates. Service under this schedule is not applicable to any customer whose monthly maximum demand is less than 20 kW and to any customer whose incidental load causes a summer on-peak demand that equals, exceeds, or is expected to equal or exceed 20 kW for three consecutive billing periods."*

CSM 1: APPLY FOR RATE CHANGE

Jr Seau Field 1666117

Summer	22,080
On Peak	1,760
Semi Peak	12,240
Off Peak	8,080

Winter	53,200
On Peak	23,520
Semi Peak	14,240
Off Peak	15,440

Total	75,280

Summer	22,080
On Peak	1,760
Semi Peak	12,240
Off Peak	8,080

Winter	53,200
On Peak	23,520
Semi Peak	14,240
Off Peak	15,440

Total	75,280

AL-TOU

Transmission & Delivery		
Basic Service Fee	$	58.22000
Non-Coincident $/kW	$	11.97000
Max On-Peak Summer	$	6.81000
Max On-Peak Winter	$	4.64000
Power Factor $/kvar	$	0.25000
Summer		
On Peak	$	0.01369
Semi Peak	$	0.01061
Off Peak	$	0.00974
Winter		
On Peak	$	0.01249
Semi Peak	$	0.01061
Off Peak	$	0.00974

Commodity		
Max On-Peak Demand: Summer	$	5.81000
Max On-Peak Demand: Winter	$	0.19000
Summer		
On Peak Energy	$	0.09783
Semi Peak Energy	$	0.07927
Off Peak Energy	$	0.05911
Winter		
On Peak Energy	$	0.09521
Semi Peak Energy	$	0.08753
Off Peak Energy	$	0.06523

12 Month Consumption Summary	
Annual Electrical Consumption	75,280 kWh/yr
Max Demand	131.2 kW

12 Month Energy Cost Summary		
Electrical Energy Cost	$	6,570
Electrical Demand Cost	$	24,466
Taxes and Fees	$	37
Other Costs	$	1,096
Total	$	32,170

OL-TOU

Transmission & Delivery		
Basic Service Fee	$	9.56000
Non-Coincident $/kW	$	-
Max On-Peak Summer	$	-
Max On-Peak Winter	$	-
Power Factor $/kvar	$	-
Summer		
On Peak	$	0.09513
Semi Peak	$	0.09082
Off Peak	$	0.09073
Winter		
On Peak	$	0.09295
Semi Peak	$	0.09082
Off Peak	$	0.09073

Commodity		
Max On-Peak Demand: Summer	$	-
Max On-Peak Demand: Winter	$	-
Summer		
On Peak Energy	$	0.16764
Semi Peak Energy	$	0.06940
Off Peak Energy	$	0.05130
Winter		
On Peak Energy	$	0.07681
Semi Peak Energy	$	0.07143
Off Peak Energy	$	0.05205

12 Month Consumption Summary	
Annual Electrical Consumption	75,280 kWh/yr
Max Demand	131.2 kW

12 Month Energy Cost Summary		
Electrical Energy Cost	$	12,194
Electrical Demand Cost	$	-
Taxes and Fees	$	37
Other Costs	$	1,096
Total	$	13,327

Projected Savings $ 18,842

ECM 8: REPLACE BACKUP GENERATOR BLOCK HEATERS

Backup generators are equipped with electric resistance block heaters to keep the engine oil at a certain temperature (varies by manufacturer, approximately 100°F). This pre-warmed state ensures that the generator will be ready to produce energy as soon as it starts. The electric resistance heater is controlled by a thermostat and is plumbed into the coolant system. When the heater is on water circulates by convection through the block. This electric block heater may be replaced by a small heat pump designed to pre-warm generator engine blocks. It replaces the electric resistance heater in the coolant loop. Heat pump block heaters require 25% less energy annually to maintain the same oil temperature.

A phase 2 audit was not performed at any of the locations where backup generators are installed. The following table includes the backup generators at city locations and the projected savings of replacing the existing resistance heater with a heat pump.

Location Address	Equipment Location	Location Type	Generator kW	kW Savings	kWh Savings	Cost Savings	Implementation Cost	Incentive Value	Net Implementation Cost	Simple Payback
8085 University Ave	Police Department	Fire & Safety	500	2.3	13,957	$2,004	$11,000	$2,326	$8,674	4.3
5054 Allison Ave	Fire Station 11	Fire & Safety	200	1.0	6,357	$1,052	$6,800	$1,050	$5,750	5.5
8844 Dallas St	Fire Station 12	Fire & Safety	135	0.5	3,674	$608	$3,000	$605	$2,395	3.9
9110 Grossmont Blvd	Fire Station 13	Fire & Safety	125	0.5	3,311	$548	$2,000	$544	$1,456	2.7
Total				**4.3**	**27,299**	**$4,211**	**$22,800**	**$4,524**	**$18,276**	**4.3**

		kW Savings	**4.30**
		Annual kWh Savings	**27,299**
SDG&E Incentive Code……	EEBI AC & Refrigeration	**Annual Cost Savings**	**$4,211**
SDG&E kWh Incentive Value……..	$0.15	Rebate Value	$4,524
SDG&E kW Incentive Value ……..	$100	Estimated Implementation Cost	$22,800
		Net Implementation Cost	**$18,276**
		Simple Payback	**4.3 yrs**

APPENDIX D.
PETROLEUM REDUCTION, ALTERNATIVE FUELS, AND LOCAL INFRASTRUCTURE OPTIONS

Petroleum Reduction Measures

Driving Suggestions for City Employees

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

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

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

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

Alternative Fuels and Vehicles

The following table provides information on the availability of alternative fuel vehicles for a variety of fleet applications.

Summary of Potential Alternative Fuel Fleet Applications

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

Notes:

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

B20 = twenty percent biodiesel blend	PHEV = plug-in hybrid electric vehicle
BEV = battery electric vehicle	HEV = hybrid electric vehicle
E85 = 85 percent ethanol, 15 percent gasoline	FCV = fuel cell vehicle
FFV = flex fuel vehicle	CNG = compressed natural gas
LPG = liquefied petroleum gas	LNG = liquefied natural gas
NEV = neighborhood electric vehicle	

Description of Alternative Fuels

Electricity

Battery electric vehicles (BEVs) and plug-in hybrid electric vehicles (PHEVs) are powered by a source of electricity external to the vehicle, such as the electricity grid or a distributed energy source. As opposed to conventional vehicles powered by the internal combustion engine (ICE), BEVs run on electric motors powered by rechargeable battery packs. The BEV stores electricity in an energy storage device such as rechargeable battery packs. Electricity powers the vehicle's wheels via an electric motor. BEVs have a limited energy storage capacity, which must be replenished by plugging into an electrical source external to the vehicle.

PHEVs are powered by an ICE and a rechargeable battery, which displaces the need for some or all of the need for ICE power and gasoline consumption. In both BEV and PHEV technologies the batteries must be charged externally (i.e., plugged-in). A plug-in is similar to a standard hybrid but is equipped with a battery that can be recharged by connecting a plug to an electric power source. Most PHEVs are passenger cars, but commercial passenger vans, utility trucks, school buses, and motorcycles also are available in plug-in versions. Standard hybrids are considered a vehicle efficiency improvement rather than an alternative fuel vehicle technology.

Biofuels: Biodiesel

Biodiesel is a non-petroleum-based diesel made from vegetable oils or animal fats using a process called transesterification, which produces a glycerol as a byproduct which remains mixed in with the biodiesel. Pure biodiesel contains no petroleum, but it can be blended at any level with petroleum diesel to create a biodiesel blend. Typical biodiesel blends range from 5 to 99 percent. Biodiesel can be legally blended with petroleum diesel in any percentage. Pure biodiesel (B100) or higher-level biodiesel blends with petroleum diesel can be used in a standard diesel engine. However, blends greater than B20 are not typically recommended for use without at least some engine modifications, and may void the engine warranty. B100 and blends of B20 (20 percent biodiesel, 80 percent petroleum diesel) or higher are typically considered biodiesel fuel. Lower level blends (below B20) are considered diesel fuel. Biodiesel is simple to use, biodegradable, nontoxic, and essentially free of sulfur and aromatics.

Biodiesel works in any diesel engine with few or no modifications to the engine or the fuel system. All diesel vehicles, new and old, can use B5 blends. The United States Navy and Marine Corps are two of the largest users of biodiesel in the San Diego region. Biodiesel blends are used in the City of Carlsbad vehicle fleet, UCSD bus fleet, and Hornblower Cruises marine vessels. The Cities of Chula Vista, San Diego, Oceanside and Escondido are planning to switch some diesel-based fleet vehicles to biodiesel in the near term. UCSD imports approximately 10,000 gallons of biodiesel monthly from an Orange County distributor, while other fleets are served by Soco Group, which sells approximately 25,000 gallons monthly in the region. Biodiesel is locally produced by New Leaf Biofuels.

Description of Alternative Fuels

Biofuels: Ethanol

Ethanol is an alcohol-based fuel derived from various plant materials (i.e., biomass feedstocks) including corn, sugar cane, barley, and wheat. Ethanol is produced by fermenting and distilling starch crops that have been converted into simple sugars. Ethanol can also be produced from cellulosic biomass such as trees and grasses and is called bioethanol. Ethanol is most commonly used to increase octane and improve the emissions quality of gasoline. More than 95 percent of the gasoline in California contains a low-level blend of ethanol (about 6%) to oxygenate the fuel and reduce air pollution. E85 (85% ethanol, 15% gasoline) is considered an alternative fuel that can be used in flexible fuel vehicles (FFVs). FFVs are capable of operating on gasoline, E85 (85% ethanol, 15% gasoline), or a mixture of both. Despite the limited availability of E85, the state features many flex-fuel vehicles, which are capable of running on either gasoline or E85. Energy Commission staff estimate that one to two percent of the California passenger vehicle fleet consists of FFVs, most of which are American-made light-duty trucks and sport utility vehicles.

Hydrogen

Hydrogen is not naturally occurring and must be produced from an energy source, such as natural gas or water. Hydrogen can be produced for use as a transportation fuel in fuel-cell vehicles, which generate electricity from hydrogen. Hydrogen fuel cell vehicles (FCVs) are zero-emission vehicles that produce no tailpipe GHG emissions. Fuel cells generate electricity through an electrochemical process, using hydrogen as the fuel, to power an electric motor which drives the vehicle. When the hydrogen is used in a fuel cell, only water and heat are produced. Hydrogen can be produced at a central station either through reforming hydrocarbon fuels like natural gas or electrolyzing water. In either case, the produced hydrogen is then delivered to fueling stations by truck or hydrogen pipeline to be pumped into vehicles' hydrogen tanks. Hydrogen can also be produced by reformation or electrolysis at the fueling station itself.

Today, little hydrogen is produced for use as a vehicle fuel, and hydrogen for industrial purposes is produced through the reformation of natural gas. Hydrogen has the potential to be produced from low-carbon renewable resources, providing significant GHG benefits from well to wheels when used in a fuel cell vehicle.

