Northeast Energy Efficiency Partnerships

# GLOSSARY OF TERMS

**Version 2.1**

**A project of the**
**Regional Evaluation, Measurement and Verification Forum**

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## Introduction

The Regional EM&V Forum is a project managed and facilitated by Northeast Energy Efficiency Partnerships, Inc. The Forum's purpose is to provide a framework for the development and use of common and/or consistent protocols to measure, verify, track and report energy efficiency and other demand resource savings, costs and emission impacts to support the role and credibility of these resources in current and emerging energy and environmental policies and markets in the Northeast and Mid-Atlantic region. Participating states in 2009 include the New England states, New York, New Jersey, Maryland, Delaware, and the District of Columbia. For more information, see http://neep.org/emv-forum.

This glossary is intended to define and explain terms used in the evaluation, measurement, verification (EMV), and market research of electric and gas energy efficiency, conservation, load management, demand response, and other demand reduction activities that regulators, policy-makers, and other non-technical readers will encounter as they pursue their work. Included are terms commonly used in the processes of evaluation, measurement, and verification; terms associated with the energy efficiency measures being installed and the equipment or facilities within which they are installed; terms associated with program strategies that might be included in EMV studies; and other terms often found in evaluation reports. Some of these terms are used in similar contexts, for example to refer to the measurement of other outcomes, such as air emissions (SOx, NOx, $CO_2$, etc…). This glossary purposefully minimizes the complexities and necessary context of the statistical terms or methodologies included here that are used in the development of energy or emissions savings. For additional detail the interested reader should confer with evaluation experts or refer to one or more of the following texts or website.

- Elementary Statistics, Robert Johnson, 2nd edition, Duxbury Press, North Scituate, Mass.
- Introduction to the Practice of Statistics, David S. Moore and George P. McCabe, 2nd edition, W.H. Freeman and Company, New York, 1993
- Modeling Experimental and Observational Data Clifford E. Lunneborg, 2000
- Sampling Techniques, William G. Cochran, 3rd edition, John Wiley & Sons, New York, 1977
- Statistical Methods, George W. Snedocor and William G. Cochran, 6th edition, Iowa State University Press, Ames Iowa
- www.statsoft.com/textbook/

## Acknowledgements

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## Update History

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## Source Documents

This glossary is based on material from the following documents or websites. The primary sources for the terms and definitions of this glossary include:

- DOE EERE Guide for Managing General Program Evaluation Studies, February 2006
- Model Energy Efficiency Program Impact Evaluation Guide: A Resource of the National Action Plan for Energy Efficiency, November 2007
- The California Evaluation Framework, by TecMarket Works et al., June 2004

Other documents relied on to develop this glossary include:

- Advanced Utility Metering - Period of Performance: April 23, 2002—September 22, 2002, prepared for NREL by Architectural Energy Corporation Boulder, Colorado, NREL/SR-710-33539, at: http://ateam.lbl.gov/mv/docs/AdvancedMetering_Aug_2002.pdf
- American Gas Association glossary at: www.aga.org/Kc/aboutnaturalgas/glossary/
- An Encyclopedia of Utility Industry Terms, Designed and produced for the Rate Advisory Program of Pacific Gas and Electric Company, January 1985
- California Commissioning Guide: Existing Buildings, prepared by Portland Energy Conservation Inc., for the California Commissioning Collaborative, 2006
- California Commissioning Guide: New Buildings, prepared by Portland Energy Conservation Inc., for the California Commissioning Collaborative, 2006
- Comprehensive Reliability Plan: A Long-Term Reliability Assessment of New York's Power System, New York Independent System Operator, 2008.
- "Creating an Energy-Efficiency and Renewable Energy Set-Aside in the N Ox Budget Trading Program: Evaluation, Measurement, and Verification of Electricity Savings for Determining Emission Reductions from Energy Efficiency and Renewable Energy Actions," EPA Climate Protection Division, EPA-430-B-07-001, July 2007
- Energy Information Agency (EIA) glossary: www.eia.doe.gov/glossary/index.cfm
- Energy Plan 2004-2013, Vol 2 of 5 - Energy Primer, Long Island Power Authority, June 2004
- EPA websites: www.energystar.gov, www.epa.gov/air/urbanair/, www.epa.gov/airmarkets/cap-trade, www.epa.gov/ttnchie1/ap42/, www.epa.gov/climatechange/emissions/index.html
- "General Reporting Protocol," The Climate Registry, 2008.
- International Performance Measurement & Verification Protocol, Volume 1, rev. March 2002
- ISO-NE Manual 35 Definitions and Abbreviations – Revision 26 6-6-08
- ISO-NE Glossary and Acronyms: www.iso-ne.com/support/training/glossary
- Kick the Habit: A U.N. guide to Carbon Neutrality, United Nations Environment Programme, 2008.
- Lighting Research Center glossary at: www.lrc.rpi.edu/programs/NLPIP/lightingAnswers/LAT5/glossary.asp
- Massachusetts RGGI Regulations, 310 CMR 7.70 Final Version, January 2008 at: www.mass.gov/dep/service/regulations/rggiregf.doc
- Massachusetts Technical Reference Manual 2011 Program Year Plan Version, Final Draft, October 2010
- Measure Life Report: Residential and Commercial/Industrial Lighting and HVAC Measures, prepared by GDS Associates, Inc. for the New England State Program Working Group for use as an Energy Efficiency Measures/Programs Reference Document for the ISO Forward Capacity Market (FCM), 2007

- Precision Measurement Equipment Laboratories glossary of terms: www.pmel.org
- Renewable Energy Data Book glossary, U.S. DOE Energy Efficiency and Renewable Energy, September 2008
- Research Methods Knowledge Base at: www.socialresearchmethods.net. Developed by William M.K. Trochim, Professor in the Department of Policy Analysis and Management at Cornell University.
- The Greenhouse Gas Protocol: Guidelines for Quantifying GHG Reductions from Grid Connected Electricity Projects, World Resources Institute
- "The Technical, Economic and Achievable Potential for Energy-Efficiency in the U.S. - A Meta-Analysis of Recent Studies" from the Proceedings of the 2004 ACEEE Summer Study on Energy Efficiency in Buildings, by Steven Nadel, Anna Shipley and R. Neal Elliott, American Council for an Energy-Efficient Economy
- The Weather Channel glossary at: www.climate.weather.com/science/glossary
- Understanding Cost-Effectiveness of Energy Efficiency Programs: Best Practices, Technical Methods, and Emerging Issues for Policy-Makers, A Resource Of The National Action Plan For Energy Efficiency, November 2008
- 2007 Energy Efficiency Annual Report, Massachusetts Electric Company, August 2008
- 2007 Energy Efficiency Annual Report, NSTAR, August 2008

