

Technology Resource Innovation Outreach Roundtable TRIO Program



Learn About California Utilities' Energy Management in Demand Side Programs

Sponsored by:



Pacific Energy Center
San Francisco, CA
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**Presentations will be posted on:
www.etcc-ca.com**

To reach PGE energy management program managers, please send inquiries to:

energymanagement@pge.com

Welcome

We would like to welcome you to the Technology Resource Incubator Outreach (TRIO) Roundtable on energy management in demand side programs.

The Roundtable is organized by the California Investor Owned Utilities (IOUs): Pacific Gas & Electric (PG&E), San Diego Gas and Electric (SDG&E), Southern California Gas Company (SCG) and Southern California Edison (SCE).

TRIO is a statewide program designed to nurture new technologies from universities, entrepreneurs, and investor firms through symposiums, roundtable discussions, and support services. The program participants will receive information on how utilities can help guide the commercialization of cost effective energy-efficient and demand response technologies and/or programs. By doing so, the program hopes to speed up the availability of new technologies and products.

This roundtable is designed to help participants gain the necessary perspective and tools to work with utilities such as PG&E, SDG&E, SCG and SCE. We encourage you to ask questions and take advantage of the multiple networking opportunities. It is our hopes that these events foster the collaboration process necessary to provide a lasting transformation in the market for energy efficiency (EE) and integrated demand side management (IDSM) adoption.

Thank you for taking the time to join us,

Aaron Panzer

Pacific Gas & Electric Company

Abdullah Y Ahmed

Southern California Gas Company

Kate Zeng

San Diego Gas & Electric Company

Edwin Hornquist

Southern California Edison Company

Sponsor



*Pacific Gas and
Electric Company*[®]

Pacific Gas and Electric
Company (PG&E)

Pacific Gas and Electric Company, incorporated in California in 1905, is one of the largest combination natural gas and electric utilities in the United States. Based in San Francisco, the company is a subsidiary of PG&E Corporation. There are approximately 20,000 employees who carry out Pacific Gas and Electric Company's primary business—the transmission and delivery of energy. The company provides natural gas and electric service to approximately 15 million people throughout a 70,000-square-mile service area in northern and central California. Pacific Gas and Electric Company has long been recognized as an environmental leader by providing safe, economical and reliable products and services in a responsible and environmentally sensitive manner. Doing more so that our impact on the environment is less drives us to adopt new technologies, improve our environmental management practices, build strong ties with local communities, reach out to stakeholders to address challenges and contribute to the development of public policies that raise the bar for our industry.

Pacific Gas and Electric Company and other utilities in the state are regulated by the California Public Utilities Commission. The CPUC was created by the state Legislature in 1911.

PG&E Facts:

- Service area stretches from Eureka in the north to Bakersfield in the south, and from the Pacific Ocean in the west to the Sierra Nevada in the east.
- 141,215 circuit miles of electric distribution lines and 18,616 circuit miles of interconnected transmission lines.
- 42,141 miles of natural gas distribution pipelines and 6,438 miles of transportation pipelines.
- 5.1 million electric customer accounts.
- 4.3 million natural gas customer accounts.

Organizers

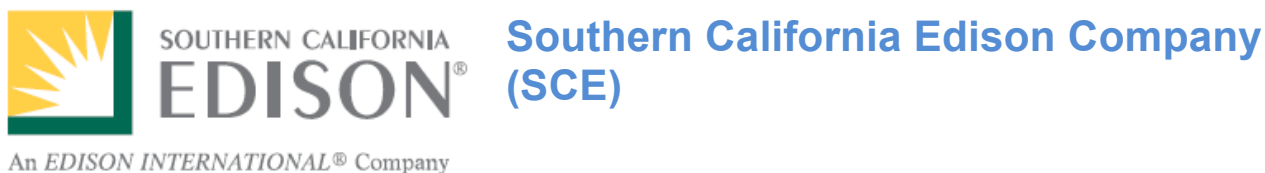
San Diego Gas and Electric Company (SDG&E) Southern California Gas Company (SCG)



SDG&E and SCG are the CPUC regulated utility subsidiaries of Sempra Energy, a fortune 500 energy services holding company, based in San Diego, CA, with 13,600 employees worldwide, and 2008 revenues of nearly \$11 billion. The Sempra Energy companies develop energy infrastructure, operate utilities, and provide related products and services to more than 29 million consumers worldwide.

