

# **Natural Gas Energy Efficiency as a Utility System Resource California**

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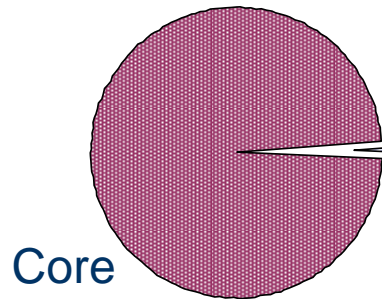


# California Natural Gas Background

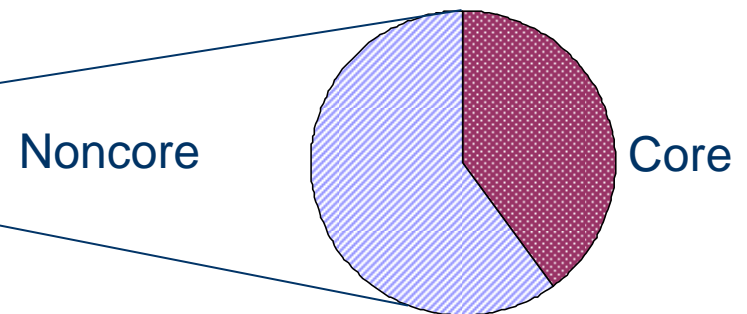
- **Natural Gas Service in California is Regulated by the California Public Utilities Commission (CPUC)**
- **Natural Gas Utility Service to Approximately 10.7 Million Customers Provided by:**
  - Pacific Gas and Electric Company (PG&E)
  - Southern California Gas (SoCalGas)
  - San Diego Gas and Electric Company (SDG&E)
  - Southwest Gas
  - Several smaller natural gas utilities

# California Natural Gas Background

Number of Customers



Natural Gas Delivered by California Utilities in 2005



**The Vast majority of California's natural gas customers are residential and small commercial customers, referred to as "core" customers. Core customers accounted for approximately 43 percent of natural gas delivered by California Utilities in 2005**

**Large consumers, like electric generators and industrial customers, referred to as "noncore" customers, accounted for approximately 57 percent of the natural gas delivered by California Utilities in 2005**

# California Natural Gas Energy Efficiency Policies and Issues

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- California Energy Action Plan
- California Public Utilities Energy Efficiency Goals
- Governor's Executive Order for Green Buildings
- Natural Gas Price Volatility
- Local and Regional Emissions Requirements

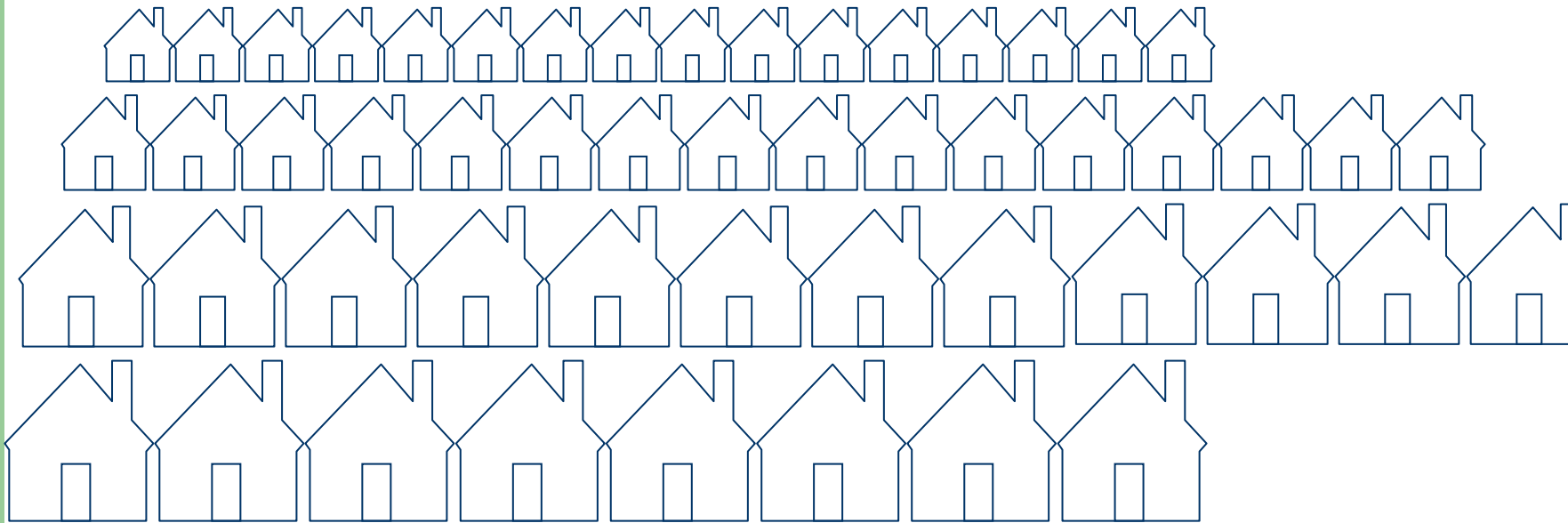
# California Energy Action Plan

***“Ensure that adequate, reliable, and reasonably-priced electrical power and natural gas supplies, including prudent reserves, are achieved and provided through policies, strategies, and actions that are cost-effective and environmentally sound for California's consumers and taxpayers.”***