Other websites referred to include:

- www.ahla.com/green.aspx?id=25018
- www.energy.eu
- www.energyvortex.com/frameset.cfm?source=/energydictionary/energyvortex.htm
- www.engineeringtoolbox.com
- http://neuralenergy.blogspot.com/2009/06/dlc.html
- www.nfpa.org/assets/files//PDF/necdigest/CodeIssues072704.pdf
- www.pge.com/mybusiness/energysavingsrebates/demandresponse/baseinterruptible/
- www.statsoft.com/textbook/www.whitehouse.gov/omb/circulars_a094/

**ABC**

**Accuracy** - A concept that refers to the relationship between the true value of a variable and an estimate of the value. The term can also be used in reference to a model, a set of measured data, or to describe a measuring instrument's capability.

**Achievable Potential** - The amount of energy or demand savings within a defined geographical area or population that can be achieved in response to specific energy efficiency program designs, delivery approaches, program funding, and measure incentive levels. Achievable potential studies are sometimes referred to as Market Potential studies. Also see Potential Studies.

**Additionality** - A criterion that says that avoided emissions should be recognized only for project activities or programs that would not have "happened anyway" in relation to a baseline estimate of project activity and associated emissions reductions.

**Adjusted Gross Savings** - The change in energy consumption and/or demand that results directly from program-related actions taken by participants in an efficiency program, regardless of why they participated. It adjusts for such factors as data errors, installation and persistence rates, and hours of use, but does not adjust for free ridership or spillover. Can be calculated as an annual or lifetime value.

**Advanced Meter** - Also called Smart Meter. An electric meter that is capable of measuring and recording usage data in time differentiated registers, allowing electric consumers, suppliers, and service providers to participate in all types of price-based demand response programs and that provides the additional capabilities to address the electric service (e.g. energy use diagnostics, submetering, detection and documentation of power quality). Also see Metering.

**Algorithm** - Equation or set of equations, more broadly a method, used to calculate a number. In this case, it is an estimate of energy use or energy savings tied to operation of a piece of equipment or a system of interacting pieces of equipment. An algorithm may include certain standard numerical assumptions about some relevant quantities, leaving the user to supply other data to calculate the use or savings for the particular measure or equipment.

**Allowance** – See Emissions Allowance.

**Allowance Retirement** - Allowances that are surrendered by a regulated business, or another entity that has purchased them, to the regulatory authority and can no longer be traded or used to cover emissions allowances.

**Allowance Set-Asides** - A pool of emissions allowances reserved ("set-aside") from within the larger pool of allowances by the regulatory authority for granting to a business or other entity for specific purposes, such as: 1) rewarding early action, 2) incentives for energy efficiency and water efficiency, and 3) recognizing voluntary emissions reductions.

**American National Standards Institute (ANSI)** - ANSI is the national organization that coordinates development and maintenance of consensus standards and sets rules for fairness in their development for the United States' federated national standards system. The ANSI federation consists of nine hundred companies, large and small, and some two hundred trade, technical, professional, labor, and consumer organizations. ANSI also represents the United States in developing international standards.

**American Recovery and Reinvestment Act (ARRA)** - An Act of Congress adopted in 2009, as a direct response to the economic crisis. The Act had three immediate goals: 1) to create new jobs and save existing ones, 2) to spur economic activity and invest in long-term growth, and 3) to foster higher levels of accountability and transparency in government spending. The Recovery Act intended to achieve those goals by: 1) providing tax cuts and benefits for millions of working families and businesses, 2) increasing federal funds for education, health care, and entitlement programs (such as extending unemployment benefits), 3) making funds available for federal contracts, grants and loans, and 4) requiring recipients of Recovery funds to report quarterly on how they are using the money. Through several federal agencies grants and loans have been directed to states, municipalities, utilities, businesses, and non-profit organizations to focus on energy efficiency programs.

**Annual Demand Savings** - The maximum reduction in electric or gas demand in a given year within defined boundaries. The demand reduction is typically the result of the installation of higher efficiency equipment, controls, or behavioral change. The term can be applied at various levels, from individual projects to energy efficiency programs, to overall program portfolios.

**Annual Energy Savings** - The reduction in electricity usage (kWh) or in fossil fuel use in thermal unit(s) from the savings associated with an energy saving measure, project, or program in a given year.

**Annualized Energy Savings** - The reduction in electricity usage (kWh) or in fossil fuel use in thermal unit(s) from the savings associated with an energy saving measure, project, or program calculated based on a full year's installation and operation.

**Attribution** - Ascribing or establishing a causal relationship between action(s) taken by an entity and an outcome.

**Automated Meter Reading (AMR)** - AMR refers to the technology used for automating collection of water and energy (electricity or gas) consumption data. The AMR system gathers real-time data and transfers the information to a central database through networking technology. This can be used for real-time billing and consumption analysis. The primary benefit of this technology is more accurate and precise measurement of water, electricity or gas consumption. Also referred to as Automatic Meter Reading.

**Avoided Costs** - In the context of energy efficiency, these are the costs that are avoided by the implementation of an energy efficiency measure, program, or practice. Such costs are used in benefit cost analyses of energy efficiency measures and programs. Because efficiency activity reduces the need for electric generation, these costs include those associated with the cost of electric generation, transmission, distribution, and reliability. Typically, costs associated with avoided energy and capacity are calculated. Other costs avoided by the efficiency activity can also be included, among them the value of avoided emissions not already embedded in the generation cost, impact of the demand reduction on the overall market price for electricity, avoided fuel or water, etc… For natural gas efficiency programs, avoided costs include components of the production, transportation, storage, and service that are variable to the amount of natural gas delivered to customers.