SDG&E[®] lit its first lamp on San Diego streets in 1881. Today the full-service utility provides electricity and natural gas to 3.4 million consumers across 4,000 square miles from Orange County to the Mexican border.

SCG[®] lit its first street lamp in Los Angeles in 1867 – years before Thomas Edison made his biggest discovery. Since then, the company has grown into the nation’s largest natural gas distribution utility. SCG serves more than 20 million consumers across 20,000 square miles throughout Central and Southern California.



Today’s Southern California Edison is the product of more than a century of providing reliable electric service to central, coastal and southern California.

We help our customers stretch their energy dollars through rebates, which they can receive through SCE’s award-winning energy efficiency programs. Customers can receive incentives for helping to control power demand through “demand-response” programs, which help to keep wholesale supplies and prices under control. As part of our commitment to environmental protection, the electric power we provide for our customers includes more alternate and renewable energy (16.7 percent), from a greater variety of resources, than nearly any other utility in the world. We have been active in efforts to improve Southern California air quality since the 1940s. SCE is also an active donor to community and educational causes. SCE employee volunteers annually donate more than 700,000 hours of work to community and nonprofit organizations.

SCE's ethnically and culturally diverse customer base contains one of the largest concentrations of non-English speaking residents in California. Our company celebrates and accommodates the diversity of the community it serves through in-languages services and special programs. An emphasis on diversity strategies, operational goals and accountability helped SCE maintain its rank in the top tier of Fortune magazine's annual list of the top 50 companies in America for ethnic minorities, placing high on the list at number eight. This is SCE's seventh consecutive year receiving this recognition, which highlights the company's commitment to develop a work force of first-rate professionals that embraces diversity and reflects the customers it serves. On an average day SCE provides power to:

- More than 13 million people
- 180 cities in 50,000 square miles of service area, encompassing 11 counties in central, coastal and Southern California
- Commercial industrial and nonprofit customers, including: 5,000 large businesses, 280,000 small businesses

To deliver that power, it takes:

- 16 utility interconnections
- 4,990 transmission and distribution circuits
- 425 transmission and distribution crews
- The days and nights of more than 15,500 employees
- More than a century of experience

Roundtable Agenda

9:00 AM **Registration and Continental Breakfast**

9:30 AM **Welcome and Big Picture**

Background on California utility regulatory structure

Speaker:

Aaron Panzer: Program Lead, Emerging Technologies | PG&E

10:00 AM **Energy Management at California Utilities**

- High-level overview of:
 - CA utility organizational structures
 - Landscape for energy management and information technology in CA

Speakers:

Moderator: Mananya Chansanchal: Sr. Product Manager, Emerging Technologies | PG&E

Panelists:

Edwin Hornquist: Manager, Emerging Technologies Program | SCE

Abdullah Ahmed: Manager, Emerging Technologies Program | SoCalGas

Nate Taylor: Project Manager, Emerging Technologies | SDG&E

Rachel Radell: Project Manager, Energy Research and Development | SMUD

11:00 AM **Break**

11:15 AM **Energy Efficiency and Behavior Management Technology**

- EE program considerations
- EE product planning
- Customer perspective

Speakers:

Moderator: Daniel Ohlendorf: Expert Product Manager, Information Products | PG&E

Panelists:

Leo Carrillo: Principal Product Manager, Information Products | PG&E

Ray Manion, Homeowner

Derek Okada: Senior Project Manager, DSM Strategy Planning | SCE

12:15 PM **Lunch**

1:15 PM **Demand Response, Home Area Networks and Data Management**

- Communication channels and protocols
- Current and possible future:

Speakers:

Moderator: Jonathan Burrows, Senior Product Manager, DR Emerging Technologies | PG&E

Panelists:

Amy Kight Costadone, Principal Product Manager, Demand Response – 3rd Party Data

- methods for accessing customer data
- utility role in determining which devices, apps, and services

Platforms | PG&E

Mark Martinez, Senior Manager, DSM Strategy and Policy | SCE

Prateek Chakravarty, VP, Business Development and Marketing | Bidgely

Albert Chiu, Expert Product Manager, Customer Energy Solutions | PG&E

2:15 PM **Break**

2:30 PM **Pricing and Rates**

- Discussion about the three programs to drive customer engagement:
 - pricing options
 - dynamic rates
 - analytics

Speaker:

Andrew Au, Product Manager for Commercial Time Varying Pricing, PG&E

3:00 PM **Evaluation, Measurement and Validation**

- What is EM&V?
- How are ET pilots typically evaluated?
- How do evaluations figure into decisions to go from pilot to program?

Speaker:

Brian Smith, Manager, EM&V | PG&E

3:30 PM **Wrap-Up**

Speaker:

Aaron Panzer: Manager, Emerging Technologies Program | PG&E

3:40 PM **Networking with IOU Program Managers**

4:10 PM **Program Conclusion**

Speakers

Ahmed Abdullah: Sempra

Mr. Abdullah Y Ahmed is the Emerging Technologies Program manager for Sempra Energy Utilities (Southern California Gas Company and San Diego Gas & Electric Company). He joined Sempra in October 2005. Mr. Ahmed manages a \$12 million dollar Emerging Technologies program with the SEU. The goal of the ET program is to evaluate new and emerging energy efficiency gas and energy efficiency and demand response electric technologies. Since taking over the ET program at both utilities, he has transformed the group into a pro-active, visionary and goal oriented organization that is conducting field assessments of a large number of lighting, cooling, heating, water heating, controls and process technologies. A large number of these assessments and evaluations are expected to become part of SEU's over \$500 million dollar Energy Efficiency and Demand Response portfolio of incentive programs. From 1989-2005 Mr. Ahmed was the president of Occidental Analytical Group a consulting engineering firm in Walnut, Ca. The company provided professional engineering services to Energy Service Companies and large commercial and industrial clients. The company also provided services to the utility industry in the form of design, planning, implementation and evaluation of third party energy efficiency programs. Mr. Ahmed has over 10 years of utility experience and over 25 years of consulting experience in the energy field. Mr. Ahmed holds a First Class Bachelor degree in Mechanical Engineering from Dibrugarh University, India and a Masters Degree in Engineering Management from University of Missouri-Rolla.

Jonathan Burrows: PG&E

Jonathan Burrows is the Senior Product Manager of the Demand Response Emerging Technologies program at PG&E. Jonathan also managed PG&E's previous Permanent Load Shifting (PLS) program. Before joining PG&E, Jonathan worked on renewable generation procurement at the California Public Utilities Commission. Before working in the energy industry, Jonathan spent almost a decade in Silicon Valley, first at Intel and later at a technology consulting company working on projects for advanced semiconductor companies around the world. Jonathan holds a Bachelor of Science degree in Applied Physics from the California Institute of Technology.

Leo Carrillo: PG&E

Leo Carrillo is a Principal Product Manager for Energy Management Systems and Information Products in Pacific Gas & Electric's Customer Energy Solutions (CES) department. Leo oversees product strategy and development for building automation and analytics technology is responsible for the design and launch of PG&E's Commercial Whole Building Demonstration, a proof of concept for a novel, performance-based approach to incentivizing deep energy savings in existing commercial buildings. Leo has over a decade of experience in the energy and finance industries, in addition to several years with government and non-profit organizations. Prior to joining PG&E, Leo was an Associate Director at Standard & Poor's Ratings Services, where he covered utilities and energy projects for over six years. He holds a MBA and a BA in Economics from UC Berkeley, as well as an MPP degree from the Harvard Kennedy School of Government.