- Cost effective energy efficiency is the resource of first choice for meeting California’s energy needs.
- Energy efficiency is the least cost, most reliable, and most environmentally-sensitive resource, and minimizes our contribution to climate change.

# SoCalGas Achievements

- Over the last 10 years, SoCalGas programs have helped customers cumulatively save over 310 million therms ~ enough to supply energy to over 516,000 homes for one year.

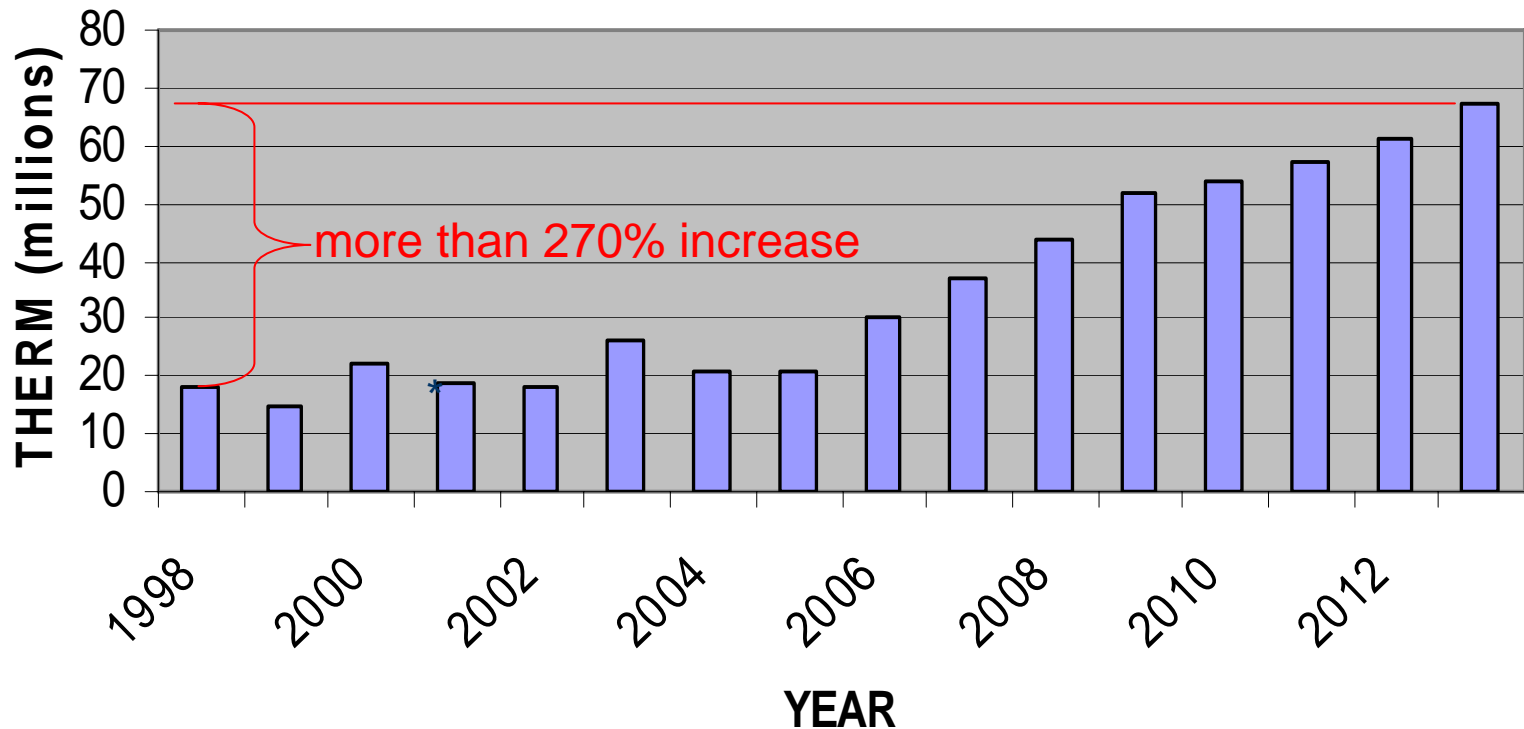


# Energy Efficiency Goals Decision (CPUC D.04-09-060)

- Adopted goals for natural gas energy efficiency represent a 116% increase in expected savings over the next decade, relative to continuation of the status quo.
- In any application or other filing in which PG&E, SCE, SDG&E or SoCalGas present projections of supply-side resource needs, pipeline or transmission needs, propose new facilities or otherwise utilize projections of energy demand, they shall demonstrate that such filings are fully consistent with and reflect today's adopted energy savings goals, or updates to these goals as adopted by the Commission.