**Ballast** - A device required by electric-discharge light sources such as fluorescent or HID lamps to regulate voltage and current supplied to the lamp during start and throughout operation.

**Barrier** - Any factor that discourages or limits decisions or actions related to implementation of energy efficiency projects or strategies.

**Baseline** - Conditions, including energy consumption and related emissions, that would have occurred without implementation of the subject measure or project. Baseline conditions are sometimes referred to as "business-as-usual" conditions and are used to calculate program-related efficiency or emissions savings. Baselines can be defined as either project-specific baselines or performance standard baselines (e.g. building codes).

**Baseline Data** - The baseline conditions of the facilities, market segment, generating equipment, or other area of focus of the subject project or program.

**Baseline Efficiency** - A subset of "baseline" referring to the energy usage of the baseline equipment, process, or standard that is being replaced by a more efficient approach to providing the same energy service. It is used to determine the energy savings obtained by the more efficient approach.

**Baseline Period** - The period of time selected as representative of the operations of the area of focus before the energy efficiency activity takes place.

**Benchmarking** - A process that compares the energy, emissions, and other resource-related conditions of a facility against industry best practices.

**Benefits - Energy** - See Avoided Cost and Co-Benefits.

**Benefits - Non-Energy** - See Non-Energy Benefits.

**Benefit-Cost Ratio** - The mathematical relationship between the benefits and costs associated with the implementation of energy efficiency measures, programs, practices, or emissions reductions. The benefits and costs are typically expressed in dollars. Also see Benefit Cost Test and Avoided Cost.

**Benefit Cost Test** - Also called Cost-Effectiveness Test. The methodology used to compare the benefits of an investment with the costs. Five key benefit-cost tests have, with minor updates, been used for over 20 years as the principal approaches for energy efficiency program evaluation. These five cost-effectiveness tests are the participant cost test (PCT), the utility/program administrator cost test (PACT), the ratepayer impact measure test (RIM), the total resource cost test (TRC), and the societal cost test (SCT).

**Bias** - The extent to which a measurement or a sampling or analytic method systematically underestimates or overestimates a value. Some examples of types of bias include engineering model bias; meter bias; sensor placement bias; inadequate or inappropriate estimate of what would have happened absent a program or measure installation; a sample that is unrepresentative of a population; and selection of other variables in an analysis that are too correlated with the savings variable (or each other) in explaining the dependent variable (such as consumption).

**Billing Analysis** - An analytic methodology used to estimate program savings. It compares billing data from program participants over a period of time before the energy efficient measures are installed at customer sites to billing data for a comparable period of time afterward. Commonly, monthly billing data are gathered for the year before and the year after installation. Also common is to compare the before-after difference for the group of participating customers to the corresponding before-after differences in bills for a comparable group of non-participants.

**Billing Data** - Data obtained from the electric or gas meter that are used to bill the customer for energy used in a particular billing period. In an evaluation context, billing data also refers to the

customer billing records over time that are used to conduct analyses of energy use before and after implementation of energy efficiency measures.

**Billion Cubic Feet (BCF)** - Gas measurement approximately equal to one trillion Btus.

**Breakage** - A factor representing the ratio between the number of rebate or mail-in coupons taken by participants who purchase or install an energy efficiency measure and the number of such coupons actually redeemed for refund.

**British Thermal Unit (Btu)** - The standard measure of heat energy. It takes one Btu to raise the temperature of one pound of water one degree Fahrenheit from 58.5 to 59.5 degrees Fahrenheit under standard pressure of 30 inches of mercury at or near its point of maximum density. For example, it takes about 1,000 Btus to make a pot of coffee.

**Building Commissioning** - Building commissioning, often abbreviated as "Cx," is a systematic quality assurance process associated with new construction that spans the entire design and construction process, helping ensure that a new building's performance meets owner expectations. Also see Retro-Commissioning.

**Building Energy Simulation Model** - Computer models based on physical engineering principals and/or standards used to estimate energy usage and/or savings. These models usually incorporate site-specific data on customers and physical systems such as square footage, weather, surface orientations, elevations, space volumes, construction materials, equipment use, lighting, and building occupancy. Building simulation models can usually account for interactive effects between end uses (e.g. lighting and HVAC), part-load efficiencies, and changes in external and internal heat gains/losses. Examples of building simulation models include DOE-2, EnergyPlus, and Carrier HAP.

**Building Vintage** - The year in which a building was constructed. As more generally applied to energy efficiency, the classification of a building with other buildings of a similar age in order to apply generalized age-related characteristics to all buildings within that age group.

**Calibration** - In economic, planning, or engineering modeling, the process of adjusting the components of the model to reflect reality as best as possible, in order to prepare for the model's use in future applications. The term also applies to the process whereby metering and measurement equipment is periodically adjusted to maintain industry measurement standards.

**California Demand-Side Management Measurement Advisory Council (CADMAC)** - CADMAC is the predecessor to CALMAC. It covers market assessment and evaluation on programs conducted under the "Protocols And Procedures For The Verification Of Costs, Benefits, And Shareholder Earnings From Demand-Side Management Programs" (Protocols). Programs evaluated under the Protocols generally were fielded during 1994 through 1997, but evaluations of those programs (and carryover applications) continued to occur through 2007. See www.calmac.org/cadmac.asp.

**California Measurement Advisory Council (CALMAC)** - An informal committee made up of representatives of the California utilities, state agencies, and other interested parties. CALMAC provides a forum for the development, implementation, presentation, discussion, and review of regional and statewide market assessment and evaluation studies for California energy efficiency programs conducted by member organizations. See www.calmac.org.

**Cap & Trade** - A market-based policy tool for protecting human health and the environment. A cap and trade program first sets an aggressive cap, or maximum limit, on emissions. Sources covered by the

program then receive authorizations to emit in the form of emissions allowances with the total amount of allowances limited by the cap. Each source can design its own compliance strategy to meet the overall reduction requirement including sale or purchase of allowances, installation of pollution controls, implementation of efficiency measures, among other options. Individual control requirements are not specified under a cap and trade program but, each emissions source must surrender allowances equal to its actual emissions in order to comply. Sources must also completely and accurately measure and report all emissions in a timely manner to guarantee that the overall cap is achieved. A well-designed program provides: strict limits on emissions yielding dramatic pollution reductions; high levels of compliance, transparency, and complete accountability; regulatory certainty and flexibility for sources; incentives for early pollution reduction and innovations in control technologies; compatibility with state and local programs; significant, widespread, and guaranteed human health and environmental benefits; and efficient use of government resources.