Prateek Chakravarty: Bidgely

Prateek leads the Business Development and Marketing efforts at Bidgely. He was formerly a Director at PG&E where, among other roles, he led the commodity sales and marketing organization through a turnaround, initiated a new project finance business that invested in rooftop solar, and advised the Board on market entry strategies for smart grid, distributed generation and electric vehicles. Prior to PG&E, Prateek held leadership positions at Schlumberger. Prateek is an avid sports fan and an adventure globetrotter. He holds a B Tech degree from Indian Institute of Technology and an MBA from Harvard Business School.

Mananya Chansanchal: PG&E

Mananya is a Senior Product Manager in PG&E's Energy Efficiency Emerging Technologies Program. While at PG&E, she has managed projects spanning multiple technology areas including HVAC controls, energy management systems, advanced window films, and building analytics. Prior to joining PG&E in 2012, she was running the energy efficiency projects division of a small Davis-based start-up, with a focus on lighting and water efficiency projects. Mananya received her Bachelor of Arts degree from UC Santa Cruz in Business Management Economics, and her MBA from the UC Davis Graduate School of Management. While getting her MBA, she worked at the UC Davis Energy Efficiency Center on business plans for energy efficient technologies.

Albert Chiu: PG&E

Albert is an Expert Product Manager in the Customer Energy Solutions (CES) Department at PG&E. In his 14 years of Integrated Demand Side Management (IDSM), Albert has developed and implemented residential, third party, low income, commercial and local government energy efficiency and demand response programs and policies for utility customers. Albert is the lead of the DR Technology and Solutions Team at PG&E and my team are responsible for all Automated Demand Response, Permanent Load Shifting (PLS) and DR Emerging technologies development and implementation. At PG&E, he focuses on the development and commercialization of new IDSM technologies that increase customers DR performance, help integrate DR resources with CA electric wholesale market and use DR to address Intermittent Renewable Resource challenges. Albert co-chairs the OpenADR Task Force within the Utility Communication Architect Internal User Group (UCAIug). He also participates in the NIST National Smart Grid activities such as Priority Action Plan 3, 4 and 9. Albert is in multiple Technical Advisor Groups with CA universities and national labs and work with California Energy Commission, EPA, USGBC, and other organizations to develop IDSM codes and standards.

Amy Kight Costadone: PG&E

Amy manages the Third Party Data Platforms group within PG&E's Customer Products organization. This group focuses on platforms that provide energy data to consumers and to consumer authorized third parties, which can drive innovation and empower consumers to consider how their consumption affects their bill and their environment. The Third Party Data Platform group coordinates the strategy, policy, technologies, implementation, and operations of these platforms to enable the customer side of the SmartGrid. These platforms currently includes the Home and Business Area Networking (HAN), Green Button, and Green Button Connect platforms. The group will also lead the Customer Data Access (CDA) platform (Open

ADE implementation) and customer data release governance process, both anticipated to start in 2013.

Edwin Hornquist: SCE

Mr. Edwin Hornquist has nearly 20 years of experience in the energy industry across a diverse spectrum of companies. He began his career working for public and investor-owned utilities focusing on energy efficiency (EE), demand-side-management (DR), supply resource planning, and meter data acquisition systems. During the early years of the deregulated electricity market in California, Mr. Hornquist held jobs with several prominent energy services providers managing the companies' retail commodity operations. Later he went on to lead the operations of a startup energy management company. In 2006, he joined Southern California Edison (SCE) where his initial focus included managing projects related to the utility's Advanced Metering Infrastructure (AMI) initiative, Codes & Standards (C&S), Demand Response, and Emerging Technologies programs. He later managed SCE's C&S program advocacy efforts to advance energy efficient appliances both in California and at the national level. He currently manages SCE's Emerging Technologies Program which mission is to support increased energy efficiency product market demand and technology supply by contributing to development and deployment of new and under-utilized EE measures. He holds a Mechanical Engineering Degree from California Polytechnic University, Pomona, and a Masters Degree in Business Administration from Woodbury University, Los Angeles.