Natural Gas

Natural gas has a high octane rating and excellent properties for spark-ignited internal combustion engines. It is non-toxic, non-corrosive, and non-carcinogenic. It presents no threat to soil, surface water, or groundwater. More than 99 percent of the natural gas used in the U.S. comes from domestic or other North American sources. However, increasing demand for natural gas in power plants will require new supplies from non-North American countries, increasing our dependence on foreign sources of energy. The Energy Information Administration predicts that by 2025, more than 15 percent U.S. natural gas supplies will be imported from countries other than Canada and Mexico.

Description of Alternative Fuels
The vast majority of natural gas is a non-renewable fossil fuel extracted from gas and oil wells. Much smaller amounts are derived from supplemental sources such as synthetic gas, landfill gas and other biogas resources, and coal-derived gas. Because of the gaseous nature of this fuel, it must be stored onboard a vehicle in either a compressed gaseous (compressed natural gas, or CNG) or liquefied (liquefied natural gas, or LNG) state. Compressed natural gas, or CNG, is a mixture of hydrocarbons, mainly methane. Found in gas wells or produced in conjunction with crude oil, natural gas is a clean-burning, domestically produced fuel that generates significantly fewer emissions than conventional gasoline or diesel when used to power vehicles. Although vehicles can use natural gas as either a liquid or a gas, most vehicles use the gaseous form. Compressed at pressures of 3,000 pounds to 3,600 pounds per square inch, the natural gas is stored on-board a vehicle in specially designed and constructed cylinders. Vehicles that run on CNG have engines and fuel systems that are optimized for gaseous fuel use. To store more energy onboard a vehicle in a smaller volume, natural gas can be liquefied. To produce LNG, natural gas is purified and condensed into liquid by cooling to -260°F (-162°C). At atmospheric pressure, LNG occupies only 1/600 the volume of natural gas in compressed gaseous form. Because it must be kept at such cold temperatures, LNG is stored in double-wall, vacuum-insulated pressure vessels. LNG fuel systems typically are used only with heavy-duty vehicles. LNG is clear, colorless, odorless, non-corrosive, and non-toxic.
Propane (Liquefied Petroleum Gas)
Propane, also known as liquefied petroleum gas (LPG), is produced as part of natural gas processing and crude oil refining. Propane can be turned into a liquid at a moderate pressure (160 pounds per square inch [psi]) and is stored in pressure tanks at about 200 psi at 100 degrees Fahrenheit. When propane is drawn from a tank, it changes to a gas before it is burned in the engine. Dedicated propane vehicles are designed to run only on propane; bi-fuel propane vehicles have two separate fueling systems that allow the vehicle to be powered by either propane or gasoline.

Available Alternative Fuel Infrastructure Near La Mesa

Refueling stations for alternative fuel vehicles are significantly less in number than gasoline and diesel stations. A primary consideration in purchasing any alternative fuel vehicle is that adequate fueling sources exist near where the vehicle will be used. The tables below identify publicly accessible alternative fuel infrastructure near the La Mesa Public Works Yard Electric charging sites for plug-in electric vehicles are expected to be widely available across the County by June 2012 as part of the Electric Vehicle Project. To locate alternative fueling stations in the future, including EV charging sites, use the DOE's Alternative Fuels and Advanced Vehicles Data Center (www.afdc.energy.gov/afdc/).

Alternative Fuel Infrastructure Near the City of La Mesa			
Fuel Type	**Cost of Additional Fueling/Charging Infrastructure**	**Location of Fueling Infrastructure**	**Distance from City Public Works Yard**
Biodiesel (B20 and above)	Biodiesel can be brought to a city and blended onsite within existing diesel storage tanks. Local producer is New Leaf Biofuel.	SoCo Group Petroleum 145 Vernon Way El Cajon, CA B5 at Cardlock facilities. All grades of diesel available for bulk deliveries.	5.8 miles
		Pearson Fuels- B20 4067 El Cajon Blvd San Diego, CA 92105 Phone: (619) 243-0456 Access: Public - credit card at all times	5.1 miles
		San Diego Naval Base 32nd Street, San Diego, CA 92136 Access: Private access only	8.5 Miles
Compressed Natural Gas	Small station: $350,000 Medium station: $500,000 Large station: $950,000 Add public fast-fill dispenser: $125,000	Pearson Fuels 4067 El Cajon Blvd San Diego, CA 92105 Phone: (619) 243-0456 Access: Public - credit card at all times	5.1 miles
		SDG&E Service Center – Kearney Mesa 5488 Overland Ave San Diego, CA 92123 Access: Public - credit card at all times	7.1 miles
		Naval Public Works Center 32nd Street Station411 Cummings San Diego, CA 92136 Access: Private access only	8.6 miles
		Clean Energy - Lindbergh Field Shell 2521 Pacific Highway San Diego, CA 92101 Access: Public - credit card at all times	9.2 miles

Alternative Fuel Infrastructure Near the City of La Mesa			
Fuel Type	**Cost of Additional Fueling/Charging Infrastructure**	**Location of Fueling Infrastructure**	**Distance from City Public Works Yard**
Electricity	Publicly Available, Level 2: $2,500-$5,000.	Mossy Nissan El Cajon 1170 W Main St El Cajon, CA 92020 (619) 588-0500 Type: Level 2, public access	3.1 miles
		Many new installations arriving. Check regularly for updates.	
Ethanol (E85)	$100,000 to $250,000 Storage and distribution facilities needed in order to scale-up consumption	Pearson Fuels 4067 El Cajon Blvd San Diego, CA 92105 Phone: (619) 243-0456 Access: Public - credit card at all times	5.1 miles
		Propel Fuels 1495 East H St Chula Vista, CA 91910 Access: Public	8.9 miles
Hydrogen	$500,000 to $5,000,000	No fueling sites in or near the city	n/a
Liquefied Petroleum Gas (Propane)	$65,000	U-Haul 1805 Massachusetts Ave Lemon Grove, CA 91945 (619) 460-6370 Access: public	3.5 miles
		U-Haul 4311 El Cajon Blvd San Diego, CA 92105 Phone: (619) 283-5528 Access: public	4.7 miles
Liquefied Natural Gas (LNG)	Large station: $1,200,000 Combined LCNG and LNG station: $1,600,000	No fueling sites in or near the city	n/a

Source: U.S. Department of Energy, Alternative Fuels and Advanced Vehicles Data Center, www.afdc.energy.gov/afdc/

Alternative Fuel Vehicle Replacement Analysis for La Mesa

Additional details from the California Center for Sustainable Energy analysis are provided here. Regular fleet turnover offers the chance for alternative fuel vehicle procurement. The following analysis uses information provided by city Fleet Management staff to identify fuel savings from alternative fuel vehicle adoption.

The City of La Mesa designates vehicles for replacement based on assessment of age, mileage, maintenance history, and condition. Due to the relatively low mileage put on the city's vehicles, fleet vehicles may operate for ten years or more. Replacing these vehicles with alternative fuel or hybrid vehicles has the potential to save money and reduce emissions.

A variety of sedans and SUVs are now available in hybrid models. Plug-in hybrids and battery electric vehicles are increasingly available and offer additional fuel savings and emissions reductions by using grid electricity as a fuel. Light-duty compressed natural gas (CNG) and propane (LPG) vehicles can be ordered through normal dealer channels with OEM authorized up fitters installing alternative fueling systems before delivery to customers. Light duty trucks with bi-fuel gasoline/CNG options are expected in the near future. The chart below shows the savings in fuel costs and potential petroleum displacement from the adoption of these alternative fuels and technologies.

Potential Savings from Alternative Fuel Vehicles

Type of Alternative Fuel Vehicle	Mileage	MPG		Fuel Price		Gallons Displaced	Yearly Savings	Ten year Savings
		Old	New	Old	New			
#136- 1998 Ford Taurus								
Hybrid electric	10,000	22	42	$3.75	$3.75	216.5	$861.69	$8,616.88
#005-1996 Ford Explorer								
Hybrid electric	6,000	10.3	25	$3.75	$3.75	342.5	$1,332.47	$13,324.66
#178- 1997 Ford F-150								
Propane	9,200	10	12	$3.75	$2.84	920.0	$1,502.67	$15,026.67
CNG	9,200	10	11	$3.75	$2.00	920.0	$2,007.27	$20,072.73
#312- 2001 Ford F250 Super Duty								
Propane	6,000	6	7	$3.75	$2.84	1,000.0	$1,465.71	$14,657.14
CNG	6,000	6	7	$3.75	$2.00	1,000.0	$2,185.71	$21,857.14
#322: 2011 Ford F- 450 Super Duty 6.8l V10								
Propane	3,700	3.8	4	$3.75	$2.84	973.7	$1,116.82	$11,168.16
CNG	3,700	3.8	4	$3.75	$2.00	973.7	$1,893.82	$18,938.16

Assumptions: Fuel prices based on the West Coast Retail averages from the Alternative Fuel Price Report, US Department of Energy, August 2011. Savings are based on full year of operation of all vehicles and include reduced maintenance costs for hybrid and alternative fueled vehicles.

Source: California Center for Sustainable Energy

This analysis shows that the replacement of older vehicles with alternative fuel ones could save the City $800-$2,000 a year per vehicle in fueling costs. Hybrid vehicles should be strongly considered for any vehicle with high yearly usage. Not all city vehicles have fuel consumption as high as in the example, but would still offer savings. Hybrids offer exceptional mileage in the kinds of stop-and-go driving duty that many municipal vehicles experience. A more detailed study would be needed to make vehicle purchase decisions, but this analysis shows the magnitude of potential monetary and fuel savings.

The savings of any vehicle always depend on the price of fuel and the use of the vehicle. Further analysis will be needed to assess whether the savings in fuel costs exceed the incremental cost of the vehicle, although the price advantage of alternative fuels is expected to increase over time. The incremental cost of alternative fuel vehicles can vary based on the number of vehicles purchased at once, as well as the availability of incentives and rebates. Although CNG and propane vehicles would require additional infrastructure, grants for this infrastructure are available on a regular basis. Fuel providers sometimes provide low-cost infrastructure as part of fueling contacts. With a lower cost of fuel, propane and natural gas vehicles can save the City money while also reducing emissions.

APPENDIX E.
TRANSPORTATION DEMAND MANAGEMENT RESOURCES

This appendix contains two resources that can aid the City of La Mesa in implementing a transportation demand management program for its employees:

1. **Sample iCommute Triptracker Program Reports**
2. **National Bike Month Proclamation**

The sample iCommute reports provide an example of the data and information that can be collected from the TripTracker program as employees log their trips. The National Bike Month Proclamation is a SANDAG proclamation that the City can look to in developing its own proclamations.

Sample iCommute TripTracker Program Reports

The following pages contain sample output report tables from the iCommute TripTracker program. Table 1, *General Alternative Transportation Program Report*, is a sample report that summarizes all user trips over a period of January 1, 2011 to August 16, 2011. This report details how many trips were taken by each transportation mode. Non single occupancy vehicle (SOV) trips include walking, biking, public transit, motorcycle/scooter, or trips in a vehicle with more than one person.