**Capacity** - The amount of electric power for which a generating unit, generating station, or other electrical apparatus is rated either by the user or manufacturer. The term is also used for the total volume of natural gas that can flow through a pipeline over a given amount of time, considering such factors as compression and pipeline size.

**Capacity Factor** - A percentage that indicates how much of a power plant's capacity is used over a twelve month period. The term is also used for the total volume of natural gas that can flow through a pipeline over a given amount of time, considering such factors as compression and pipeline size.

**Carbon** - An abundant chemical element on Earth. As the basis for all living things, carbon is present in particular abundance in a solid and a liquid form in trees, other plants, and soils, and in various forms in all fossil fuels, including coal (solid), petroleum (liquid), and methane (gas). Carbon bonds with oxygen in the atmosphere to form carbon dioxide.

**Carbon Dioxide Equivalent (eCO2)** - The quantity of a given greenhouse gas multiplied by its global warming potential (GWP). GWP is a measure of the radiative efficiency (heat-absorbing ability) of a particular gas relative to that of carbon dioxide (CO2) after taking into account the decay rate of each gas (the amount removed from the atmosphere over a given number of years) relative to that of CO2.

**Central Air Conditioner (CAC)** - An air conditioning system that provides cooling to an entire building through the use of a central cooling system that delivers the cooling to rooms through ducts.

**Citygate** - A location at which custody of natural gas passes from a gas pipeline company to a local distribution company.

**Co-benefits** - The impacts of an energy efficiency program other than the direct purpose for which it was designed (i.e. energy and demand savings). Examples include savings in other resources (gas, fossil fuel, and water), emissions reductions, and hazardous waste reduction. Also see Non-electric benefits and Non-energy benefits.

**Coefficient of Variation (CV)** - The mean (average) of a sample, divided by its standard error.

**Coincident Demand** - The demand of a device, circuit, or building that occurs at the same time as the peak demand of a utility's system load or at the same time as some other peak of interest, such as building or facility peak demand. The peak of interest should be specified (e.g. "demand coincident with the utility system peak"). Examples of peak demand include:

- Demand coincident with utility system peak load

- Demand coincident with ISO/RTO summer or winter peak, or according to performance hours defined by wholesale capacity markets
- Demand coincident with high electricity demand days

**Coincidence Factor** - The ratio of the average hourly demand during a specified period of time of a group of electrical appliances or consumers to the sum of their individual maximum demands (or connected loads) within the same period. Can be expressed as a numerical value or as a percentage,

**Coincident Peak** - When two or more systems or subsystems place demand on another system at the same time. The term is used to describe energy demand at any time when these parties' needs coincide with each other. Often associated with the ISO region's system peak.

**Commissioning** - A process for achieving, verifying and documenting the performance of equipment to meet the operational needs of a facility within the capabilities of the design, and to meet the design documentation and the owner's functional criteria, including preparation of operator personnel. Also see Building Commissioning.

**Comparison Group** - Also called Control Group. A selected group of individuals or organizations that have not had the opportunity to receive program benefits and that has been selected because its characteristics match those of another group of individuals or organizations that have had the opportunity to receive program benefits. The characteristics used to match the two groups should be associated with the action or behavior that the evaluation is trying to examine. The comparison group is used to isolate program effects from other factors that affect energy use.

**Computer Simulation of System Performance** - The use of computer models to predict the energy use of systems (e.g. DOE-2 for buildings). These models can be calibrated with actual performance data.

**Confidence** - An indication of how close, expressed as a probability, the true value of the quantity in question is within a specified distance to the estimate of the value. Confidence is the likelihood that the evaluation has captured the true value of a variable within a certain estimated range. Also see Precision.

**Control Group** - See Comparison Group.

**Cooling Degree Days** - The cumulative number of degrees in a month or year by which the mean temperature is above 18.3°C/65°F. Also see Degree Days.

**Cooling Load** - The rate at which heat must be extracted from a space in order to maintain the desired temperature within the space. Measured in tons, the Cooling Load is the amount of heat removed by an air conditioning system that would melt 1 ton of ice in 24 hours. 1 refrigeration ton = 12,000 Btu/hr.

**Correlation** - For a set of observations, such as for participants in an energy efficiency program, the extent to which high values for one variable are associated with high values of another variable for the same participant. For example, facility size and energy consumption usually have a high positive correlation.

**Cost-Benefit and Cost-Effectiveness Analysis** - Analysis that compares the benefits associated with a program or measure's outputs or outcomes with the costs (resources expended) to produce them. Cost-benefit analysis is typically conducted to determine the relationship of the program's benefits and costs, as a ratio, once the decision has been made to implement or design the program; programs with

benefit-cost ratios greater than 1.0 provide overall ratepayer benefits. Cost-effectiveness analysis is generally undertaken to compare one program or program approach to other approaches, or options for the use of funds, to determine the relationship among the options. The terms are often interchanged in evaluation discussions.

**Cost-Effectiveness** - An indicator of the relative performance or economic attractiveness of any energy efficiency investment or practice. In the energy efficiency field, the present value of the estimated benefits produced by an energy efficiency program is compared to the estimated total costs to determine if the proposed investment or measure is desirable from a variety of perspectives (e.g. whether the estimated benefits exceed the estimated costs from a societal perspective).

**Cost-Effectiveness Test** - See Benefit-Cost Test.

**Criteria Pollutant** - Any one of the six common air pollutants regulated by the EPA under the National Ambient Air Quality Standards (NAAQS). The pollutants include particle pollution (often referred to as particulate matter), ground-level ozone, carbon monoxide, sulfur oxides, nitrogen oxides, and lead.

**Cross-Sectional Data** - Observations collected on subjects or events during a single period of time.

**Cubic Feet per Minute (CFM)** - This measurement indicates how many cubic feet of air pass by a stationary point in one minute.

