



Meeting Growing Demand: Energy Efficiency as a Resource

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Responsibility
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PG&E and Our Customers

- Serve 1 in 20 Americans (~15 million)
 - 5.1 million electricity customer connections
 - 4.2 million natural gas customer connections



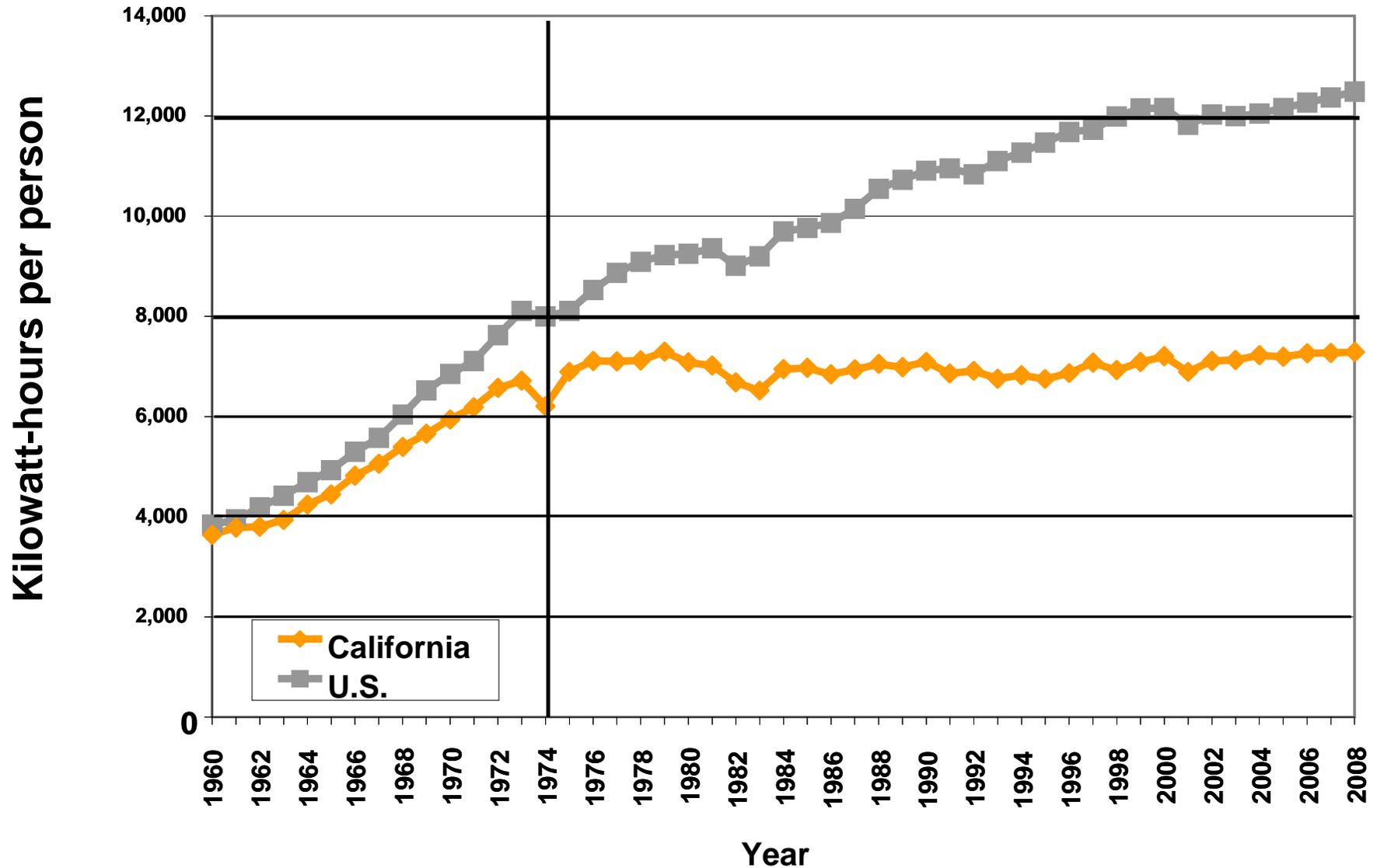
Energy Efficiency as a Resource

- A kilowatt-hour saved from energy efficiency does just as much work as a kilowatt-hour from a power plant
- But a kilowatt-hour from energy efficiency is preferable:
 - Does not produce any greenhouse gases
 - Does not incur transmission, distribution or transformation losses
 - Does not require the permitting or construction of a power plant or transmission lines
 - It is quick to “construct” and begins to “produce” power almost immediately