Table 1: General Alternative Transportation Program Report

1/1/2011 through 8/16/2011

New Users	**5135**
Non SOV Miles Logged	**16677624**
Bike Trips	**30712**
Carpool Trips	**22909**
COASTER Trips	**8197**
Compressed Work Week Trips	**631**
Did Not Work Trips	**13023**
Drive Alone Trips	**22201**
Motorcycle/Scooter Trips	**2098**
Other Trips	**613**
Other Transit Trips	**8551**
Premium Express Bus Trips	**4696**
Telework Trips	**1942**
Vanpool Trips	**389973**
Walk Trips	**6067**

Table 2, *Savings from Non-Single Occupancy Vehicle Trips,* displays the total carbon dioxide (CO_2), gallons of gasoline, and dollars saved by choosing an alternative form of transportation.

Table 2: Savings from Non-Single Occupancy Vehicle Trips

Savings	Total
Carbon Dioxide	11,545,223
Gasoline	575,288
Monetary savings	7,474,064

Table 3, *Ridematch Statistics,* provides data regarding the use of the Ridematcher service in iCommute. Ridematcher is a service to aid users in finding commute partners based on their home and work locations. The number searches performed indicates how many people are using the Ridematcher program. When a request is sent, that indicates that a user found someone to potentially commute with.

Table 3: Ridematch Statistics

Ridematch Actions	Total
Ridematch search performed	3,598
Ridematch search with no result	478
Ridematch requests sent	1,280

(Results based on all time)

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RESOLUTION NO. 2011-15

NATIONAL BIKE MONTH 2011 PROCLAMATION

WHEREAS, the month of May is National Bike Month, and May 20, 2011, is National Bike to Work Day; and

WHEREAS, biking is a proven emissions-free transportation alternative that reduces traffic congestion, improves mobility, and provides an alternative to driving alone; and

WHEREAS, promotion or other support of biking to work improves the region's economic prosperity and quality of life; and

WHEREAS, National Bike Month 2011 is a month-long event from May 1 - May 31, 2011, that promotes bicycle commuting, safety, and driver awareness of bicycle riders; and

WHEREAS, SANDAG is sponsoring National Bike Month and Bike to Work Day, with support from the U.S. Department of Health and Human Services and the County of San Diego, to recognize biking to work and to promote employer and commuter participation this day and throughout the year; and

WHEREAS, San Diego area employers can improve mobility and reduce greenhouse gas emissions in the region, and around their work sites, by offering incentives to employees to encourage biking to work and other alternatives to the solo commute; and

WHEREAS, San Diego area commuters can reduce their weekly solo commute trips and the demands placed on the region's roadways by 20 percent by choosing a commute alternative like biking to work just once a week; NOW THEREFORE

BE IT RESOLVED that the San Diego Association of Governments hereby proclaims May 2011 National Bike Month and encourages employers to offer incentives to employees to use alternatives to driving alone, such as biking to work, for this day and throughout the year. Commuters are encouraged to explore their transportation options and seek support from their employer, doing their part to reduce congestion in the region.

PASSED AND ADOPTED this 25th day of March 2011.

CHAIRPERSON

ATTEST: Gary L. Gallegos
SECRETARY

MEMBER AGENCIES: Cities of Carlsbad, Chula Vista, Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Oceanside, Poway, San Diego, San Marcos, Santee, Solana Beach, Vista, and County of San Diego.

ADVISORY MEMBERS: California Department of Transportation, Metropolitan Transit System, North County Transit District, Imperial County, U.S. Department of Defense, San Diego Unified Port District, San Diego County Water Authority, Southern California Tribal Chairmen's Association, and Mexico.

CITY OF LA MESA
JEWEL of the HILLS

INTEROFFICE MEMO

DATE: May 8, 2012

TO: Mayor and Members of the City Council

VIA: David E. Witt, City Manager

Gregory P. Humora, Director of Public Works/City Engineer

FROM: Scott A. Munzenmaier, Administrative Analyst II

SUBJECT: Update on La Mesa's Climate Protection Actions

The City Council approved a resolution in 2007 endorsing the U.S. Mayor's Climate Protection Agreement and directed staff to report back periodically on the City's actions towards climate protection. The following actions are listed, with new items since the 2011 update indicated, as they relate to the areas of concern listed in the U.S. Mayors Climate Protection Agreement passed by the U.S. Conference of Mayors in 2005. This update was presented to the Environmental Sustainability Commission on April 16th of this year and their comments were incorporated.

1. Inventory Emissions in City Operations

- **New** – La Mesa is now a Beacon Award Participant and has received a certificate for interim accomplishments based on best practice activities in areas of sustainability.
- **New** – The City is participating in the SANDAG Energy Roadmap program that will provide updated energy audits on City facilities and operations which can be used to look for ways to reduce energy consumption and compare with the 2005 emissions inventory data to determine continued needs.
- The City is complying with Air Pollution Control Board regulations, including inventorying and cataloging the City's fleet.
- Staff attended two sessions of The San Diego Regional Climate Forecast: Where We Are and Where We Are Going in conjunction with the National Conversation on Climate Action.
- A greenhouse gas emissions inventory was conducted of base year 2005 for City operations as well as the community.
- Staff meets periodically with the regional Climate Protection Network Group.
- Purchasing staff continue to seek environmentally friendly options for products and services for use by all departments.

2. Land-Use Policies

- **New** - A comprehensive update to the La Mesa General Plan is in progress. The Draft 2012 General Plan is available for public review as we undergo the EIR

process. The new General Plan includes goals, objectives, and policies that further environmental sustainability, health and wellness in the community.

- Existing policies reduce urban sprawl, preserve open space, and create a more compact urban community.
- The Mixed Use Overlay Zone supports compact urban development and pedestrian oriented neighborhoods.
- A model water efficient landscape ordinance was adopted in 2010 in accordance with AB 325 that complies with the State's requirements for water conservation.

3. Transportation

- **New** – Allison Avenue between University Avenue and Palm Avenue was upgraded for better walkability including two new mid-block crosswalks at the community library and trolley station that include sensor-activated flashing LED lights.
- **New** – On Feb. 28, 2012 the City Council adopted a Bicycle Facilities and Alternative Transportation Plan in accordance with AB 1358 "Complete Streets" legislation funded by a $75,000 SANDAG grant awarded in July 2009. The Plan was upgraded with a "Safe Routes to Transit" component funded by a second $50,000 SANDAG grant awarded in February 2011.
- **New** – Staff is participating in the San Diego Regional Electric Vehicle Infrastructure Working Group.
- Through the General Plan, the City encourages non-automobile transportation such as more sidewalks, bicycle lanes, and pedestrian-friendly zones.
- The City worked with Fairfield Residential and MTS to develop a major "smart growth" residential project at the Grossmont Transit Center. Staff worked with SANDAG to construct a new ADA accessible pedestrian bridge and elevator structure.
- A Sidewalk Master Plan is leading to new sidewalk construction where it is most needed, improving the walkability of the community.
- The City's first mid-block crosswalk is located on Center Drive next to Grossmont Hospital.
- The University Avenue Revitalization Plan is complete which will improve walkability along the major thoroughfare once completed.
- Plans were adopted for neighborhood traffic management (February 2004), walkability (February 2006) and a concept for pedestrian and bicycle crossings for the freeways (December 2008).
- Construction of streetscape improvements around the civic center has made this public service area and nearby transit connects more walkable.
- Construction of a new sidewalk, landscaped parkway and utility undergrounding was completed behind Helix Charter High School to increase walkability.

4. Clean Energy

- **New** – Between 2008 and 2011 there have been nine commercial and 124 residential installations of solar systems in La Mesa, capable of 3.81 megawatts of output.
- The landfills used by the City's contract waste hauler, EDCO Disposal Corporation, utilize methane recovery energy programs.
- Solar power is used for radar feedback signs on Fletcher Parkway and Amaya Drive as well as three City street lights and updated parking meters in the downtown business district.
- The City replaced older backup generators with cleaner, more efficient units at the new Fire and Police facilities.

5. Energy Efficiency

- **New –** The windows and doors will be replaced at the Community Center and Recreation Center with more energy efficient products.
- **New** – SANDAG's Energy Roadmap program that will provide updated energy audits on City facilities and operations and make recommendations for improvement.
- **New** – High efficiency induction street light replacements were been installed using ARRA funding and have reduced the City's street light energy costs by approximately half.
- All new City buildings meet California energy standards and have fluorescent lighting. The new police station has a high-efficiency HVAC system.
- The City has retrofitted all traffic signals with green and red LED (light-emitting diode) lights and solar-powered smart parking meters are in use in the Downtown Village.
- Local businesses exchanged 500 incandescent bulbs for efficient compact fluorescent bulbs in a partnership with the City of Chula Vista and SDG&E.
- SDG&E has installed smart meters throughout the City that are more accurate and allow customers to view close to real-time data on their use and held a light bulb exchange at the 2010 "Sustain La Mesa" Environmental Festival.

6. Appliance Efficiency

- The City currently purchases Energy Star compliant equipment and technology.
- Equipment purchased for facilities including computers and printers/copiers are more efficient than the older models.

7. Green Building Designs

- **New** - The new police station has applied for LEED (Leadership in Energy and Environmental Design) certification.
- LEED standards are incorporated into the design of the police station and a cool roof on the Community Center.

- LEED certification is encouraged for all buildings and developments.
- Through the City's Design Review process, new development is encouraged to incorporate energy conservation and green building concepts at the early stages of project development.
- The City enforces the California Energy Efficiency Standards and the newly adopted California Green Building Code regulating energy conservation techniques, materials and appliances in the construction of buildings by the private sector.

8. Fleet Fuel Efficiency

- **New** – Low-draw LED emergency lighting is being installed on all new public works vehicles, allowing the lights to be used without the engine running.
- **New** – AIMS Fuelmaster automatic fuel monitoring devices, currently used on all EMS vehicles will be installed on all new vehicles and incrementally installed on existing vehicles.
- The City owns four hybrid vehicles for use by the City's building inspectors and parking enforcement which reduce the fuel needed for local use.
- As City vehicles are replaced, fuel efficiency and reduced emissions will be important criteria in selecting replacement vehicles and equipment.
- The City retrofitted six diesel vehicles, partially with grant funding, to reduce emissions in compliance with the State's Tier 3 requirements and has three more to be installed with diesel particulate filters.
- A grant was awarded to install three diesel particulate filters on off-road equipment to reduce emissions.
- One diesel and four gasoline trucks have been replaced with new, lower emission models.
- City operations achieved 100% compliance with the Air Resources Board DOORS (Diesel Off-Road On-Line Reporting System) program.
- The fueling facility was upgraded to the Air Resources Board EVR2 specifications to reduce gasoline vapor emissions while fueling.