Mark Martinez: SCE

Mark is a senior program manager for Southern California Edison, with over 20 years' experience in the demand side management program design, project management, innovative pilots and programs, and regulatory reporting and compliance. During his career at SCE he has designed multi-million dollar energy efficiency and demand response programs for residential and commercial customers, conducted energy research and evaluation studies, managed construction engineering for SCE subsidiary Edison EnVEST, designed the innovative SCE Energy OrbSM, and as the strategic designer provides the compliance guidance for SCE's integrated demand side management programs (IDSM). With a strong background in visionary program development, strategic policy guidance, and project execution, Mark's efforts have always been focused on engaging stakeholders and service providers to ensure maximum benefits for customers from SCE's IDSM programs. He lives in La Canada Flintridge, California and enjoys hiking, travel, and urban farming.

Daniel Ohlendorf: PG&E

Daniel Ohlendorf is an Expert Product Manager for Energy Advisor Programs and Energy Audit Products in Pacific Gas & Electric's Customer Energy Solutions (CES) department. Daniel oversees product strategy and development for energy audit tools and delivery options, and is the PG&E lead for the statewide Energy Advisor programs, which include offerings spanning behavioral approaches, benchmarking, audit services, and online tools and resources. The goal of the Energy Advisor programs are to generate customer awareness of energy efficiency opportunities, educate customer's on solutions, and generate continuous engagement to help customers save energy and money. Prior to joining PG&E, Daniel led engineering and manufacturing teams in the Silicon Valley focused on innovative analyzer and sensor equipment for high-end and specialized manufacturing applications.

Daniel holds an MBA and a Masters in Systems Engineering from San Jose State University, and Bachelors in Aerospace Engineering.

Derek Okada: SCE

Derek Okada is a Senior Project Manager with Southern California Edison's Demand Side Management (DSM) Strategy & Compliance group. He currently facilitates DSM program strategy development in the areas of plug loads, appliances, consumer behaviors and Zero Net Energy (ZNE) buildings. He is responsible for identifying new DSM opportunities within SCE's residential portfolio and collaborating with utility, industry and regulatory stakeholders to implement new DSM offerings. Prior to joining SCE in 2008, Derek held strategic planning and financial planning roles with the Los Angeles Times/Tribune Company, Ingram Micro and Toyota Motor Sales USA. He also worked in litigation and financial consulting with Arthur Andersen LLP and Simpson and Company LLP. Derek holds a B.A. in Economics from UCLA and a M.A. in Public Policy Studies from the University of Chicago Harris School of Public Policy Studies.

Aaron Panzer: PG&E

Aaron Panzer runs PG&E's Energy Efficiency Emerging Technologies program. Aaron manages a program that identifies and tests commercially viable/available products, systems, and services that are either emerging or proven but under-utilized in the PG&E service territory. Previously, Aaron worked as a wind power developer both at PG&E and Puget Sound Energy where he fully developed upwards of 300 MW of new wind power that is now in operation. Aaron holds a Master of Business Administration degree from the University of Washington and dual Bachelor of Arts degrees in Political Science and Television, Radio, Film from Syracuse University.

Susan Preston: CalCEF Clean Energy Angel Fund

Ms. Susan Preston is General Partner for the CalCEF Clean Energy Angel Fund. Susan has spent most of her career in senior management positions in public and private companies, from general counsel to CEO. She has also been a partner in two national law-firms and is a patent attorney. Susan is a world-recognized expert in angel financing, and is the author of numerous articles, white papers and books on angel financing. Her most recent book, *Angel Financing for Entrepreneurs*, was released by Wiley Publishing. She has been and continues to be a national and international speaker on economic development, angel and venture financing. She was an Entrepreneur-in-Residence with the Kauffman Foundation for six years focusing on initiatives related to angel investing, angel organizations and women entrepreneurs. She is the architect of the Access to Capital for Entrepreneurs Act, a bi-partisan federal income tax credit bill for private equity investing, which will be re-introduced in Congress this session. Ms. Preston received her JD, cum laude, from Seattle University and her BS, magna cum laude, Phi Beta Kappa, in Microbiology and Public Health from WSU.