PG&E's Energy Efficiency Investments

- Over past 30 years, our customer energy efficiency programs have:
 - Achieved life-cycle savings of approximately 118 million MWh of electricity and 10.6 billion therms of natural gas
 - Saved enough electricity to power over 18 million homes for one year
 - Avoided the need to build approximately 24 power plants
 - Saved PG&E 's customer's approximately \$9.9 billion
 - Prevented more than 125 million tons of carbon dioxide emissions from being emitted into the atmosphere
- Energy efficiency played a critical role in helping California manage the electricity crisis:
 - Ramped up efforts and programs and reduced demand
 - On a lifecycle basis, PG&E's energy efficiency cost, on average, 1.6 cents per kWh saved in 2001

Committed to Energy Efficiency



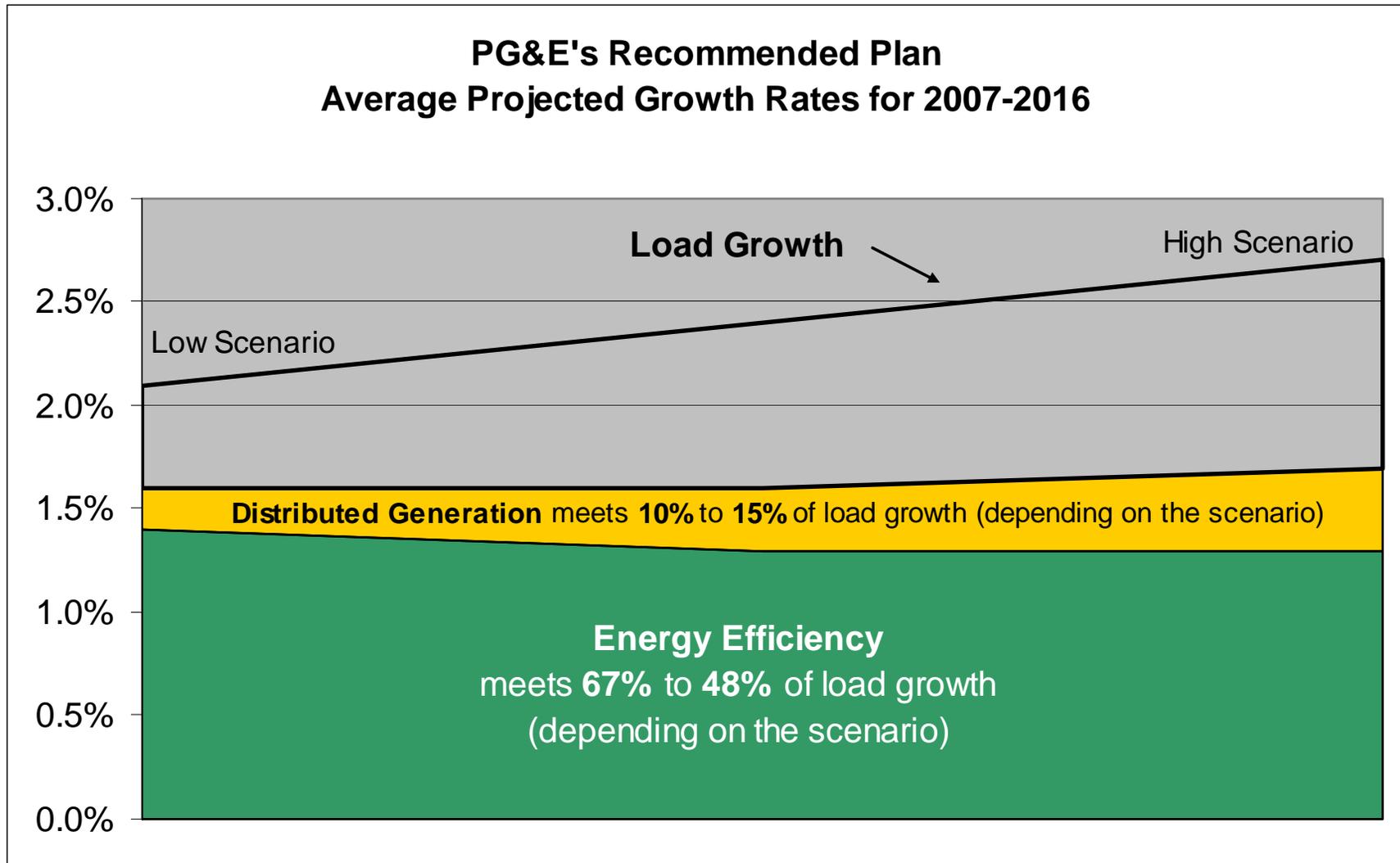
California Energy Action Plan

- Adopted by the CPUC, Energy Commission and Power Authority in Spring 2003
- Establishes a “loading order” of energy resources to guide procurement decisions made by utilities
- Directs utilities to place cost effective energy efficiency first in the loading order of resources used to meet their customers’ energy service needs
- Expects energy efficiency to capture approximately 6 of the 11GWs in demand growth over next decade
- California investing more than \$7 billion in energy efficiency and alternative energy over the next 10 years

PG&E's Long-Term Resource Plan

- PG&E will meet its customer demand through:
 - Energy Efficiency Programs: reduce load by 2,500 MW over 10 years at a cost of \$3.4 billion
 - Demand Response Programs: 5% of peak demand by 2007
 - Renewable generation: 20% by 2010
 - Distributed Generation: 60,000 - 100,000 MWH/year
- To meet remaining demand, we will secure power competitively and build new, clean generation.
 - When evaluating supply bids, we apply a “greenhouse gas adder,” which essentially monetizes the cost of carbon to allow us to factor in potential future carbon costs.