**Cubic Foot** - The most common unit of measurement of natural gas volume. It equals the amount of gas required to fill a volume of one cubic foot under stated conditions of temperature, pressure and water vapor. One cubic foot of natural gas has an energy content of approximately 1,000 s. One hundred (100) cubic feet equals one therm (100 ft3 = 1 therm).

**Cumulative Energy Savings** - The summation of energy savings (MWh, therms) from multiple projects or programs over a specified number of years, taking into account the time of measure installation in the first year, annual energy savings for subsequent years, and the average life of the installed measures.

**Custom Program** - An energy efficiency program intended to provide efficiency solutions to unique situations not amenable to common or prescriptive solutions. Each custom project is examined for its individual characteristics, savings opportunities, efficiency solutions, and often, customer incentives.

## DEF

**Database for Energy-Efficient Resources (DEER)** - A California database designed to provide well-documented estimates of energy and peak demand savings values, measure costs, and effective useful life. See www.deeresources.com.

**Deemed Savings** - An estimate of energy or demand savings for a single unit of an installed energy efficiency measure that (a) has been developed from data sources and analytical methods that are widely considered acceptable for the measure and purpose, and (b) is applicable to the situation being evaluated. Individual parameters or calculation methods can also be deemed.

**Defensibility** - The ability of evaluation results to stand up to scientific scrutiny. Defensibility is based on assessments by experts of the evaluation's validity, reliability, and accuracy.

**Degree Days** - For any individual day, degree days indicate how far that day's average temperature departed from 65°F. Heating Degree Days measure heating energy demand. It is a measure to indicate how far the average temperature fell below 65°F. Similarly, Cooling Degree Days, which measure cooling energy demand, indicate how far the temperature averaged above 65°F. In both cases, smaller values represent less fuel demand, but values below 0 are set equal to 0, because energy demand cannot be negative. Furthermore, since energy demand is cumulative, degree day totals for periods exceeding 1 day are simply the sum of each individual day's degree day total. For example, if a location has a mean temperature of 60°F on day 1 and 80°F on day 2, there would be 5 HDDs for day 1 (65 minus 60) and 0 for day 2 (65 minus 80, set to 0). For the day 1 + day 2 period, the HDD total would be 5 + 0 = 5. In contrast, there would be 0 CDDs for day 1 (60 minus 65, reset to 0), 15 CDDs for day 2 (80 minus 65), resulting in a 2-day CDD total of 0 + 15 = 15.

**Delta Watts** - The difference in the wattage between existing or baseline equipment and its more efficient replacement or installation at a specific time, expressed in watts or kilowatts.

**Demand** - The time rate of energy flow. Demand usually refers to the amount of electric energy used by a customer or piece of equipment at a specific time, expressed in kilowatts (kW - equals kWh/h) but can also refer to natural gas usage at a point in time, usually as Btu/hr, kBtu/hr, therms/day or ccf/day.

**Demand Resources** - Resources on the customer side of the electric meter which reduce the demand on the power grid. These include energy efficient equipment, customer control of equipment (such as reducing or shutting down equipment), and generating electricity on-site.

**Demand Response (DR)** - The reduction of customer energy usage at times of peak usage in order to help system reliability, to reflect market conditions and pricing, or to support infrastructure optimization or deferral of additional infrastructure. Demand response programs may include contractually obligated or voluntary curtailment, direct load control, and pricing strategies.

**Demand Savings** - The reduction in electric or gas demand from the baseline to the demand associated with the higher efficiency equipment or installation. This term is usually applied to billing demand to calculate cost savings or to peak demand for equipment sizing purposes.

**Demand Side Management (DSM)** - Strategies used to manage energy demand including energy efficiency, load management, fuel substitution and load building.

**Dependent Variable** - Term used in regression analysis or other analyses seeking to explain the relationship among variables to quantify the variable that is being explained by the other (independent) variables.

**Direct Emissions** - Emissions from sources within an entity's organizational boundaries that are owned or controlled by the entity, including stationary combustion emissions, mobile combustion emissions, process emissions, and fugitive emissions. Direct emissions are the source of avoided emissions for thermal energy efficiency measures (e.g. avoided emissions from burning natural gas in a water heater).

**Direct Install Program** - An energy efficiency program design strategy involving the direct installation of measures in customer premises by a contractor sponsored by the program. Such programs generally involve one-for-one replacement of existing equipment with more efficient equipment and may include a customer rebate. Financing is sometimes part of the program offering, to facilitate the customer's contribution to the cost of the project; some programs also buy down the interest rate.

**Direct Load Control** - A program operated by an electric utility or system dispatch center that enables it to remotely cycle or temporarily shut down a customer's electrical equipment. Direct load control is typically used to limit customer demand at the time of system peak in order to manage system reliability or generation costs. Customers typically receive an incentive payment or bill credit for participation in the program.

**Discount Rate (Nominal and Real)** - An interest rate applied to a stream of future costs and/or monetized benefits to convert those values to a common period, typically the current or near-term year, to reflect the time value of money. It is used in benefit-cost analysis to determine the economic merits of proceeding with the proposed project, and in cost-effectiveness analysis to compare the value of projects. The discount rate for any analysis is either a nominal discount rate or a real discount rate. A **Nominal Discount Rate** is used in analytic situations when the values are in then-current or nominal dollars (reflecting anticipated inflation rates). A **Real Discount Rate** is used when the values are in constant dollars. A real discount rate can be approximated by subtracting expected inflation from a nominal discount rate.

**Diversity** - That characteristic of a variety of electric loads whereby individual maximum demands usually occur at different times.

**Diversity Factor** - The ratio of the sum of the demands of a group of users to their coincident maximum demand during a specified period of time (e.g., summer or winter).

**Economic Potential** - The amount of savings opportunity that can be acquired cost-effectively. Also see Achievable Potential, Technical Potential, and Potential Studies.

**Effective Useful Life (EUL)** - An estimate of the median number of years that efficiency measures installed under a program are still in place and operable.

**Efficacy, Lighting** - The ratio of light from a lamp to the electrical power consumed, including ballast losses, expressed as lumens per watt.

