



*Low Cost Ways to Reduce Energy and GHG Emissions:*  
**SANDAG Energy Roadmap Program  
for Local Governments**

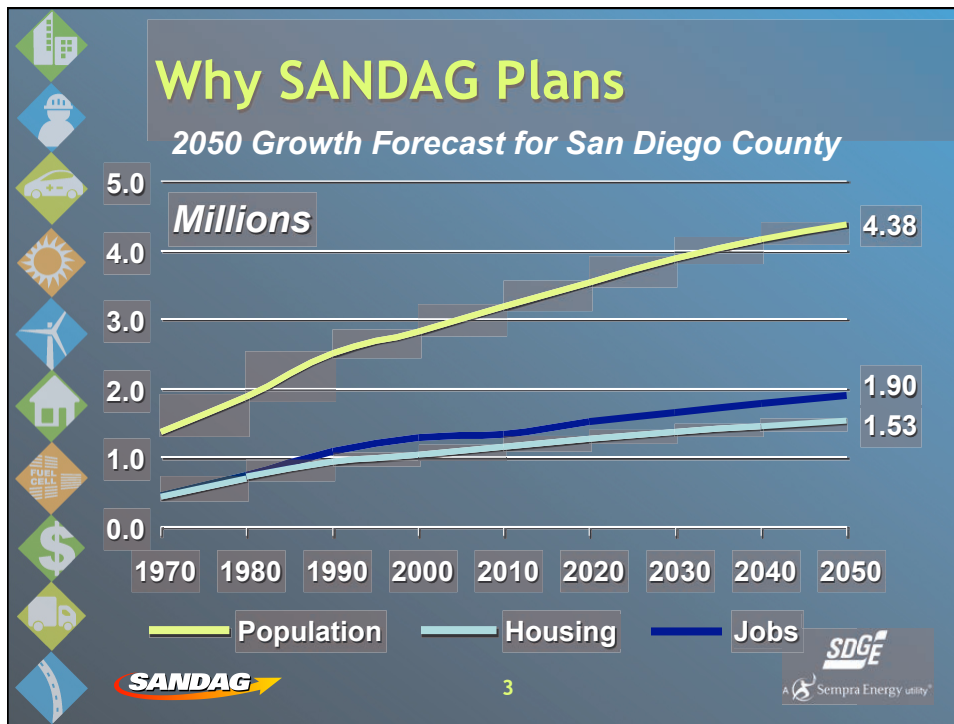
Susan Freedman  
San Diego Association of Governments  
Statewide Energy Efficiency Collaborative Webinar  
June 21, 2012



## Overview

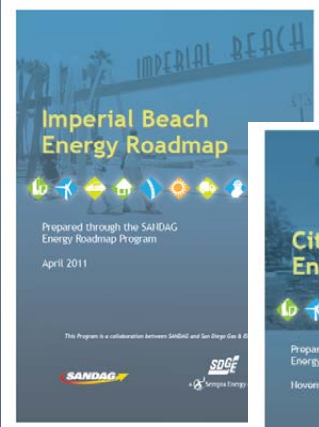
- Why SANDAG addresses energy planning
- What is an Energy Roadmap?
- Standard Roadmap services/chapters
- Areas for customization
- Program status and savings to cities
- Lessons learned and looking forward



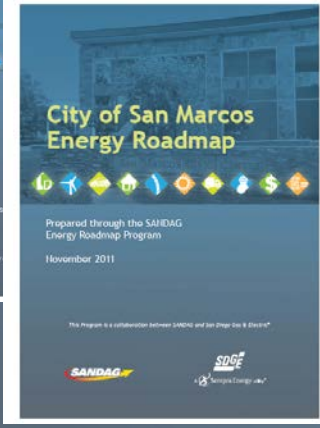


- ## SANDAG's Role in Regional Energy Programs and Planning
- SANDAG Policies and Committee
    - Regional Energy Strategies (2009, 2003, 1994)
    - Climate Action Strategy (2010)
    - Sustainable Communities Strategy (2011)
    - Regional Energy Working Group (2004-present)
      - Pilot projects with 3 cities via CEC, SANDAG, SDG&E (2006-2009)
  - SDG&E Local Gov't Energy Efficiency Partnership since 2010
    - SANDAG as conduit to local governments to expand engagement in local energy-saving measures
- A Sempra Energy utility