# Natural Gas Savings Targets

## Annual Natural Gas Savings Targets (1998 - 2013)



\* 2001 target includes savings from the Summer Initiative and SBX 5 programs.

# 2006-2008 Energy Efficiency Budgets (\$millions)

	2006	2007	2008	Total
<b>PG&amp;E</b>	\$ 15.40	\$ 21.70	\$ 31.40	\$ 68.50
<b>SoCalGas</b>	\$ 47.90	\$ 61.10	\$ 73.50	\$ 182.50
<b>SDG&amp;E</b>	\$ 5.70	\$ 6.40	\$ 7.40	\$ 19.50
<b>Total</b>	\$ 69.00	\$ 89.20	\$ 112.30	\$ 270.50

# Green Buildings

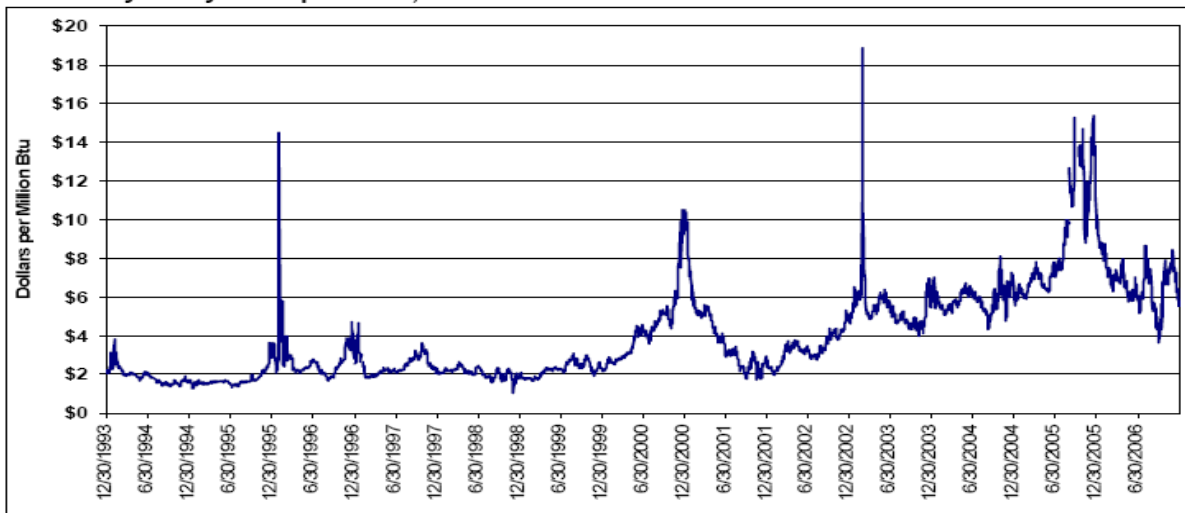
## Executive Order (S-20-04)

- The state commits to aggressive action to reduce state building electricity usage by retrofitting, building and operating the most energy and resource efficient buildings by taking all cost-effective measures described in the Green Building Action Plan for facilities owned, funded or leased by the state and to encourage cities, counties and schools to do the same.
- State agencies, departments, and other entities under the direct executive authority of the Governor cooperate in taking measures to reduce grid-based energy purchases for state-owned buildings by 20% by 2015, through cost-effective efficiency measures and distributed generation technologies.
- Encourages all other commercial buildings to also reduce energy usage by employing the same requirements laid out for state facilities.

# Natural Gas Price Volatility

- Energy efficiency programs provide customers with the ability to reduce their gas consumption.
- In 2004, due to the high gas price situation, the CPUC authorized an increase natural gas energy efficiency programs and budgets to provide more options to customers.