Rachel Radell: Sacramento Municipal Utility District (SMUD)

Rachel is a project manager in the Energy Research and Development department at the Sacramento Municipal Utility District (SMUD). She is currently working on several projects in the areas of energy efficiency, climate change, demand response and SmartGrid

technologies. Prior to working at SMUD, Rachel had the opportunity to gain experience as Member Services Manager for NCPA, Energy Specialist for Roseville Electric, Legislative Fellow for Senator Dianne Feinstein, and Project Controls Engineer for Bechtel Corporation. She is a Certified Energy Manager with a bachelor's degree in Civil and Environmental Engineering from UC Berkeley and an MBA from CSU, Sacramento.

Brian Smith: PG&E

Brian Arthur Smith is a member of PG&E's Evaluation, Measurement and Evaluation ("EM&V") team where he supports energy efficiency programs. In EM&V, he oversees the design and measurement of behavior-based programs that involve experimental and quasi-experimental design. Current behavior-based energy efficiency initiatives at PG&E include Home Energy Reports, Business Energy Reports and an Emerging Technologies pilot involving smart phones that enable remote control of thermostats. Brian also covers the evaluation of lighting, marketing and residential programs and manages research projects with Stanford University and Lawrence Berkeley National Labs that focus on the use of interval data coming from Smart Meters. Prior to joining PG&E in 2009, Brian held a number of research positions, most recently with the market research firm Ipsos where he managed technology accounts including Cisco and Intel. He worked in competitive intelligence at Microsoft when the firm was bidding to acquire Yahoo. Prior to joining Microsoft, Brian wrote on consumer adoption of technology while a research director at Gartner. He served as director of R&D for media research firm Frank Magid Associates where he developed research-based products. Prior to his work in research, Brian worked in marketing at high-technology startups Quark and Thunderware. He holds a master's degree in communication research from the University of Wisconsin-Madison and a bachelor's degree in psychology from the University of Colorado-Boulder.

Nate Taylor: SDG&E

Nate Taylor is a Project Manager at San Diego Gas & Electric specializing in Energy Efficiency (EE) for the Emerging Technologies Program. He manages the analysis of new and underutilized EE and technologies through assessments, market behavior studies, scaled field placements, technology development support, and business incubation. Previously Nate worked as a Distribution Operations Engineer designing and managing the construction of utility infrastructure. Nate has a B.S. in Mechanical Engineering from the University of California, San Diego.

Website References

California Energy Commission

<http://www.energy.ca.gov>

California Institute for Energy and Environment

<http://uc-ciee.org/>

California Public Utilities Commission

<http://www.cpuc.ca.gov>

Emerging Technologies Coordinating Council

<http://www.etcc-ca.com>

Pacific Gas and Electric Company

<http://www.pge.com>

Sacramento Municipal Utility District

<http://www.smud.org>

San Diego Gas and Electric Company

<http://www.sdge.com>

Southern California Edison Company

<http://www.sce.com>

Southern California Gas Company

<http://SCG.com>

Abbreviations and Acronyms

AMI	Advance Metering Initiative
Auto DR	Automated Demand Response
CAISO	California Independent System Operator
CEC	California Energy Commission
CEE	Customer Energy Efficiency
CLTC	California Lighting Technology Center
CPP	Critical Peak Pricing
CPUC	California Public Utilities Commission
CSI	California Solar Initiative