PG&E's Load Growth Projections



Energy Efficiency Lifecycle Costs per Measure

Energy Efficiency Measure	Lifecycle Costs ¢/kWh
Commercial Space Conditioning	3.3
Commercial Indoor Lighting	1.3
Industrial Process Adjustable Drive	1.7
Commercial Refrigeration Controls	2.1
Industrial Motors	1.2

Why PG&E Does Energy Efficiency

- It is cost effective
- Provides customers benefits
- Protects the environment
- Provides a “low-risk” resource option

Keys To Energy Efficiency Success in California

- Decoupled utility revenues and sales
- Commitment by and involvement of utilities, regulators, customers, and other stakeholders to improve the environment -- partnerships
- Aggressive efficiency improvements in building codes and appliance standards
- Manufacturers and distributors included in efficiency efforts
- Coordinated customer outreach and education efforts

Energy Efficiency Lessons Learned

- Develop a policy that encourages cooperation and collaboration among industry stakeholders
- Clearly define roles and responsibilities
- Maintain consistent policy direction and goals, and ensure goals are aligned with policy objectives
- Plan multiple-year program cycles and ensure timely approval
- Establish clear, simple and meaningful reporting requirements
- Allow administrative flexibility to respond to market conditions and make necessary program adjustments

Barriers to Energy Efficiency

- Recent McKinsey study suggests that worldwide energy consumption could be reduced by 50% over the next 15 years through employing existing energy efficiency technologies, processes, and practices
- NRDC study suggests that if the rest of the U.S. had achieved energy efficiency reductions similar in scale to California, the U.S. would have already met Kyoto targets
- But, there are significant barriers realizing full potential of energy efficiency:
 - Imperfect information
 - Consumer attitudes
 - Limited access to capital, cost disincentives
 - Product lifecycles
 - High consumer discount rates
 - Electric rate distortions and regulatory uncertainty
 - Externalities

Policies Are Needed to Address Barriers and Accelerate Deployment

- Align incentives to facilitate utilities pursuing energy efficiency as a resource option
- Implement aggressive, yet achievable, codes and standards for appliances and buildings in a timely manner
- Facilitate development of the infrastructure to support the “smart grid” to fully leverage energy-efficient technologies, distributed generation and advanced transportation technologies
- Educate energy consumers
- Develop consistent and appropriate monitoring evaluation and verification procedures
- Establish a long-term price signal for carbon

“Decoupling” or Other Ways to Align Incentives

- Many rate designs create financial disincentives for utilities to promote energy efficiency
- California’s model of decoupling removes these disincentives
 - Utility revenues and earnings are independent of actual energy sales.
- Decoupling eliminates the upside that comes with selling ever-increasing amounts of energy, and it helps promote broad, long-term environmental goals
- Under California’s decoupling framework, the state’s utilities collect no more and no less than the revenues necessary to run their business and provide a fair return to investors
 - If sales rise above these levels, the extra revenues go back to customers, rather than to the bottom line
 - If sales fall below intended levels, utilities are assured they can recover the shortfall going forward
- These goals can be achieved even more effectively if decoupling is combined with incentives that help motivate utilities to promote and embrace energy efficiency
- Alternative business models exist, in addition to decoupling, to align incentives for utilities

Next Generation Energy Efficiency Technologies

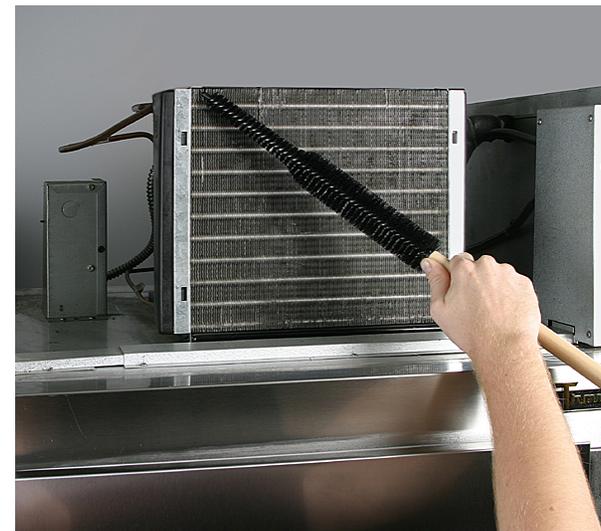
- PG&E operates an Emerging Technologies program to accelerate commercialization of new energy-efficient technologies
- The program identifies promising technologies for PG&E to promote to our customers
 - Screen and assess newly-commercialized technologies
 - Connect program outcomes with PG&E development of new energy efficiency solutions for customers
 - Identify channels for energy efficiency marketing programs to deploy our solutions to customers
- With a \$3.7million annual budget, PG&E's Emerging Technologies program is targeting more than 60 technologies
 - Technology solutions recently deployed include:
 - Dimming light fixtures for commercial building stairwells that go to full brightness when someone enters the stairwell
 - Energy saving cooling systems for computer data centers
 - High-performance lighting for classrooms