9. Wastewater Treatment

- **New** – EDCO Station in La Mesa now accepts cooking fats, oils and grease (FOG) for free to be recycled into biofuel by a local company in San Diego.
- **New** – The City is actively upgrading the wastewater collection system to mitigate any storm water inflow or infiltration into the collection system. Reducing this burden on the treatment plant results in lower environmental impacts to the plant and the surrounding environment.
- Wastewater treatment processes at the Point Loma Treatment Plant include a methane recovery energy program. The treatment process is a net energy producer.
- The City continues to promote water conservation measures in existing facilities and new development in the community.

- Irrigation upgrades in the medians on Baltimore Drive and Lake Murray Boulevard resulting in more efficient water use.
- Information kiosks are located in four City parks as part of the City's storm water pollution prevention efforts and staff participates annually in the Creek to Bay Cleanup and Coastal Cleanup Day events. Storm water programs and ordinances were updated to comply with an updated storm water permit.
- The Fats, Oils, and Grease (FOG) Control Program was implemented to help reduce blockages within the wastewater system which can lead to overflows and impact surface water quality. Staff enrolls food service establishments which are required to participate in the program and the majority of applicable establishments were issued a five-year FOG permit.
- Kitchen sink spray valves were exchanged for low-flow pre-rinse spray valves at local restaurants in a partnership with the City of Chula Vista.
- Helix Water District continues to report water conservation, reducing the amount of wastewater necessitating treatment.

10. Increased Recycling

- **New** – EDCO has recently begun accepting polystyrene (Styrofoam) through curbside collection available to all residents and businesses.
- **New** – A backyard composting program has been launched in which residents can purchase bins from Dixieline ProBuild in La Mesa for $29.99, a $40 discount, and receive instructional classes provided by EDCO.
- **New** – City Hall now has a compost bin for use by employees.
- **New** – Using a grant from the Department of Resources Recycling and Recovery (CalRecycle) the City has distributing thousands of reusable recycling bags to multifamily complexes to help residents separate and carry recyclables to the EDCO collection bins, along with space-saving can crushers and hundreds of recycling receptacles for common areas such as pools and laundry rooms.
- City facility recycling is encouraged and employees are provided accessible recycling receptacles.
- The City's mandatory recycling ordinance is enforced and has a citywide compliance rate among commercial businesses and multifamily properties of 95%.
- In the most recent Annual Report to CalRecycle the 2010 estimated trash disposal rate by residents was 4.1 pounds/person/day (PPD) and 10.5 PPD by employees of local businesses. This is lower than the maximum disposal allowed in La Mesa, 6.2 PPD and 13.8 PPD respectively, under AB 939 which mandates 50% diversion from landfills.
- EDCO Disposal, the City's waste and recycling hauler, now accepts all rigid plastics through its curbside collection to allow for more comprehensive recycling.
- Recycling containers are located in the downtown village as well as all City parks.

- Nearly 95,000 pounds of household hazardous waste was been collected from 880 La Mesa and Lemon Grove residents during 2011.
- An aerosol recycling system captures propellant for safe disposal.

11. Promoting Urban Forests

- **New** – The City is participating in the San Diego County Tree Inventory being developed by the California Center for Sustainable Energy and Cal Fire to provide interactive maps to quantify the ecological and economic benefits of trees.
- The General Plan Urban Design Element encourages use of greenery in design.
- The City has been recognized as a Tree City USA since 1980.

12. Public Education

- **New** – La Mesa e-Gov allows anyone 24-hour access to services electronically including announcements of programs and events through Twitter, Nixle and Notify Me.
- **New** – The La Mesa-Spring Valley School District has recycling clubs at different schools and recently received a $5,000 grant to help design a native plants learning laboratory at La Mesa Middle School.
- The La Mesa FOCUS publishes various items on environmental topics.
- Information on various environmental topics is available on the City website including links to SDG&E, Helix Water District, EDCO, CalRecycle and the EPA.
- Through implementation of the California Building Codes, many homeowners are assisted by the Building Department in finding ways to improve energy efficiency.
- The Environmental Sustainability Commission is comprised of members from environmentally linked industries and the general public to address issues and establish guidelines related to climate change.
- The “Sustain La Mesa” Environmental Festival is held annually in Harry Griffen Park, and includes dozens for booths and activities as well as expert speakers promoting a variety of environmental topics. The festival also features a recycling zone for electronic waste, plastic wrap/bags and Styrofoam.
- Presentations are made to schools for all grade levels under a contract with I Love A Clean San Diego to educate on topics of pollution prevention and recycling.
- Special giveaway items have been developed to appeal to kids and adults while carrying important messages.
- The City’s utilities and service providers including EDCO, Helix Water and SDG&E provide year-round education and resources in their respective fields.

Attachment A: Resolution 2007-039 and U.S. Mayors Climate Protection Agreement

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COPY

RESOLUTION NO. 2007-039

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF LA MESA ENDORSING THE U.S. MAYORS CLIMATE PROTECTION AGREEMENT CALLING FOR A REDUCTION IN GREENHOUSE GAS EMISSIONS

WHEREAS, on March 27, 2007 the La Mesa Global Warming Committee requested that the City Council endorse the US Mayors Climate Protection Agreement;

WHEREAS, the US Mayors Climate Protection Agreement was passed in June 2005 by the U.S. Conference of Mayors and recognizes global warming and urges both the federal and state governments to enact policies and programs toward the reduction of greenhouse gas emissions;

WHEREAS, the US Mayors Climate Protection Agreement includes 12 target areas for reducing greenhouse gas emissions including emissions monitoring, land-use policies, non-automobile transportation, energy efficiency, building design, waste treatment and recycling, and outreach; and

WHEREAS, the City Council supports the goal of reducing greenhouse gas emissions in the community and the City has implemented programs and steps that meet the target areas included in the U.S. Mayors Climate Protection Agreement.

BE IT AND IT IS HEREBY RESOLVED by the City Council of the City of La Mesa, California, that the City Council does hereby adopt the resolution endorsing the U.S. Mayors Climate Protection Agreement attached hereto as "Exhibit A," calling for a reduction in greenhouse gas emissions.

PASSED AND ADOPTED at a Regular Meeting of the City Council of the City of La Mesa, California, held the 10th day of April 2007, by the following vote, to wit:

AYES: Councilmembers Allan, Arapostathis, Ewin, Sterling and Mayor Madrid

NOES: None

ABSENT: None

CERTIFICATE OF CITY CLERK

I, MARY J. KENNEDY, City Clerk of the City of La Mesa, California, do hereby certify the foregoing to be a true and exact copy of Resolution No. 2007-039, duly passed and adopted by the City Council of said City on the date and by the vote therein recited.

Mary J. Kennedy

MARY J. KENNEDY, CMC, City Clerk

(SEAL OF CITY)

"Exhibit A"

ENDORSING THE US MAYORS' CLIMATE PROTECTION AGREEMENT

WHEREAS, the U.S. Conference of Mayors has previously adopted strong policy resolutions calling for cities, communities and the federal government to take actions to reduce global warming pollution; and

WHEREAS, the Inter-Governmental Panel on Climate Change (IPCC), the international community's most respected assemblage of scientists, is clear that there is no longer any credible doubt that climate disruption is a reality and that human activities are largely responsible for increasing concentrations of global warming pollution; and

WHEREAS, recent, well-documented impacts of climate disruption include average global sea level increases of four to eight inches during the 20th century; a 40% decline in Arctic sea-ice thickness; and nine of the ten hottest years on record occurring in the past decade; and

WHEREAS, climate disruption of the magnitude now predicted by the scientific community will cause extremely costly disruption of human and natural systems throughout the world including: increased risk of floods or droughts; sea-level rises that interact with coastal storms to erode beaches, inundate land, and damage structures; more frequent and extreme heat waves, more frequent and greater concentrations of smog; and

WHEREAS, on February 16, 2005, the Kyoto Protocol, an international agreement to address climate disruption, entered into force in the 141 countries that have ratified it to date; 38 of those countries are now legally required to reduce greenhouse gas emissions on average 5.2 percent below 1990 levels by 2012; and

WHEREAS, the United States of America, with less than five percent of the world's population, is responsible for producing approximately 25% of the world's global warming pollutants yet is not a party to the Kyoto Protocol; and

WHEREAS, the Kyoto Protocol emissions reduction target for the U.S., had it ratified the treaty, would have been 7% below 1990 levels by 2012; and

WHEREAS, many leading US companies that have adopted greenhouse gas reduction programs to demonstrate corporate social responsibility have also publicly expressed preference for the US to adopt precise and mandatory emissions targets and timetables as a means by which to remain competitive in the international marketplace, to mitigate financial risk and to promote sound investment decisions; and

WHEREAS, state and local governments throughout the United States are adopting emission reduction targets and programs and that this leadership is bipartisan, coming from Republican and Democratic governors and mayors alike; and

WHEREAS, many cities throughout the nation, both large and small, are reducing global warming pollutants through programs that provide economic and quality of life benefits such as reduced energy bills, green space preservation, air quality improvements, reduced traffic congestion, improved transportation choices, and economic development and job creation through energy conservation and new energy technologies; and

WHEREAS, mayors from around the nation have signed the U.S. Mayors Climate Protection Agreement (list attached) which reads:

The U.S. Mayors Climate Protection Agreement

A. We urge the federal government and state governments to enact policies and programs to meet or beat the Kyoto Protocol target of reducing global warming pollution levels to 7% below 1990 levels by 2012, including efforts to: reduce the United States' dependence on fossil fuels and accelerate the development of clean, economical energy resources and fuel-efficient technologies such as conservation, methan recovery for energy generation, wind and solar energy, fuel cells, efficient motor vehicles, and biofuels;
B. We urge the U.S. Congress to pass the bipartisan Climate Stewardship Act sponsored by Senators McCain and Lieberman and Representatives Gilchrist and Olver, which would create a flexible, market-based system of tradable allowances among emitting industries; and
C. We will strive to meet or exceed Kyoto Protocol targets for reducing global warming pollution by taking actions in our own operations and communities such as:
    1. Inventory global warming emissions in City operations and in the community, set reduction targets and create an action plan.
    2. Adopt and enforce land-use policies that reduce sprawl, preserve open space, and create compact, walkable urban communities;
    3. Promote transportation options such as bicycle trails, commute trip reduction programs, incentives for car pooling and public transit;
    4. Increase the use of clean, alternative energy by, or example, investing in "green tags", advocating for the development of renewable energy resources, and recovering landfill methane for energy production;
    5. Make energy efficiency a priority through building code improvements, retrofitting city facilities with energy efficient lighting and urging employees to conserve energy and save money;
    6. Purchase only Energy Star equipment and appliances for City use;
    7. Practice and promote sustainable building practices using the U.S. Green Building Council's LEED program or a similar system;
    8. Increase the average fuel efficiency of municipal fleet vehicles; reduce the number of vehicles; launch an employee education program including anti-idling messages; convert diesel vehicles to bio-diesel;
    9. Evaluate opportunities to increase pump efficiency in water and wastewater systems; recover wastewater treatment methane for energy production;
    10. Increase recycling rates in City operations and in the community;
    11. Maintain healthy urban forests; promote tree planting to increase shading and to absorb CO2; and
    12. Help educate the public, schools, other jurisdictions, professional associations, business and industry about reducing global warming pollution.