**Emissions Allowance** – An authorization by a regulatory agency (typically an environmental agency) for a regulated business or industry to emit up to a specified amount of an air pollutant (typically one ton) during a specified time, under a cap and trade program. An allowance will have a vintage year and may be used for compliance in that year or any later year. Allowances are generally used in regulatory programs where a pollutant is capped and, serving as a common currency, may be traded among the entities regulated by that the program. Also called "Allowance."

**Emissions Factor** - A representative value that relates the quantity of a pollutant released to the atmosphere with an activity associated with the release of that pollutant. These factors are usually expressed as the weight of pollutant divided by a unit weight, volume, distance, or duration of the activity emitting the pollutant (e.g., pounds of a pollutant per million Btu's heat input or pounds of emissions per MWh of electricity produced). Such factors facilitate estimation of emissions from various sources of air pollution. These factors are based on available data of acceptable quality, and are generally assumed to be representative of averages for that pollutant.

**End-Use** - General categories of energy efficiency measures, usually including lighting, HVAC, motors, and refrigeration.

**End-Use Metering** - The direct measuring of energy consumption or demand by specific end-use equipment, typically as part of load research studies or to measure the impacts of DSM programs.

**Energy** - The quantity characterizing the ability of a physical system to produce external activity. Energy exists in different forms transformable one into the other; examples are mechanical, electromagnetic, chemical, thermal, and nuclear energy.

**Energy Adjustment Factor** - Applied to gross gas and electric savings, a factor made up of one or more evaluation impact parameters applied to gross savings in the calculation of net savings.

**Energy Audit** - A review of a customer's energy usage, often including recommendations to alter the customer's demand or reduce energy usage. An audit typically involves a visit to the customer's facility.

**Energy Conservation** - Term used to reflect doing with less of a service in order to save energy. The term is often unintentionally used instead of energy efficiency.

**Energy Efficiency** - The use of less energy to provide the same or an improved level of service to the energy consumer; or the use of less energy to perform the same function.

**Energy Efficiency Measure** - An installed piece of equipment or system, or modification of equipment, systems, or operations on end-use customer facilities that reduces the total amount of electrical or gas energy and capacity that would otherwise have been needed to deliver an equivalent or improved level of end-use service.

**Energy Efficiency Ratio (EER)** - The ratio of cooling capacity of an air conditioning unit in Btus per hour to the total electrical input in watts under specified test conditions.

**Energy Management System (EMS)** - A control system (often computerized) designed to regulate the energy consumption of a building by controlling the operation of energy consuming systems, such as the heating, ventilation and air conditioning (HVAC), lighting, and water heating systems.

**Energy Performance Contract** - A contract between two or more parties where payment is based on achieving specified results, which are typically guaranteed reductions in energy consumption and/or operating costs. Payments are often based on the cost savings associated with the anticipated results.

**Energy Savings** - Reduction in electricity use (kWh) or in fossil fuel use in thermal unit(s).

**Energy Services Company (ESCO)** - A firm that provides a range of energy efficiency and financing services and guarantees that specified results will be achieved under an energy performance contract.

**Energy Star®** - A joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy designed to reduce energy use and the impact on the environment. The Energy Star label is awarded to products that meet applicable energy efficiency guidelines and to homes and commercial buildings that meet specified energy efficiency standards. The program provides a range of energy management tools, primarily computer-based, for businesses.

**Engineering Methods** - The use of standard formulas or models based on those formulas, typically accepted by ASHRAE, as the basis for calculating energy use.

**Engineering Model** - Engineering equations used to calculate energy usage and savings. These models are usually based on a quantitative description of physical processes that transform delivered energy

into useful work such as heat, lighting, or motor drive. In practice, these models may be reduced to simple equations in spreadsheets that calculate energy usage or savings as a function of measurable attributes of customers, facilities, or equipment (e.g. lighting use = watts × hours of use).

**Equipment Life** - The number of years that a measure is installed and operates until failure.

**Evaluation** - The conduct of any of a wide range of assessment studies and other activities aimed at determining the effects of a program, understanding or documenting program performance, program or program-related markets and market operations, program-induced changes in energy efficiency markets, levels of demand or energy savings, or program cost-effectiveness. Market assessment, monitoring and evaluation (M&E), and measurement and verification (M&V) are aspects of evaluation.

**Ex Ante Savings Estimate** - Forecasted savings used for program and portfolio planning purposes.

**Ex Post Savings Estimate** - Savings estimate reported by an evaluator after the energy impact evaluation has been completed.

**Footcandle** - A unit of illuminance on a surface that is one foot from a uniform point source of light of one candle and is equal to one lumen per square foot.

**Free Driver** - A program non-participant who has adopted a particular efficiency measure or practice as a result of the evaluated program. Also see Spillover.

**Free Rider** - A program participant who would have implemented the program measure or practice in the absence of the program. Free riders can be: 1) total, in which the participant's activity would have completely replicated the program measure; 2) partial, in which the participant's activity would have partially replicated the program measure; or 3) deferred, in which the participant's activity would have completely replicated the program measure, but at a future time than the program's timeframe.

**Free Ridership Rate** - The percent of savings attributable to free riders.

## GHI

**Generator Level Savings** - Savings from energy efficiency programs that are adjusted upward from the meter or premise level to include transmission and distribution (T&D) line losses and any adjustment for avoided grid reserve margins. Generator level savings are also known as wholesale level savings.

**Greenhouse Gases** - Gases that trap heat in the atmosphere are often called greenhouse gases. The primary greenhouse gases are water vapor, carbon dioxide, methane, nitrous oxide, ozone and fluorinated gases. Some greenhouse gases, such as carbon dioxide, occur naturally and are emitted to the atmosphere through natural processes and human activities. Other greenhouse gases, such as fluorinated gases, are created and emitted solely through human activities. The principal greenhouse gases that enter the atmosphere because of human activities are carbon dioxide, methane, nitrous oxide, and fluorinated gases.

**Gross kW -** Expected demand reduction based on a comparison of standard or replaced equipment, and equipment installed through an energy efficiency program.

**Gross kWh -** Expected kWh reduction based on a comparison of standard or replaced equipment, and equipment installed through an energy efficiency program.