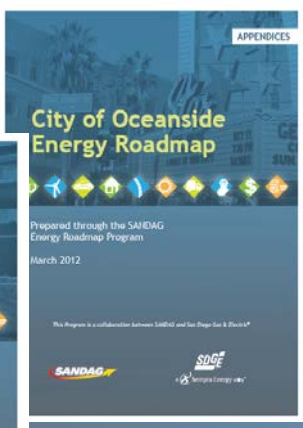
## Sample Energy Roadmaps





**Imperial Beach Energy Roadmap**  
Prepared through the SANDAG Energy Roadmap Program  
April 2011



**City of San Marcos Energy Roadmap**  
Prepared through the SANDAG Energy Roadmap Program  
November 2011





**City of Oceanside Energy Roadmap**  
Prepared through the SANDAG Energy Roadmap Program  
March 2012


5


## Key Points

- Build on existing efforts at each jurisdiction
  - General plans, climate plans, sustainability projects
- Leverage other regional programs
  - SANDAG iCommute, CA Center for Sustainable Energy, and SDG&E
- Technology neutral, non-biased
  - Economic and energy-saving potential
- Tools to document and track energy performance and benchmarking


6


# Energy Roadmap Chapters

## Saving Energy in City Operations

1. Building retrofits
2. Technology demos
3. Greening the fleet
4. Staff training
5. Employee commutes

## Saving Energy in the Community

6. Planning measures
7. Programs for residents & local businesses
8. Green jobs and workforce training



7



# Energy "Report Cards" with Benchmarks

**Energy Report Card**  
San Marcos City Hall  
1 CIVIC CENTER DR SAN MARCOS, CA 92069-2918

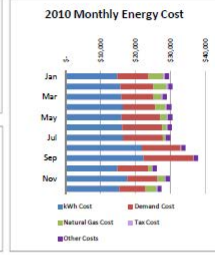
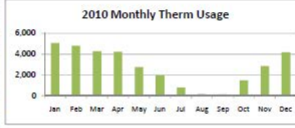
Billing Analysis and Benchmarking  
1/31/2011

### BILLING DATA

<b>Site Data</b>	
Facility Square Footage	150,000 sqft
Electrical Meter No. *	1819425
Electrical Rate Tariff	ALTOUCP2
Gas Meter No. *	981729
Gas Rate Tariff	GN3

<b>12 Month Consumption Summary</b>	
Annual Electrical Consumption	2,149,467 kWh/yr
Max Demand	711.0 kW
Annual Gas Consumption	32,712 Therms/yr

<b>12 Month Energy Cost Summary</b>	
Electrical Energy Cost	\$203,758
Electrical Demand Cost	\$121,360
Natural Gas Cost	\$23,332
Taxes and Fees	\$3,738
Other Costs	\$14,536
<b>Total</b>	<b>\$366,724</b>



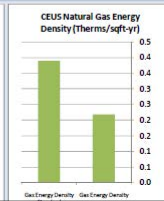
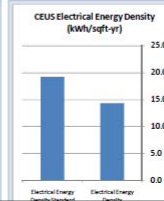
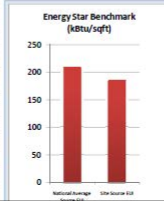
\* If additional meter numbers are found the meter number and rate tariff will be listed on the back side of the Energy Report Card

### BENCHMARKING

<b>Energy Star Benchmarking (Energy Use Intensity)</b>	
Standard Source EUI	209.1 kWh/sqft
Site Source EUI	185.7 kWh/sqft
Difference	-11.2%

<b>California End-User Survey (CEUS) Energy Density Data</b>	
Building Type	Large Office
Electrical Energy Density	14.3 kWh/sqft-yr
Electrical Energy Density Standard	19.2 kWh/sqft-yr
Gas Energy Density	0.22 Therms/sqft-yr
Gas Energy Density Standard	0.39 Therms/sqft-yr

<b>12 Month GHG Emissions</b>	
Direct GHG Emissions	173.0 (MTCO2e)
Indirect GHG Emissions	707.8 (MTCO2e)





## Save Energy in City Buildings and Facilities

Energy is a major operating cost for local governments. By evaluating energy usage in city government buildings and facilities (“sites”) and identifying energy-saving opportunities, Santee can reduce its energy-related operating costs and use the savings for other government services. This chapter highlights:

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

*Santee could save more than \$78,000 annually from energy-efficiency upgrades and rate changes identified at city sites.*