CT	Combustion Turbine
CTAC	Customer Technology Application Center
DA	Direct Access
DR	Demand Response
DRA	Division of Ratepayer Advocates
ED	Energy Division of CPUC
EE	Energy Efficiency
EMS/EMCS	Energy Management Control System
EM&V	Evaluation, Measurement and Validation
EPRI	Electric Power Research Institute
ERC	SCG Energy Resource Center
ET	Emerging Technologies
ETCC	Emerging Technologies Coordinating Council
FSTC	Food Service Technology Center
GRC	General Rate Case
GTI	Gas Technology Institute
HVAC	Heating Ventilation and Air Conditioning
IDSMD	Integrated Demand Side Management
IOU	Investor Owned Utility
kW	Kilowatt
kWh	Kilowatt-hour
LEED	Leadership in Energy and Environmental Design
M&E	Measurement and Evaluation
PDP	Peak Day Pricing
PEC	Pacific Energy Center
PG&E	Pacific Gas and Electric Company
PIER	Public Interest Energy Research
PV	Photovoltaic
RTP	Real Time Pricing
PTR	Peak Time Rate
SCE	Southern California Edison
SDG&E	San Diego Gas and Electric Company
SMUD	Sacramento Municipal Utility District
SCG	Southern California Gas Company
TA	Technical Audit
TI	Technology Incentive
TOU	Time-Of-Use
TRC	Total Resource Cost test

TRIO	Technology Resource Incubator Outreach
TURN	The Utility Reform Network
UDC	Utility Distribution Companies
WCEC	Western Cooling Efficiency Center

Key Energy Utility Terms

- **Avoided Cost:** The cost that an electric utility would incur to produce or otherwise procure electric power, but does not incur because the utility purchases this power from qualifying facilities.
- **Base Load:** The minimum constant level of electric demand, expressed in units of watts, that a utility's generating system must meet.
- **Baseline Quantity:** A minimum level of usage that is intended to satisfy a substantial portion of the energy needs of the average customer in a specific service area.
- **CEC (California Energy Commission):** California's principal energy planning and policy-making organization.
- **California Public Utilities Code:** California statutory law that governs the regulation of public utilities.
- **CPUC (California Public Utilities Commission):** The state agency that regulates the rates and services of natural gas, electric, water, steam, pipeline, sewer, telephone, cellular and radio telephone, and telegraph utilities as well as trucking, railroad, airline, moving and privately owned bus companies.
- **Capacity:** A measure of the amount of service for which a system or system component is rated.
- **Coincident (Peak) Demand:** The level of demand of an electric or natural gas customer or customer class at the time of the electric or gas system's peak demand.
- **Customer Classes:** Groups of utility customers with similar characteristics that are classified together for the setting and applying of electric and natural gas rates and for other ratemaking and financial reporting purposes.
- **Decoupling:** A process wherein the amount of profit the California Public Utilities Commission allows PG&E to make is separated from the amount of gas and electricity sold.
- **Degree Day:** A unit of measure used to express the extent to which temperatures vary from a specific reference temperature during a given time period (month, season, year).