NOW, THEREFORE, BE IT RESOLVED that the U.S. Conference of Mayors endorses the US Mayors Climate Protection Agreement and urges mayors from around the nation to join this effort.

BE IT FURTHER RESOLVED, The U.S. Conference of Mayors will establish a formal relationship with International Council for Local Environmental Initiatives (ICLEI) Cities for Climate Protection Program to track progress and implementation of the US Mayors Climate Protection Agreement.

LA MESA SUSTAINABLE BUILDING COMMITTEE

SUSTAINABLE BUILDING POLICIES

Sustainable Building Policy - Purpose
The purpose of a Citywide policy on sustainable building is to demonstrate the City's commitment to environmental, economic, and social stewardship, to yield cost savings to the City taxpayers through reduced operating costs, to provide healthy work environments and to contribute to the City's goals of protecting, conserving, and enhancing the region's environmental resources. It is the intent of the City to adopt best design and management practices to reduce storm water run-off, water consumption, traffic congestion, energy consumption, and landfill waste. It is also the intent of the City to provide healthy working environments for its employees. Additionally, the City helps to set a community standard of sustainable building.

PUBLIC DEVELOPMENT

New Construction Policy
The City of La Mesa shall evaluate incorporation of sustainable building principles and practices into the planning, design, construction, management, renovation, operations, and decommissioning of all City facilities that are constructed and owned by the City. This does not include those projects already under construction prior to the adoption of this policy.

All newly constructed or renovated City facilities and buildings shall strive to meet a minimum LEED Silver rating and exceed current State of California Title 24 Energy Code requirements. Design and project management teams are encouraged to meet higher LEED rating levels. The US Green Building Council's LEED (Leadership in Energy and Environmental Design) rating system shall be used as a design and measurement tool to determine what constitutes sustainable building by national standards.

CITY OPERATIONS

Purchasing
It is the policy of the City to maximize energy conservation measures when purchasing equipment and products, e.g. "Energy Star" labeled products. Preference shall be given to recycled products, reused products, or those products that utilize less energy when in operation.

Building Maintenance and Operation
It is the policy of the City that all its buildings will be maintained and operated in such a fashion that the minimum amounts of energy and water are consumed.

Vehicles
It is the policy of the City to operate and maintain vehicles in such a manner as to insure maximum energy conserving performance and minimal emissions.

PUBLIC EDUCATION

It is the policy of the City to actively promote the dissemination of sustainable building and energy conservation information to the citizens of the City as well as to partner with other governmental agencies, public interest organizations, and the private sector to provide incentives to encourage implementation of sustainable building and energy conservation programs where feasible.

Education and Outreach
The City will advise developers, architects and builders with regard to new sustainable building procedures, materials and design strategies.

Online Information Clearinghouse
The City will create an online clearinghouse of information that provides information to residents and developers to assist them in the evaluation of the value of sustainable building design options.

La Mesa Sustainable Building Commendations
The City will encourage the private and public sector to build sustainably by awarding a City Council commendation to those development projects that successfully integrate sustainable building techniques and serve as models for the community. The commendation will encourage the private sector and help promote the City's commitment to sustainable building.

PRIVATE DEVELOPMENT

The City of La Mesa shall provide leadership and guidance to encourage the application of sustainable building practices in private sector planning, design, construction, management, renovation, operations, and demolition of buildings by promoting the voluntary application of the LEED Green Building Rating System or other similar rating systems such as the California Building Industry Association's "California Green Builder Program."

Developers may view the use of sustainable building materials and techniques as an additional cost. To counteract this perception, the City will provide information about sustainable building and develop sustainable building incentives when feasible.

A City Council Commendation will be awarded to developers and property owners whose projects incorporate the goals of the LEED Green Building Rating System or other similar rating systems such as the California Building Industry Association's "California Green Builder Program."

APPENDIX G.
SAMPLE SMART GROWTH POLICIES AND RESOURCES

The following measures were identified based on their ability to reduce vehicle trips, petroleum consumption, or energy use. When considering implementation of these measures, it is recommended that local officials evaluate the economic, social, and environmental implications – in addition to energy savings – for their individual situation and community. The resources for Smart Growth include a description of the California Environmental Quality Act (CEQA) streamlining provisions from Senate Bill 375 (SB 375) as well as the site descriptions for the areas of La Mesa identified in the SANDAG Smart Growth Concept Map.

Sample Policy Measures

Smart Growth and Transit Oriented Development

1.1 Implement the following existing/planned and potential smart growth opportunity areas as identified by the city on the SANDAG Smart Growth Concept Map.

1.2 Identify additional planned or potential smart growth opportunity areas within the city as feasible.

1.3 Coordinate with regional agencies, including SANDAG and Metropolitan Transit System (MTS), and neighboring jurisdictions to plan for and accommodate alternate travel modes to driving alone.

1.4 Encourage a variety of uses that offer many choices for people to live, work, and recreate in a core area.

1.5 Promote adaptive reuse, infill, and/or redevelopment of vacant or underutilized sites such as through provision of incentives.

1.6 Consider integrating supporting retail uses into existing residential and employment developments, for example through plan updates and zoning amendments.

1.7 Provide incentives and zoning regulations to promote mixed-use, higher intensity employment uses and residential density, near existing and planned transit nodes and smart growth areas, such as increased lot coverage and floor area ratio requirements, height limits, and/or expedited approval processes.

1.8 Continue allowing accessory units in single family residential areas where appropriate.

1.9 Promote a compact, transit-oriented distribution of land uses with convenient access to a mixture of uses and destinations, and at densities appropriate to the unique character, context, and characteristics of each community.

1.10 Establish land use policies that support multimodal transportation systems and connection of travel modes to each other.

1.11 Create multimodal transportation centers that provide integrated access to a variety of transportation facilities and services.

1.12 Continue to review development projects in consideration of transit needs and access.

1.13 Require new development at transit nodes and along transit corridors to meet planning and design standards to generate, attract, and facilitate transit ridership as a condition of approval.

1.14 Locate larger retail, employment, medical, educational and government land uses near arterial and major collector streets served by public transit. Conversely, work to provide or enhance transit service to these types of land uses.

1.15 Prioritize new growth in existing developed areas that have adequate levels of transit and neighborhood services.

1.16 Inventory infill development sites. Plan, zone, and provide incentives for new development and renovation of existing uses in identified infill areas.

1.17 Encourage or provide incentives for new housing and mixed-use developments to be built to the LEED® for Neighborhood Development (LEED-ND) standard or its equivalent.[1]

1.18 Provide expedited application processing, as feasible, for development projects that meet community-established energy-efficiency standards or goals.

Public Infrastructure Investments

1.19 Coordinate public investments for transportation, parks, open space, water, sewer, and other infrastructure in a manner that supports smart growth development.

1.20 Prioritize new or infill residential development in areas with adequate levels of existing or planned public facilities, such as parks, fire stations, and public transit service.

1.21 Support investments to provide high-performance broadband connectivity throughout the community to enable e-commerce and teleworking.

1.22 Convert streetlights, outdoor lighting, water pumps, water treatment, and other energy intensive operations to more energy-efficient technologies.

Community Design

[1] The LEED® for Neighborhood Development Rating System integrates the principles of smart growth, new urbanism, and green building into the first national system for neighborhood design. LEED® certification provides independent, third-party verification that a development's location and design meet accepted high levels of environmentally responsible, sustainable development. LEED® for Neighborhood Development is a collaboration among the United States Green Building Council, Congress for the New Urbanism, and the Natural Resources Defense Council. For more information, visit www.usgbc.org/DisplayPage.aspx?CMSPageID=148

1.23 Establish “complete streets” policies that make roadways safe, attractive, and comfortable for all users, including pedestrians, bicyclists and public transit users, as well as automobiles.

1.24 Design, site, and orient new development to facilitate pedestrian, bicycle, and transit access.

1.25 Establish a walkable, interconnected street network.

1.26 Plan and permit networks of neighborhood-scaled streets (generally two or four lanes) with high levels of connectivity and short block lengths.

1.27 Reduce the potential for higher than average temperatures and increasing air conditioning-related energy demand associated with the Urban Heat Island Effect by using strategies such as increasing tree and vegetative cover, installing green or reflective rooftops, and using cool pavements. The term cool pavements refers to paving materials that reflect more solar energy, enhance water evaporation, or have been otherwise modified to remain cooler than conventional pavements.

1.28 Install transportation infrastructure and make urban design improvements that promote walking and biking and increase access to public transit in smart growth areas.

1.29 Provide sidewalks and bicycling facilities along with measures like bulb outs, lighting, landscaping, street furniture, secure bicycle parking, and well-marked crossings at intersections.

1.30 Make reductions in energy consumption and related criteria such as vehicle miles traveled a high priority in evaluation of development projects, plans, policies, and programs.

Resources Available for Smart Growth

Senate Bill 375 and CEQA Streamlining

Definition of Residential/Mixed Use Residential Project:

A project that is consistent with the general use designation, density, building intensity, and applicable policies for the project area in either an accepted (by the Air Resources Board) Sustainable Community Strategy or Alternative Planning Strategy. Additionally, the project would have at least 75 percent of the total building square footage of the project consist of residential uses or would be a Transit Priority Project.

Definition of a Transit Priority Project (TPP):

a) Contain at least 50 percent residential use, based on total building square footage and, if the project contains between 26 percent and 50 percent nonresidential uses, a floor area ratio of not less than 0.75

b) Provide a minimum net density of at least 20 dwelling units per acre

c) Be within one-half mile of a major transit stop or high-quality transit corridor included in a regional transportation plan

Types of CEQA relief:

- Full exemption: If a TPP complies with all environmental, land use, and affordable housing criteria described in SB 375, the project can be determined by a local jurisdiction to be a Sustainable Communities Project and receives full CEQA exemption.
- Sustainable Communities Environmental Assessment (SCEA): The SCEA is applicable to a TPP and is similar to a mitigated negative declaration.
- Streamlined CEQA analysis: A Residential/Mixed Use Residential project, as defined above, would not be required to repeat growth inducing impacts analyses or the discussion of how cars and light trucks could increase greenhouse gas emissions. If an environmental impact report (EIR) were being prepared, the alternatives section would not be required to include a reduced density alternative to reduce greenhouse gas emissions. If an EIR were prepared for a TPP, the document would not need to include an analysis of cumulative impacts, or of greenhouse gas emissions from cars and light duty trucks. In addition, project alternatives need not address reduced density or off-site location alternatives.

La Mesa's Potential and Existing Smart Growth Areas

The following table provides site descriptions for each smart growth area identified in the City of La Mesa on the SANDAG Smart Growth Concept Map. The San Diego Regional Comprehensive Plan (RCP) identified seven categories of smart growth place types. The place types include: the Metropolitan

Center, Urban Centers, Town Centers, Community Centers, Rural Villages, Mixed-Use Transit Corridors, and Special Use Centers. The RCP established land use and transportation targets for each of these areas (listed below). If the areas meet the minimum land use and transit service targets identified for their place type, they are identified as "Existing/Planned" smart growth areas. If they do not meet the targets, but have future potential, they are identified as "Potential" smart growth areas. Grant funding is available from SANDAG for cities to conduct planning and infrastructure improvements at their smart growth opportunity areas.