Energy Conservation Measure Economics					
Location	Measure	Gross Project Cost	Total SDG&E Incentives	Net Project Cost	Simple Payback (years)
City Hall	Indoor lighting	\$14,734	\$3,956	\$10,778	1.5
	Controls/sensors	\$1,678	\$310	\$678	1.6
	<b>Subtotal</b>	<b>\$16,412</b>	<b>\$4,266</b>	<b>\$11,456</b>	<b>1.5</b>
Civic Center	Lighting	\$23,584	\$3,997	\$19,587	2.3
	<b>Subtotal</b>	<b>\$23,584</b>	<b>\$3,997</b>	<b>\$19,587</b>	<b>2.3</b>
Parking Structure	Lighting	\$3,600	\$474	\$3,126	5.6
	<b>Subtotal</b>	<b>\$3,600</b>	<b>\$474</b>	<b>\$3,126</b>	<b>5.6</b>
Community Center	Lighting	\$6,420	\$626	\$5,794	6.4
	Backup generator	\$2,000	\$259	\$1,741	8.5

## Local Planning Component


### Leverage Planning and Development Authority

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

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

First, it is important to note that the city already uses its role in planning and

10




## Education and Training

### Market Energy Programs to Local Residents, Schools, and Businesses

This chapter provides Escondido with internet links to existing energy efficiency and fuel-saving resources that the city could include on its *Go Green Escondido* Web site, newsletters, and E-Alerts. This would enable Escondido to serve as a conduit to its constituents on energy-saving residential, commercial, and school programs. The City could help promote messages of sustainability that foster a greater local understanding of the connection between energy/fuel use and environmental impacts. The City also could become a local government partner with national energy-saving educational campaigns like *ENERGYSTAR* 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*



## Petroleum Reduction and Alt. Fuels





*\*Not funded through SDG&E LGP*


12


## Status of Local Government Energy Roadmaps

	<b><u>Completed</u></b>	<b><u>Final Review</u></b>	<b><u>Mid 2012</u></b>
✓	Encinitas	▪County*	▪El Cajon
✓	Escondido	▪Vista	▪Lemon Grove
✓	Imperial Beach	<b><u>Underway</u></b>	<b><u>Late 2012</u></b>
✓	Oceanside	▪Coronado	▪Carlsbad
✓	Santee	▪Chula Vista*	▪Poway
✓	San Marcos	▪Del Mar	▪Solana Beach
		▪La Mesa	▪City San Diego*
		▪National City	


\*Transportation-Only Roadmap


13


## Energy Bill Savings Identified at Local Sports Parks so far...

Member Agencies	Annual Bill Savings
Escondido	\$ 113,000
La Mesa	\$ 18,800
Oceanside	\$ 80,000
San Marcos	\$ 122,600
Santee	\$ 45,900
Vista	\$ 72,300


*Savings derived from switch to relatively new outdoor lighting rates.*



## Estimated Savings to City from Energy Efficiency Upgrades



Member Agencies	Annual Bill Savings (\$/year)	Annual Energy Savings (kWh)
Encinitas	\$ 24,600	206,300
Escondido	\$ 40,000	341,800
Imperial Beach	\$ 7,300	56,700
La Mesa	\$ 35,900	123,600
Oceanside	\$ 105,800	890,400
San Marcos	\$ 40,500	335,400
Santee	\$ 92,600	307,400
Vista	\$ 51,200	464,700

*\*Zero-percent "on bill" loans from SDG&E can cover ALL upfront equipment and installation costs to City.*




## Continuing Efforts with Local Jurisdictions

- Expanded engineering and project mgt. assistance (Implementing retrofit measures)
- Energy planning (Commercial/res finance, EUC, permit streamlining...)
- Training opportunities (T24, CEM, LEED, etc.)
- Beacon Award applications
- Funding and resource opportunities
- Performance monitoring & updates




16






## Lessons Learned

- Gain buy-in for energy program
  - Outreach to planning directors, public works directors, city managers, Electeds, and own staff
- Flexible timelines for each city
  - Need to document/streamline more
- Ensure regular communication with City, utility and subcontractors
- Determine appropriate staffing level to meet needs of local governments
- Expand project mgt assistance


17





*Low Cost Ways to Reduce Energy and GHG Emissions:*

## SANDAG Energy Roadmap Program for Local Governments

Susan Freedman, Senior Regional Energy Planner  
 Susan.Freedman@sandag.org | www.sandag.org/energy  
 Statewide Energy Efficiency Collaborative Webinar  
 June 21, 2012