**Gross Savings** - The change in energy consumption and/or demand that results directly from program-related actions taken by participants in an efficiency program, regardless of why they participated and unadjusted by any factors.

**Heating Degree Days** - The cumulative number of degrees in a month or year by which the mean temperature falls below 18.3°C/65°F. Also see Degree Days.

**Heating Seasonal Performance Factor (HSPF)** - A measure of heat pump's energy efficiency over one heating season. It represents the total heating output of a heat pump (including supplementary electric heat) during the normal heating season (in Btus) compared to the total electricity consumed (in watt-hours) during the same period. The higher the rating, the more efficient the heat pump.

**Heat Pump** - A heating and cooling unit that draws heat from an outdoor source and transports it to an indoor space for heating purposes; or inversely, for cooling purposes. There are various types of heat pumps defined by the content or location of the heat transfer material: air source, water source, and ground source.

**High Electricity Demand Days (HEDD) -** Days with high electricity demand, resulting in the infrequent operation of older electric generating units (EGUs) to meet that peak demand. While these units operate infrequently, they do so with a disproportionately higher NOx emissions impact, when compared with newer units with state of the art pollution controls, resulting in increased ground level ozone concentrations.

**Home Energy Rating System** (**HERS**) - Associated with Energy Star, HERS is an indexing system used in residential new construction to rate the pre- and post- construction of new homes to highlight and indicate the degree of energy efficiency embedded in the construction. The HERS Index is a scoring system established by the Residential Energy Services Network (RESNET) in which a home built to the specifications of the HERS Reference Home (based on the 2006 International Energy Conservation Code) scores a HERS Index of 100, while a net zero energy home scores a HERS Index of 0. The lower a home's HERS Index, the more energy efficient it is in comparison to the HERS Reference Home. Each 1-point decrease in the HERS Index corresponds to a 1% reduction in energy consumption compared to the HERS Reference Home.

**Horsepower (hp)** - A unit for measuring the rate of doing work. One horsepower equals about three-fourths of a kilowatt (745.7 watts).

**Hours of Use (HOU)** - The average number of hours a measure is in use during a specified time period, typically a day or a year.

**Impact Evaluation** - An evaluation of the program-specific directly induced quantitative changes (e.g. kWh, kW, and therms) attributable to an energy efficiency program.

**Incentive** - A financial strategy intended to encourage a change in behavior related to energy use. Incentives can take various forms. Customer incentives are commonly used in efficiency programs as rebates for individual measures or as buy-downs in more custom oriented projects. Performance or shareholder incentives are monies that are established in a planning period to encourage program administrators to attain specified levels of savings during the program year.

**Incremental Annual Savings** - The difference between the amount of energy savings acquired or planned to be acquired in a project, program, or portfolio in one year and the amount of energy savings acquired or planned to be acquired by that project, program, or portfolio in the prior year.

**Incremental Cost** - The difference between the cost of existing or baseline equipment or service and the cost of alternative energy efficient equipment or service.

**Independent Variables** - The explanatory factors in a regression model that are assumed to affect the variable under study (e.g. energy use).

**Indirect Emissions** - Emissions that are a consequence of activities that take place within the organizational boundaries of an entity, but that occur at sources owned or controlled by another entity. For example, emissions of electricity used by a manufacturing entity that occur at a power plant represent the manufacturer's indirect emissions. Indirect emissions are the source of avoided emissions for electric energy efficiency measures.

**In-Service Rate** - The percentage of measures incented by an efficiency program that are installed and operating. The in-service rate is calculated by dividing the number of measures installed and operating by the number of measures incented by an efficiency program in a defined period of time.

**Inspections** - Site visits to facilities treated under an efficiency program that document the existence, characteristics, and operation of baseline or reporting period equipment and systems as well as factors that affect energy use.

**Installation Rate** - The percentage of measures that are incented by an efficiency program that are actually installed in a defined period of time. The installation rate is calculated by dividing the number of measures installed by the number of measures incented by an efficiency program in a defined period of time.

**Interactive Effects** - The influence of one technology's application on the energy required to operate another application. An example is the reduced heat in a facility as a result of replacing incandescent lights with CFLs, and the resulting need to increase space heating from another source, usually oil or gas fired.

**Interruptible Program** - A program offered by a utility through its electric rates, in which customers are charged a lower rate for demand use, or receive incentive payments, in exchange for commitments to reduce loads to or below certain levels on short notice for a prescribed number of times in a year. Interruptible programs help to reduce consumption during periods of high demand on the electric grid and are intended to support system reliability.

**JKL**

**Kilowatt (kW)** - A measure of the rate of power used during a preset time period (e.g. minutes, hours, days or months) equal to 1,000 watts. In the abbreviation, the W is capitalized because the unit was named to honor one of Scotland's great inventors, James Watt, who coined the term "horsepower."

**Kilowatt-Hour (kWh)** - A common unit of electric energy; one kilowatt-hour is numerically equal to 1,000 watts used for one hour.

**Latent Cooling Load** - The load created by moisture in the air, including from outside air infiltration and that from indoor sources such as occupants, plants, cooking, and showering.

**Leakage** - In its broadest terms, leakage is the concept that an activity or outcome expected to occur and remain within a defined boundary flows outside the boundary, leading to unintended results.

In efficiency programs, an example of leakage is when a measure is incented by a program (with the associated costs and assumed savings) but is installed outside of the program's jurisdiction.

In the context of air regulation, such as a cap-and-trade program (e.g. RGGI), leakage would be reflected by a shift of electricity generation from sources subject to the cap-and-trade program to higher emitting sources not subject to the program, resulting in an overall net increase in carbon dioxide (CO2) emissions.

**Levelized Cost** - The result of a computational approach used to compare the cost of different projects or technologies. The stream of each project's net costs is discounted to a single year using a discount rate (creating a net present value) and divided by the project's expected lifetime output (MWh or therms).

**Lifetime Cost per kWh or Therm** - The cost associated with a piece of equipment (supply-side or demand-side), efficiency program or total portfolio, over its expected life, in relation to (divided by) the electricity or gas that it produces or saves over its lifetime. The annual costs are usually discounted back to a single year using an appropriate discount rate.