Additional information on the Smart Growth Concept Map, the land use and transportation targets, incentives for smart growth, and other information, is available on the SANDAG Web site at www.sandag.org/smartgrowth. SANDAG, in collaboration with the local jurisdictions, will begin an update to the 2004 RCP in 2012.

Land Use and Transportation Targets

Each smart growth place type is associated with certain housing and employment density targets and transit service thresholds, and can qualify as either "Existing/Planned" or "Potential," depending upon whether it meets the thresholds specified in the RCP. The minimum land use and transit targets are listed below. Areas must meet both the land use and the transit service targets to qualify as Existing/Planned.

Smart Growth Place Type	Minimum Residential Target	Minimum Employment Target	Minimum Transit Service Characteristics
Metropolitan Center	75 du/ac	80 emp/ac	Commuter Rail/Bus Rapid Transit (BRT)
Urban Center	40 du/ac	50 emp/ac	Light Rail/Rapid Bus
Town Center	20 du/ac	30 emp/ac	Light Rail/Rapid Bus*
Community Center	20 du/ac	N/A	High-Frequency Local Bus within Transit Priority Areas
Rural Village	10.9 du/ac	N/A	N/A
Special Use Center	Optional	45 emp/ac	Light Rail/Rapid Bus
Mixed-Use Transit Corridor	25 du/ac	N/A	High-Frequency Local Bus

Notes: du/ac = dwelling units per acre; emp/ac = employees per acre; N/A = Not applicable.

	Location	Existing/Planned or Potential (and reason for Potential)	RCP Place Type	Land Use Description	Transit Service Description per 2030 RTP and 2006 RTIP
LM 1	Grossmont Trolley Station at Grossmont Center Drive south of Fletcher Parkway and East of State Route 125	Existing/Planned	Urban Center	The City of La Mesa is working with a private sector developer and MTS to transform the transit stop and parking lot at the Grossmont transit station into a transit-oriented development. The project includes 527 apartment units in three- and four-story structures over two levels of parking and 3,000 square feet of commercial uses oriented toward the transit station. Eighty rent-restricted affordable units are included in the project. Two Trolley lines and five bus routes connect at the Trolley station. Structured parking for 600 spaces will support the parking needs of the transit station. Planned improvements to the transit station include pedestrian access via elevator to facilitate travel between the station and a nearby hospital and medical office complex and a regional shopping center.	Existing LRT (Trolley - Orange and Green Lines) Planned Express LRT (Trolley - Orange Line) Planned High-Frequency Local Bus
LM 2	Amaya Trolley Station	Potential (Requires land use change)	Community Center	Existing transit-oriented development, located adjacent to the Amaya Station, includes a 400-unit condominium project. There is additional potential for infill or reuse of an obsolete neighborhood shopping center located within a quarter mile of the station site.	Existing LRT (Trolley - Orange and Green Lines)
LM 3	Downtown La Mesa	Existing/Planned	Town Center	Existing and planned infill development of residential and commercial uses exists in the historic La Mesa Village, which is located adjacent to the downtown La Mesa transit center. A Trolley station and three bus routes serve this neighborhood.	Existing LRT (Trolley - Orange Line) Planned Rapid Bus Planned High-Frequency Local Bus
LM 4	Spring Street Trolley Station	Potential (Requires land use change)	Community Center	The Spring Street Trolley Station and three bus routes are adjacent to 300 military housing units. Additional mixed-use infill development is planned in the neighborhood surrounding the trolley station.	Existing LRT (Trolley - Orange Line) Planned High-Frequency Local Bus
LM 5	70th Street Trolley Station	Existing/Planned	Community Center	Potential exists for a transit-oriented, mixed-use development located adjacent to the 70th Street Trolley Station.	Existing LRT (Trolley - Green Line) Planned High-Frequency Local Bus
LM 6	La Mesa Boulevard between Spring Street and Fletcher Parkway	Potential (Requires transit change)	Mixed-Use Transit Corridor	There is planned private, sector-driven redevelopment of underutilized parcels located along the La Mesa Boulevard mixed-use transit corridor. Residential densities are anticipated at 40 dwelling units per acre with commercial mixed-use.	No Qualifying Existing or Planned Transit

LM 7	University Avenue between 69th Street and La Mesa Boulevard	Existing/Planned	Mixed-Use Transit Corridor	There is planned private, sector-driven redevelopment of underutilized parcels located along the University Avenue transit corridor. Residential densities are anticipated at 40 dwelling units per acre with commercial mixed-use.	Planned Rapid Bus Planned High-Frequency Local Bus
LM 8	El Cajon Boulevard between 73rd Street and La Mesa Boulevard, extending on La Mesa Boulevard until University Avenue	Potential (Requires transit change)	Mixed-Use Transit Corridor	There is planned private, sector-driven redevelopment of under-utilized parcels located along the El Cajon Boulevard transit corridor. Residential densities are anticipated at 40 dwelling units per acre with commercial mixed-use.	No Qualifying Existing or Planned Transit
LM 9	Lake Murray Boulevard from El Cajon Boulevard to Dallas Street	Potential (Requires land use change)	Mixed-Use Transit Corridor	Existing higher-density residential development exists within this existing bus service corridor along Lake Murray Boulevard and Baltimore Drive. There is potential for infill or reuse of the neighborhood shopping center within a quarter mile of the corridor.	Planned High-Frequency Local Bus
LM 10	Baltimore Drive and Fletcher Parkway from Lake Murray Boulevard to Grossmont Transit Center	Existing/Planned	Mixed-Use Transit Corridor	Existing residential at densities between 20 and 40 dwelling units per acre located along major arterials served by two bus routes terminating at the Grossmont Trolley Station. Existing general commercial uses and regional and community-serving health care services with a high density of employment are located along the corridor.	Planned High-Frequency Local Bus

APPENDIX H.
SAMPLE ENERGY SAVING POLICIES AND RESOURCES

The following measures were identified based on their ability to save energy, increase the use of renewable energy, and save water. The measures reflect the goals of State agencies like the California Energy Commission (CEC), California Public Utilities Commission (CPUC), and Office of the Attorney General. When considering implementation of these measures, it is recommended that local officials evaluate the economic, social, and environmental implications – in addition to energy savings – for their individual situation and community.

The second section of Appendix G addresses resources for energy savings in buildings. Resources include the San Diego Regional Energy Partnership that local governments can participate in, as well as financing opportunities such as rebates in Energy Upgrade California, PowerSaver Loan, Energy Efficient Mortgages, and Property Assessed Clean Energy (PACE) programs.

Sample Policy Measures

Building Codes[1]

1.1 Ensure compliance and enforcement of the Title 24 energy code for residential and commercial buildings.
1.2 Promote building energy performance beyond Title 24 energy requirements using mandatory or voluntary mechanisms.
1.3 Work with other local jurisdictions, where feasible, to adopt region-wide standards for energy-efficient buildings and development projects that also allow for local priorities and flexibility.
1.4 Support highly energy-efficient projects that voluntarily exceed minimum energy code requirements through incentives such as favorable fee structures, fast-tracked permitting, technical or financial assistance, and other innovative or locally appropriate approaches.
1.5 Increase energy code training for building code officials and builders to improve implementation and enforcement of energy codes.
1.6 Train appropriate staff such as planners, inspectors, and plan checkers in energy-efficiency standards and technologies to facilitate approval and inspection processes.

Existing Residential and Commercial Buildings

1.7 Establish or support building energy rating and disclosure policies that inform building owners of their energy usage.

[1] For more information on green building codes for local jurisdictions, see *Nonresidential Green Building Codes and Policies for Local Jurisdictions* available at www.sandag.org/uploads/projectid/projectid_373_12681.pdf, and *Three Case Studies of Municipal Green Buildings* available at www.sandag.org/uploads/projectid/projectid_373_12682.pdf.

1.8 Promote policies that lead to energy-efficiency retrofits in existing buildings.
1.9 Promote and reward energy-efficiency efforts of local businesses.
1.10 Collaborate with local retail businesses to encourage residents to purchase energy-efficient products.
1.11 Support increased use of solar water heating in residential, pool, and commercial uses to reduce natural gas demand. For example, through incentives or requirements for solar hot water heating in new construction or large renovation projects.
1.12 Create or participate in financing programs such as those available through AB 811 energy financing districts and similar Property Assessed Clean Energy (PACE) programs that allow residents and businesses to overcome the high upfront costs of energy projects and improvements that reduce energy usage in existing residential and commercial buildings.
1.13 Work with San Diego Gas & Electric and organizations like the California Center for Sustainable Energy to promote use of financial incentives to assist residential and commercial customers improve energy-efficiency.
1.14 Enact ordinances or programs to incorporate energy-efficiency, conservation, and clean distributed generation technologies (such as solar photovoltaic panels) in the existing building stock, such as PACE financing programs, point-of-sale requirements for energy-efficiency audits or improvements, or other approaches.
1.15 Encourage savings-by-design and address energy-efficient building and site design in the retrofit or renovation of existing buildings and developments.
1.16 Promote education of community businesses and Homeowners Associations about policies, programs, and opportunities to conduct energy assessments and audits.

New Residential and Commercial Buildings

1.17 Develop a policy to include ENERGY STAR appliances in new construction.
1.18 Exceed Title 24 energy requirements for new construction through regulations and incentives that work toward the state's goal of zero net energy new homes by 2020 and zero net energy commercial buildings by 2030.
1.19 Establish approaches, such as new tools to make codes more user-friendly or opportunities for staff education and training, to reduce the rate of noncompliance with energy code requirements in new construction.
1.20 Give energy conservation and efficiency equal consideration with all other development criteria in the evaluation of development projects.
1.21 Encourage passive solar design by orienting buildings to the south and providing as much unshaded exposure as possible on the south side of buildings during winter months, from neighboring buildings, trees, and other obstructions that create shade. Encourage shading through tree planting and architectural techniques to minimize the need for cooling during summer months, with the exception of southern building exposure.

Renewable Energy and Distributed Generation

1.22 Revise zoning policies and encourage the revision of homeowner association conditions, covenants and restrictions (CC&Rs), and similar governing documents, as feasible, to remove hindrances and promote installation of photovoltaic or other distributed renewable energy systems. For example, require or provide incentives such as streamlined permitting or fee waivers for new construction to pre-wire for, or install, photovoltaic systems.

1.23 Establish financing programs using public or private sources that residents can access to install distributed energy systems to reduce system costs and maximize energy savings.

1.24 Identify local barriers to installing distributed generation systems, including combined heat and power systems, and identify potential solutions that could be applied consistently.

1.25 Encourage local homebuilders to participate in the New Solar Homes Partnership to install solar photovoltaic systems on qualifying new homes.