Figure 1: Daily Henry Hub Spot Price, 1994-2006



# Local and Regional Emissions Requirements

- South Coast Air Quality Management District and SoCalGas cooperate to manage natural gas emissions in the South Coast basin
- AB 32, the California Global Warming Solutions Act of 2006
  - Requires the California Air Resources Board (CARB) to develop regulations and market mechanisms that will ultimately reduce California's greenhouse gas emissions by 25 percent by 2020. Mandatory caps will begin in 2012 for significant sources
- Energy Efficiency is an important tool in reducing emissions

# Southern California Gas Company Industrial Energy Efficiency Programs

- Education and Training
- Savings By Design
- Express Efficiency
- Business Energy Efficiency
  
- Industrial End User
- Energy Efficiency Grant

# Southern California Gas Company Industrial End User Program Overview

- Developed in collaboration with with the California Energy Commission and the U.S. Department of Energy
- Target Market: Large commercial, industrial, and institutional customers
- Program Objective: Reduction of natural gas usage through steam and process heating system optimization
- Program Elements: Energy savings assessment, custom on-site training, energy action plan

# Southern California Gas Company Industrial End User Program Activities

- Pre-assessment meeting with plant personnel to identify energy management, process, and operational needs
- Hand held measurement devices and DOE software are used to model potential process changes
- DOE tip sheets are used to explain process heating and steam system improvement techniques in plain language
- Custom on-site training is offered to plant personnel interested in learning more about modeling software, field measurement techniques, and benchmarking equipment performance

# Southern California Gas Company Industrial End User Program Activities

- Custom on-site energy savings assessments identify energy efficient process improvements and quantify annual therm and dollar savings
- Collaborative development of an energy action plan for future investment in energy efficiency
- Summary of utility support – rebates, incentives, programs and services
- Follow up

# Southern California Gas Company Industrial End User Program Results

- Visited over 60 sites since January 2006
- Documented 2 million therms of operation and maintenance related energy savings
- Identified energy efficiency investment opportunities representing over 4 million therms of potential energy savings
- This approach helped to justify improvements at a local food processor which will reduce energy costs and save over one million therms per year

# Southern California Gas Company Energy Efficiency Grant Program Overview

- Target Market: Large business customers in existing commercial, industrial, and institutional facilities.
- Program Objective: Reduction of natural gas usage through financial support of energy-efficient equipment retrofits, process improvements (or a combination of both) for projects that can save more than 200,000 therms per year. Enough energy to serve about 400 homes.
- The program provides incentives up to \$1,000,000 per eligible customer, per year, on qualifying energy-efficient equipment retrofits, process redesigns (or a combination of both)

# Southern California Gas Company Energy Efficiency Grant Program Details

- Incentives are based upon a calculated incentive rate or 50% of eligible project costs, whichever is lower, up to a maximum amount of \$1,000,000 per customer, per year
- Eligible projects require energy savings of at least 200,000 therms per year
- Measurement and validation of therms saved is used to determine the applicable incentive
- There are no pre-determined measures for the Energy Efficiency Grant Program, however, electric generation natural gas savings projects are not eligible to participate

# Southern California Gas Company Energy Efficiency Grant Program Process

- Submit an application which describes the project, projected therm savings, and other important information including a detailed Energy Savings Scope of Work (stamped by a Professional Engineer)
- SoCalGas reviews the application and, if approved, provides a non-binding 90 day hold on project funding to qualifying applicants
- Customer and SoCalGas finalize an acceptable Measurement and Validation plan identifying in advance how project therm savings will be documented and verified
- Customer and SoCalGas finalize acceptable project milestones
- SoCalGas conducts a pre-installation site(s) inspection and completes any required baseline measurements
- Customer and SoCalGas enter into an EEGP Agreement that defines the energy savings and incentive payment amount
- Once both parties sign the EEGP Agreement, installation may begin

# Southern California Gas Company Energy Efficiency Grant Program Results

<b>Year Project Scheduled to Close</b>	<b>Number of Projects</b>	<b>Annual Therm Savings</b>	<b>Status</b> <small>(as of August 31<sup>st</sup>, 2007)</small>
2006	4	884,809	Installed and Closed
2007	8	6,363,058	Enrolled
2008	9	7,025,712	Enrolled
Total	21	14,273,579	Enrolled, Installed and Closed

# Southern California Gas Company Energy Efficiency Grant Program Measures

Custom measures installed as part of the program include

- Early equipment retirement and replacement with higher efficiency models
- Process equipment upgrades
- Waste water heat recovery
- Thermal oxidizers
- Condensate return heat recovery
- Insulation
- Boiler stack condensing heat recovery
- Airflow reduction in thermal oxidization processes

# Grant Program Success Story

## Vertis Communications



Vertis Communications received incentives in 2006 for a new regenerative thermal oxidizer, saving 330,000 therms per year.

“The Gas Company’s incentives have reduced our equipment costs by about 20%.”

- Ken Kowal, Engineering Projects Manager, Vertis Communications