- **Demand:** The amount of a commodity or service requested at a specified time. The demand on a utility system is the amount of energy drawn by customers at a specific time. Demand may also be referred to as load.
- **Demand-Side Management:** Measures taken by a utility to influence the level or timing of customers' energy demand in order to optimize the use of available utility resources.
- **E3 Calculator:** Used by all California investor-owned utilities to compute the cost-effectiveness of energy efficiency programs.
- **EM&V (Evaluation, Measurement, & Verification):** Provides accurate, transparent and consistent metrics to assess the performance and implementation of an energy efficiency project or program.
- **Federal Energy Regulatory Commission (FERC):** An independent regulatory agency within the United States Department of Energy that has jurisdiction over interstate electricity sales, wholesale electric rates, natural gas pricing, oil pipeline rates and gas pipeline certification.
- **General Rate Case:** An exhaustive regulatory review of PG&E's operations and costs to establish the base revenues that are intended to cover our costs of distributing gas and electricity to customers and maintaining and operating our electric generation facilities. The GRC is required by the PUC and occurs typically every three years.
- **IDSM (Integrated Demand-Side Management):** Promotes integration of demand side (DSM) resources such as energy efficiency, demand response, and distributed generation.
- **Incentives:** An offering from an efficiency program administrator intended to encourage or motivate customers to reduce the total amount of energy they consume for a given level of energy service provided, without compromising the quality or level of the service.¹
- **Investor-owned utility (IOU):** A privately owned electric utility whose stock is publicly traded. It is rate regulated and authorized to achieve an allowed rate of return on capital that it has invested in the business in order to provide service to customers.
- **Load:** The amount of power carried by a utility system or subsystem, or the amount of power consumed by an electric device, at a specified time. Load may also be referred to as demand.
- **Load Shape:** The graphed pattern of a utility's load or customers' demand for energy over a period of time, typically one day, one season, or one year.

¹ http://www.epa.gov/cleanenergy/documents/suca/program_incentives.pdf

- **Measure:** A CPUC approved product or service that reduces or otherwise modifies energy end use patterns and which is often analyzed by building type, weather zone, and vintage
- **Peak Load:** The maximum amount of energy carried by a utility system during a specific time period. Peak load determines the required system capacity.
- **Peaking Unit:** An electric generating plant, or generating unit within a plant, operated to meet maximum (peak) demand or to fill emergency requirements.
- **PIER (Public Interest Energy Research):** California's premier energy RD&D program, advancing science and technology in the fields of energy efficiency, renewable energy, advanced electricity technologies, energy-related environmental protection, and transmission and distribution, and transportation technologies.²
- **Public Interest:** Legal, economic, political, or philosophical positions deemed to serve the good of the public or the community at large.
- **Publicly-owned utility (POU):** A nonprofit local government agency established to provide service to its community. Policy is developed and utility activities and rates are regulated by locally elected boards and/or city councils.
- **Rates:** The rate is the price for a unit of electricity. There are three primary parts to electric charges: generation; transmission and distribution; and public purpose programs.
- **Rate Tiers:** Levels of energy usage that are priced beginning with Tier 1, the lowest, or baseline, usage level. Each increment, or tier, of use beyond the baseline level is charged at an increasingly higher price. The tiered structure was originally adopted by the State of California to provide a financial incentive for residential consumers to conserve energy.
- **Rebates:** A rebate is a payment from the program sponsor to an individual customer, typically made after a qualified item is purchased and a rebate coupon or application is submitted. Rebates can be *prescriptive/deemed* (fixed amounts pre-defined for specific products) or *custom/calculated* (defined by formulas or other rules that match the payment to a specific product or project).³
- **Rebate program:** A utility company-sponsored conservation program whereby the utility company returns a portion of the purchase price cost when a more energy-efficient refrigerator, water heater, air conditioner, or other appliance is purchased.
- **Spinning Reserve:** The percent of electric generating capacity that is immediately available to meet instantaneous changes in demand.

² <http://www.energy.ca.gov/research/index.html>

³ http://www.epa.gov/cleanenergy/documents/suca/program_incentives.pdf

- **Tariff:** Public schedules detailing utility rates, rules, service territory, and terms of service that are filed for official approval with a regulatory agency.
- **Test Year:** A 12-month period used as a basis for presenting information regarding the results of a utility's past or future operations to a regulatory body in rate cases, hearings, or other ratemaking procedures.
- **Therm:** An amount of thermal energy equal to 100,000 British thermal units. Ten therms equal one decatherm (also spelled dekatherm; abbreviated Dth).
- **Time-of-Use Rate:** A rate that prices electricity according to the season or time of day that it is used. The time-of-use rate design closely reflects the actual cost of providing electric energy.
- **Watt:** The basic unit of measure of real electric power, or rate of doing electric work.
- **Watt-hour:** The basic unit of measure of electric energy consumption.