1.26 Consider solar access in new development.

Energy and Water Conservation

1.27 Increase energy conservation through the efficient use of water in the residential and commercial sectors through policies that prioritize the largest end users of water like landscape irrigation.

1.28 Address energy-efficiency, demand response, and clean on-site generation opportunities at water pumping stations, water or wastewater treatment facilities, and similar government-owned or operated facilities.

1.29 Implement water conservation and reclamation programs to reduce energy use associated with water delivery.

1.30 Support the use of reclaimed water for irrigation.

1.31 Require installation of water conservation measures, devices, and practices for new construction projects and major alterations to existing private buildings.

1.32 Require the replacement of energy and water intensive fixtures and appliances with more efficient alternatives at the point of sale or change in tenancy.

1.33 Establish rebate and or incentive programs for the replacement of leaking, aging, and/or inefficient plumbing devices and inefficient appliances with more efficient, water-saving devices and appliances in existing commercial and residential developments.

1.34 Coordinate efforts to reduce water-related energy use with the San Diego County Water Authority, local water districts and other agencies.

Water Supply

1.35 Identify and support programs for residential re-use of gray water to decrease the amount of energy needed to meet residential water needs.

1.36 Use non-potable or recycled water as feasible for irrigation of parks, playfields, schools, golf courses and other landscape areas.

1.37 Continue to expand infrastructure for reclaimed water as feasible.

Water Conservation Education

1.38 Continue to support landscape design educational programs to help residential and commercial customers install low water use landscaping, thereby reducing water-related energy use.

1.39 Provide public education on water conservation such as optimum timing, run-off, efficient appliances, and behavioral changes.

1.40 Promote existing programs that city residents, businesses, and property owners can take advantage of to realize water-related energy savings, such as water audits.

Resources Available for Energy-Saving in Buildings

Energy Upgrade California

Energy Upgrade California serves as an umbrella to the myriad of retrofit programs, tools, and training available. The overall statewide program is outlined here. Program aspects include:

- Statewide Internet Portal
- Statewide residential and commercial financing options
- Utility residential and commercial building retrofit rebates
- Comprehensive residential retrofit program delivery through regional partnerships in 51 counties (including San Diego), which includes:
    - Marketing and outreach
    - Qualified contractors
    - Subsidized financing
    - Workforce development
    - Quality assurance
- Pilot residential and commercial property assessed clean energy (PACE) programs
- New tools for affordable housing energy retrofits

Program outreach is being developed to reduce confusion about energy efficient and renewable energy building retrofits. The EUC program coordinates under one logo, brand, and website all retrofit outreach and marketing by state and local government and utilities. Efforts include media buys, bill boards, utility bill inserts, brochures, and community forums. The state's program focus is on county-level interaction. The California Center for Sustainable Energy (CCSE) coordinates the various efforts and incentives for the San Diego region. For more information on EUC and building retrofit programs in general, contact CCSE at (858) 244-1177.

EUC leverages over $1.3 billion of energy program funds ranging from federal programs, utility programs, California Energy Commission programs, State Energy Program and Energy Efficiency and Conservation Block Grant (EECBG) funds from ARRA, to Workforce Investment Act and local government funds.

San Diego Regional Energy Partnership (2012-2014)

Local governments in San Diego County have been successfully collaborating with each other and with SDG&E on joint energy efficiency initiatives over the last 6 years as part of the Local Government Partnership programs and as part of federal stimulus-funded activities related to energy efficiency.

For 2013, these agencies have formalized this "network" through creation of the San Diego Regional Energy Partnership (SDREP). The SDREP will be led by a "Local Government Steering Committee" with representatives from the City of Chula Vista, City of San Diego, County of San Diego, Port of San Diego, and San Diego Association of Governments (representing jurisdictions that do not have SDG&E partnerships), in close collaboration with SDG&E and other regional partners. SANDAG will serve to increase local governments' awareness about energy-saving opportunities and participation in energy efficiency programs such as Energy Upgrade California (EUC) and Energy Savings Assistance Program (ESAP) for lower income residents. To learn more and participate in any or all of these projects, municipal staff should contact Del Mar's Energy Roadmap coordinator.

SDREP Goals and Objectives through 2014

1. Further develop and support regional Energy Upgrade California (EUC) implementation and the broader existing home retrofit market to facilitate "deep energy retrofits" (both in terms of high energy savings and untapped markets in existing residential buildings) for member jurisdictions.
    - The SDREP will support and expand the current San Diego Retrofit Advisory Committee (RAC) to include broader stakeholder participation from local governments, community organizations, realtors, financing institutions, and contractors.
    - SDREP will conduct outreach, education, and coordination activities for the local real estate and lending community in order to enable these key market actors to become strong advocates for energy efficiency.
    - SDREP will build on initial efforts utilizing geographic information systems (GIS) to develop an online mapping tool that incorporates building stock, census, utility, and past EUC project data to help inform home energy retrofits.
    - SDREP will complete a review of current permitting and building plan check requirements for EUC-type projects throughout the 19 jurisdictions within San Diego County.
    - SDREP will pilot an incentive program for home energy ratings of existing homes to strategically leverage local government processes, such as point-of-sale and permit application opportunities.
    - SDREP will work with local community colleges, economic development corporations, and community organizations to develop hands-on home performance training opportunities for unemployed and underemployed workers and Non-EUC contractors to expand regional workforce training opportunities and to link to municipal affordable housing programs.

2. Further assist local governments and communities in the San Diego region with understanding and implementing climate action strategies, especially related to energy efficiency.

    - SDREP will expand the current Climate Collaborative website platform and branding to include all local jurisdictions and highlight climate strategies that produce indirect energy savings, such as water conservation and urban heat island mitigation programs.
    - SDREP will develop joint Green Business outreach and marketing materials to recruit and recognize local businesses voluntarily implementing energy efficiency and other sustainability measures, and serve as a conduit for participation in utility-sponsored direct install programs.
    - SDREP will complete a review of current energy codes and policies throughout the different jurisdictions to support progress towards Zero Net Energy building goals.

3. Facilitate the sharing of technical expertise and leveraging of purchase power between local governments to spur "deep energy retrofits" at municipal facilities across the region.

    - Through a Joint Procurement Strategies Working Group, SDREP will identify shared municipal facility retrofit opportunities across jurisdictions in the region to leverage "economies of scale" and to assist smaller jurisdictions with implementing their first energy efficiency upgrades.

San Diego Regional Retrofit Advisory Council

The San Diego Regional Retrofit Advisory Council (RAC) is a stakeholder group with a vision of a sustainable market for energy upgrades in the San Diego region. The RAC mission is to foster communication and facilitate objective and collaborative information sharing that improves implementation of regional energy upgrade programs and efforts. RAC objectives are to:

1. Identify market barriers
2. Determine market needs to overcome barriers
3. Evaluate capacity to address barriers
4. Provide solutions or advice to address barriers

The RAC consists of a large stakeholder group that meets quarterly, and four committees that meet every other month, or as needed. The four committees are: marketing, workforce development, local government policy and research, and real estate and finance. SDREP has provided funding to support the RAC through 2014, and municipal staff is encouraged to participate in the group.

Energy Project Financing

Property Assessed Clean Energy Programs

Property Assessed Clean Energy or "PACE" programs, also commonly referred to as AB 811 style programs in California, can serve as a financing mechanism to implement energy efficiency and renewable energy projects. PACE programs allow property owners within participating regions to finance the installation of energy improvements on their home or business and pay the amount back as a line item on their property tax bill. Currently, PACE is available to commercial property owners.

CaliforniaFIRST, sponsored by the California Statewide Communities Development Authority (California Communities), is a joint powers authority made up of counties and cities, in partnership with Renewable Funding (www.renewfund.com/) and the Royal Bank of Canada Capital Markets (www.rbccm.com/). The County of San Diego and several cities in the region, including Del Mar, have adopted resolutions to join CaliforniaFIRST. Interested commercial property owners in the region can now participate and apply for financing through the CaliforniaFIRST Web site: www.californiafirst.org. Residential PACE programs are being considered to serve the San Diego region, but some barriers exist.

***Residential PACE barrier: On July 6, 2010, the FHFA posted a statement reaffirming that a senior PACE lien is in violation of any Fannie Mae or Freddie Mac mortgage contract. As a result, residential PACE financing cannot move forward at this time. A nationwide PACE coalition (www.pacenow.org) is working to take legislative action that will correct this issue. Some local governments in this region are determining what finance programs could be made available for residential energy retrofits. While residential PACE is still on hold, commercial PACE financing programs are now available in San Diego County.*

PowerSaver Loan Pilot

PowerSaver is a revised version of the Title 1 insurance program from the Federal Housing Administration (FHA) that enables homeowners to make cost-effective, energy saving improvements to their homes. PowerSaver will provide federal loan insurance and other incentives to participating lenders to deliver low-cost home energy improvement loans. Homeowners will be able to borrow up to $25,000 for a term of 15 years (up to 20 years for certain improvements) to make proven home energy improvements based on a project list developed by FHA and the U.S. Department of Energy (DOE).

PowerSaver will begin as a nationwide two-year pilot program, launching in 2011. FHA is currently seeking lenders to participate in the pilot program. In selecting participating lenders, FHA will consider the market areas lenders propose to serve. Generally, FHA will require lenders to target market areas that have already taken affirmative steps to expand home energy improvements, such as educating consumers on the benefits of home energy upgrades and creating a pool of qualified contractors.

Energy Efficient Mortgages

Another financing mechanism available to residents is the energy efficient mortgage (EEM). An EEM allows new or current homeowners to finance purchase of a home (or refinance a current mortgage) and include the value of energy saving, cost efficient improvements. EEMs can be used to purchase a new energy efficient home or to finance new improvements to existing homes (also known as an Energy Improvement Mortgage, or EIM). Because cost-effective energy improvements can result in lower utility bills, making more funding available for a mortgage payment, energy efficiency improvements can be directly included in the EEM without the need to qualify for additional financing. By giving borrowers the opportunity to finance improvements as part of a single mortgage, an EEM can also stretch the debt-to-income qualifying ratio and enable homebuyers to qualify for a larger loan amount (and a more energy efficient home).

EEMs are sponsored by federally insured mortgage programs and the conventional secondary mortgage market (Fannie Mae and Freddie Mac). Several types of EEM programs are available. Eligibility for individual EEM programs varies, but in general there is no age limit or income level required. Typically, all programs require that a home energy rating be conducted to provide the lender with an estimate of the “Energy Savings Value”, which includes monthly energy savings and the value of existing/planned energy efficiency measures.

APPENDIX I.
SAMPLE CLEAN AND EFFICIENT TRANSPORTATION POLICIES AND RESOURCES

The sample policy measures were identified based on their ability to reduce petroleum consumption, reduce roadway congestion, reduce greenhouse gases and auto pollution, or increase lower carbon alternative fuels. When considering implementation of these measures, it is recommended that local officials evaluate the economic, social, and environmental implications – in addition to energy savings – for their individual situation and community.