Example Programs and Initiatives

Sonoma County Energy Watch Partnership

- New, innovative partnership – one of 20 throughout our service territory
- Will promote energy efficiency as a way to achieve Sonoma’s GHG reduction goals
- PG&E’s Partners:
 - QUEST
 - Sonoma County Climate Protection Campaign
 - GeoPraxis, Inc.
 - Synergy

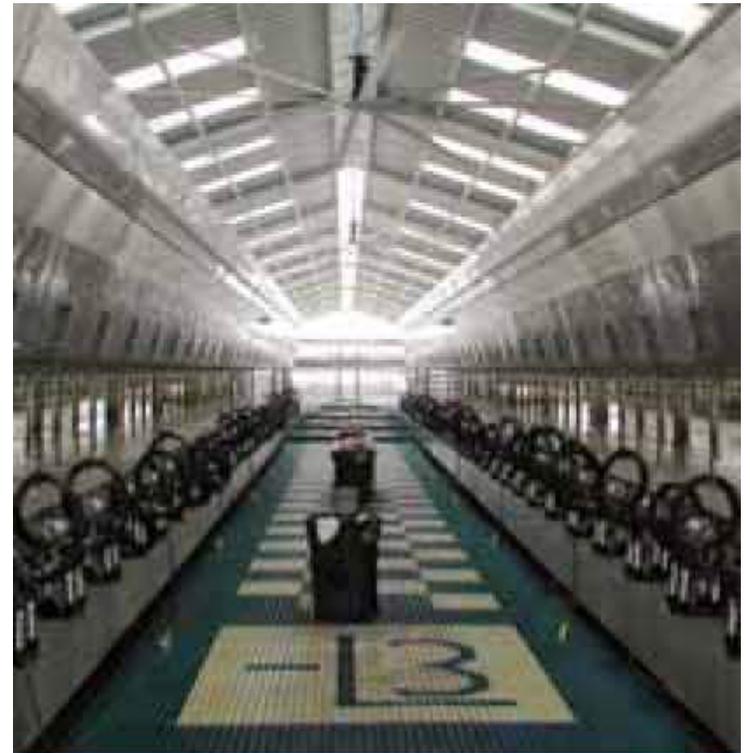


Sonoma County Energy Watch Partnership

- Will focus on improving energy efficiency/reducing GHG emissions from:
 - Residential customers
 - Schools/colleges, retail stores, office buildings, high-tech
 - Agricultural
- Key activities:
 - Building tune ups
 - Energy efficiency retrofits in wastewater and water treatment facilities
 - Outreach to realtors/home inspectors to use building/home inspections to identify energy saving opportunities
 - Targeted energy audits, outreach, and training/education
- Projected savings of 7.6 million kWh for 2006 – 2008 program

Agricultural & Food Processing Dairies

- PG&E has worked with more than 30 new and expanding dairies to help them build energy-efficient dairies and improve operational cost-effectiveness
- PG&E offers design assistance and financial incentives up to \$75,000
- Energy efficient measures include premium-efficiency motors, fans, refrigeration systems, compressed air systems and lighting



Agricultural & Food Processing Refrigerated Warehouse

- Design assistance and incentives for energy-efficient measures included evaporative and air condensers, computer controls and high-efficiency lighting and controls
- The combined measure can reduce energy use by 25 – 35% annually
- Case Study
 - Stamoules Produce planned a 60,000 square foot expansion of their cold storage facility
 - Projected annual energy savings: 937,535 kWh
 - Annual utility cost savings: \$93,000
 - Stamoules Produce received a \$75,003 incentive from PG&E



Fabrication, Process & Heavy Industrial Manufacturing Wastewater Treatment Facilities

- The Dublin San Ramon Waste Services District plant expanded from 11.5 to 17 million gallons per day (mgd)
- PG&E helped the district evaluate and implement energy-efficient design options
- Projected annual energy savings: 2,323,650 kWh
- Annual utility cost savings: \$290,000
- Incentive paid: \$67,000