The clean transportation resources contain information on the SANDAG 2012 study on Transportation Demand Management (TDM) in the land development process, sample TDM policies and goals from other local jurisdictions, and sample proclamations for Rideshare Week and Walk and Bike to School Day.

Sample Policy Measures

Low-Carbon, Alternative Transportation Fuels

1.1 Promote the use of alternatives to petroleum-based transportation fuels such as natural gas and plug-in electric vehicles by residents and businesses through strategies that facilitate the siting, permitting, and installation of fueling and electric vehicle charging infrastructure on public and private property.

1.2 Develop streamlined permitting requirements, standardized design guidelines, and siting criteria for all types of electric charging stations, including single- and multi-family residential, commercial, public property, and fast-charge stations designed to facilitate longer trips.

1.3 Implement strategies that prioritize alternative fuel vehicles on the road and for parking, such as priority parking spaces for electric vehicles.

Traffic Congestion Reduction and Efficient Driving Conditions

1.4 Evaluate measures to reduce vehicle idling at stop signs and traffic signals to facilitate efficient travel conditions and minimize traffic congestion.

1.5 Continue to evaluate and implement traffic calming measures and programs to, among other benefits, reduce vehicle speeds and volumes, and increase the safety and feasibility of bicycling and walking.

1.6 Promote transportation alternatives for special events that draw large crowds such as festivals, games, and fairs. Alternatives could include special transit, shuttle, or ridesharing services, bicycle valet or bicycle parking corrals, parking management or shared parking, or vehicle restrictions.

1.7 Promote and provide educational information on fuel-efficient, “eco-driving” practices such as reduced idling, slower driving speeds, gentle acceleration, and proper tire inflation.

1.8 Implement strategies that prioritize high-occupancy vehicles on the road and for parking, including carpools, vanpools, and public transit vehicles.

Transportation Demand Management

1.9 Encourage implementation of new or expanded local policies, programs and incentives that minimize single occupancy vehicle use during peak travel periods, such parking and trip reduction ordinances that encourage alternative work schedules, ridesharing options like carpools and vanpools, telecommuting, transit and biking or walking to work.

1.10 Encourage employers to institute programs that provide financial incentives for commuters to reduce their vehicle trips and use alternative transportation modes like walking, bicycling, public transit, vanpooling, and carpooling as alternatives to subsidized employee parking. Examples include:

- Parking Cash Out: commuters automatically given a parking space by their employer are instead given a choice to either (1) use the parking space or (2) receive the cash value of the parking space if they choose to use an alternative travel mode and give up their parking space.
- Travel Allowances: financial payments are provided to employees in lieu of subsidized parking. Commuters could use the travel allowance towards the costs of alternative travel modes, and keep the profits of switching to more cost-effective travel options.
- Transit and Rideshare Benefits: free or discounted fares or rideshare vouchers provided to employees.
- Reduced Employee Parking Subsidies: commuters who drive would pay a portion of all of their parking costs in lieu of employer payment of employee-parking costs.
- Corporate Tax Benefit: Under the Transportation Equity Act, IRS code 132(f), and California state law, employers are allowed to offer payroll tax savings for transportation assistance up to $230 a month per employee for transit passes or vanpool vouchers and $20 a month for reasonable expenses incurred by the employee for the purchase of a bicycle and bicycle improvements, as well as repair and storage if the bicycle is regularly used for travel between the employee's residence and place of employment.

1.11 Support efforts by SANDAG and others by initiating, or encouraging participation in, programs to promote carpooling, vanpooling, carsharing, teleworking, and similar alternative commuting strategies.

1.12 Work with major employers in the community to offer incentives and services to increase the use of alternatives to single-occupancy vehicle commuting (i.e., voluntary commute trip reduction programs).

1.13 Develop and implement agreements for commuter trip reduction programs for new developments.

Parking

1.14 Reduce parking requirements and/or initiate parking maximums in smart growth areas.

1.15 Enact policies that separate the cost of parking spaces from residential rental or purchase costs.

1.16 Encourage and use on-street parking fees, paid parking, shared parking, and other parking management and design measures that promote more walking, bicycling, and transit use.

1.17 Consider including variable rates and other pricing mechanisms for parking in locations where alternative transportation modes with adequate levels of service are accessible and available.

1.18 Provide preferential parking in selected areas for designated carpools, vanpools, alternative and other low-carbon fuel vehicles, and other vehicles that contribute to community goals for saving energy and petroleum reduction.

1.19 Consider using parking revenues to promote alternative transportation modes.

Active Transportation

1.20 Promote walking and bicycling as safe and convenient modes of transportation.

1.21 Develop a cohesive master plan of bicycle and pedestrian routes that: identifies and closes gaps in the network, labels major travel routes, prioritizes safety improvements, maximizes the potential for walking and bicycling trips, and establishes strong connections to major destinations such as commercial areas, activity centers, schools, public transit stations, and regional networks.

1.22 Encourage businesses to provide facilities that support bicycles such as secured bicycle parking, showers, and lockers for employees who bicycle or walk to work.

1.23 Require new commercial developments to install bicycle parking facilities and other cyclist amenities at a level commensurate with the size of the development such as the square footage or number of employees.

1.24 Provide bicycle education programs.

1.25 Support funding of infrastructure and capital improvement projects such as streetscape enhancements, traffic calming features, transit stop and station amenities, way-finding signage, and pedestrian/bicycle paths and bridges.

1.26 Support or implement car and bicycle sharing programs.

Resources Available for Clean and Efficient Transportation

Integrating Transportation Demand Management into the Planning and Development Process – A Reference for Cities

Completed in May 2012, SANDAG's *Integrating TDM into the Planning and Development Process – A Reference for Cities* (Study) identifies opportunities for local governments to proactively incorporate TDM strategies into their planning and land development process (e.g., general plans, development reviews and approvals). This study is another tool in the SANDAG Smart Growth Tool Box, and is available for all jurisdictions on the SANDAG Web site: http://www.sandag.org/index.asp?projectid=334&fuseaction=projects.detail.

The Study provides a range of specific actions that can be considered at each stage of the planning and development process and their timing for implementation including:

1. Long range planning: The application of TDM should begin with the long-range comprehensive land use and transportation planning process. This includes planning for supportive land use and roadway networks that are conducive to serving alternative transportation modes.

2. Implementation tools: To implement the plans through the land development process, TDM strategies can be incorporated into specific plans, land use regulations and ordinances.

3. Site specific land-development: TDM can be implemented through transit-oriented building design, the provision of transportation facilities and amenities to encourage alternative modes as well as temporary measures, such as traffic maintenance during construction.

Sample TDM Plans, Goals and Policies

1) The City of Rockville, MD Transportation Demand Management Plan (http://www.rockvillemd.gov/transportation/pdf/TDM03-21-11.pdf) This five-year strategic plan prioritizes actions for implementing a comprehensive TDM program for the City.

2) The City of San Diego General Plan Mobility Element (http://www.sandiego.gov/planning/genplan/pdf/generalplan/adoptedmobilityelemfv.pdf) TDM goals and policies are provided on pages 34-35.

Sample TDM Programs and Ordinances

1) Contra Costa County TDM Ordinance (http://www.co.contracosta.ca.us/DocumentView.aspx?DID=3994)

2) City of Cambridge, MA TDM Program (http://www2.cambridgema.gov/cdd/et/tdm/index.html)

3) City of South San Francisco Municipal Code Chapter 20.400 Transportation Demand Management (http://www.qcode.us/codes/southsanfrancisco/index.php?topic=20)

4) City of San Diego Municipal Code Section 156.0313 – Centre City Planned District Ordinance TDM section pages 85-86. (http://docs.sandiego.gov/municode/MuniCodeChapter15/Ch15Art06Division03.pdf)

SANDAG TDM Resolutions

The following two pages are sample proclamations that SANDAG and several local governments make in support of local and regional TDM efforts.

- Walk and Bike to School Day 2011 Proclamation
- Rideshare Week 2011 Proclamation

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RESOLUTION NO. 2012-04

RIDESHARE WEEK 2011 PROCLAMATION

WHEREAS, reducing peak period traffic congestion and providing alternatives to driving alone are key components of the region's quality of life; and

WHEREAS, SANDAG is committed to increasing awareness of transportation choices for the region's commuters and employers; and

WHEREAS, SANDAG is sponsoring Rideshare Week 2011 from October 3-7, 2011, through the San Diego Regional Commuting Assistance Program, known as iCommute; and

WHEREAS, Rideshare Week 2011 is a week-long event to promote carpooling, vanpooling, public transit, teleworking, walking and biking to work;

NOW THEREFORE

BE IT RESOLVED SANDAG is proclaiming October 3-7, 2011, as Rideshare Week 2011, encouraging employers to provide employees sustainable transportation choices through a commuter program, and encouraging commuters to do their part to help reduce traffic congestion and greenhouse gas emissions in the San Diego region.

PASSED AND ADOPTED this 22nd day of July 2011.

CHAIRPERSON

ATTEST: Gary L. Gallegos
SECRETARY

MEMBER AGENCIES: Cities of Carlsbad, Chula Vista, Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Oceanside, Poway, San Diego, San Marcos, Santee, Solana Beach, Vista, and County of San Diego.

ADVISORY MEMBERS: California Department of Transportation, Metropolitan Transit System, North County Transit District, Imperial County, U.S. Department of Defense, San Diego Unified Port District, San Diego County Water Authority, Southern California Tribal Chairmen's Association, and Mexico.

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RESOLUTION NO. 2012-05

WALK AND BIKE TO SCHOOL DAY 2011 PROCLAMATION

WHEREAS, reducing traffic congestion around school zones improves safety and the environment by decreasing vehicle emissions, including greenhouse gases; and

WHEREAS, a lack of physical activity plays a leading role in rising rates of obesity, diabetes, and other health problems among children, and walking or bicycling to school offers an opportunity to build activity into daily routine and commute behaviors; and

WHEREAS, SANDAG is committed to promoting and implementing Safe Routes to School education and encouragement programs; and

WHEREAS, Walk and Bike to School Day 2011 is an event that increases the number of children safely walking and biking to school, while raising awareness of the health and environmental benefits of walking and biking; and

NOW THEREFORE

BE IT RESOLVED SANDAG is proclaiming October 5, 2011, as Walk and Bike to School Day, encouraging walkable communities, safer school zones, and cleaner air through healthy transportation choices to school.

PASSED AND ADOPTED this 22nd day of July 2011.

CHAIRPERSON

ATTEST: Gary L. Gallegos
SECRETARY

MEMBER AGENCIES: Cities of Carlsbad, Chula Vista, Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Oceanside, Poway, San Diego, San Marcos, Santee, Solana Beach, Vista, and County of San Diego.

ADVISORY MEMBERS: California Department of Transportation, Metropolitan Transit System, North County Transit District, Imperial County, U.S. Department of Defense, San Diego Unified Port District, San Diego County Water Authority, Southern California Tribal Chairmen's Association, and Mexico.

www.sandag.org/energyroadmap

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

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