**Lifetime Energy Savings** - The electric or gas energy savings over the lifetime of an installed measure(s), calculated by multiplying the annual electric or gas usage reduction associated with a measure(s) by the expected lifetime of that measure(s).

**Lifetime kW** - The expected demand savings over the lifetime of an installed measure, calculated by multiplying the annual peak kW reduction associated with a measure by the expected lifetime of that measure. It is expressed in units of kW-years.

**Lifetime MWh** - The expected electrical energy savings over the lifetime of an installed measure, calculated by multiplying the annual MWh reduction associated with a measure by the expected lifetime of that measure.

**Lifetime Therms** - The expected gas energy savings over the lifetime of an installed measure, calculated by multiplying the annual reduction in therms associated with a measure by the expected lifetime of that measure.

**Light Power Density (LPD)** - Sometimes referred to as power density. A measurement of the ratio of light output in an area and the electric power used to produce that light. LPD is determined by dividing the total light output by the total wattage consumed and is measured in lumens per watt.

**Load Factor** - A percentage indicating the difference between the amount of electricity or natural gas a consumer used during a given time span and the amount that would have been used if the usage had stayed at the consumer's highest demand level during the whole time. The term also is used to mean the percentage of capacity of an energy facility, such as a power plant or gas pipeline that is utilized in a given period of time.

**Load Impact Regression Model (LIRM)** - A statistical model that produces estimates of the load impacts of energy conservation programs. Depending on the particular approach and the statistical issues encountered, it may involve more than one regression model and technique: (1) the load impact estimation model typically is a linear or non-linear regression model that uses billing data to estimate

gross and/or net load impacts. Data from program non-participants, in addition to participant data, can be used to derive net impacts directly or to affect other statistical control. (2) The participant/decision model typically is a discrete choice model used in conjunction with the load impact estimation model to isolate free ridership effects, generate self-selection correction terms, and/or net-to-gross ratios as needed. When this model is used to estimate a net-to-gross ratio, the resulting estimate is multiplied by an estimate of gross load impact to yield an estimate of net load impact.

**Load Management** - Steps taken to reduce power demand at peak load times or to shift some of it to off-peak times. Load management may coincide with peak hours, peak days or peak seasons. Load management may be pursued by persuading consumers to modify behavior or by using equipment that regulates some electric consumption. This may lead to complete elimination of electric use during the period of interest (load shedding) and/or to an increase in electric demand in the off-peak hours as a result of shifting electric usage to that period (load shifting).

**Load Shapes** - Representations such as graphs, tables, and databases that show the time-of-use pattern of customer or equipment energy use. These are typically shown over a 24 hour or whole year (8760 hours) period.

**Logic Model** - The graphical representation of a program theory showing the connection among activities, their outputs, and subsequent short-term, intermediate, and long-term outcomes. Often the logic model is displayed with these elements in boxes and the causal flow is shown by arrows from one to the others in the program logic. It can also be displayed as a table with the linear relationship presented by the rows in the table.

**Lost Opportunity Program** - A program that captures energy efficiency opportunities at the time of a naturally-occurring market event, such as when a customer constructs, expands, renovates, or remodels a home or a building or makes an initial purchase of equipment, or replaces failed equipment.

**Lumen** - A measure of the amount of light available from a light source equivalent to the light emitted by one candle.

**Lumens/Watt** - A measure of the efficacy of a light fixture; the number of lumens output per watt of power consumed.

**Luminaire** - A complete lighting unit consisting of a lamp or lamps together with the parts designed to distribute the light, to position and protect the lamps and to connect the lamps to the power supply.

## MNO

**Market Assessment** - An analysis that provides an assessment of how and how well a specific market or market segment is functioning with respect to the definition of well-functioning markets or with respect to other specific policy objectives. Generally includes a characterization or description of the specific market or market segments, including a description of the types and number of buyers and sellers in the market, the key actors that influence the market, the type and number of transactions that occur on an annual basis, and the extent to which market participants consider energy efficiency as an important part of these transactions. This analysis may also include an assessment of whether a market has been sufficiently transformed to justify a reduction or elimination of specific program interventions. Market assessment can be blended with strategic planning analysis to produce recommended program designs or budgets. One particular kind of market assessment effort is a

baseline study, or the characterization of a market before the commencement of a specific intervention in the market, for the purpose of guiding the intervention and/or assessing its effectiveness later.

**Market Effect Evaluation** - An evaluation of the change in the structure or functioning of a market, or the behavior of participants in a market, that results from one or more program efforts. Typically the resultant market or behavior change leads to an increase in the adoption of energy-efficient products, services, or practices.

**Market Penetration Rate** - A measure of the diffusion of a technology, product, or practice in a defined market, as represented by the percentage of annual sales for a product or practice, or as a percentage of the existing installed stock for a product or category of products, or as the percentage of existing installed stock that uses a practice.

**Market Saturation** - A percentage indicating the proportion of a specified end-user market that contains a particular product. An example would be the percentage of all households in a given geographical area that have a certain appliance. Studies conducted to obtain this information within the residential sector are referred to as residential appliance saturation studies (RASS).

**Market Theory** - A theoretical description of how a market operates relative to a specific program or set of programs designed to influence that market. Market theories typically include the identification of key market actors, information flows, and product flows through the market, relative to a program designed to change the way the market operates. Market theories are typically grounded upon the information provided from a market assessment but can also be based on other information. Market theories often describe how a program intervention can take advantage of the structure and function of a market to transform the market. Market theories can also describe the key barriers and benefits associated with a market and describe how a program can exploit the benefits and overcome the barriers.

**Market Transformation Program** - An energy program strategy that leads to a reduction in market barriers resulting from a market intervention, as evidenced by market effects that last after the intervention has been withdrawn, reduced, or changed.

**Mcf** - The quantity of natural gas occupying a volume of one thousand cubic feet at a temperature of sixty degrees Fahrenheit and at a pressure of fourteen and seventy-three hundredths pounds per square inch absolute. One Mcf has an energy value of one million Btus.

**Measure** – See Energy Efficiency Measure.

**Measure Life** - The length of time that a measure is expected to be functional. Measure Life is a function of equipment life and measure persistence (not savings persistence):
1) Equipment Life means the number of years that a measure is installed and will operate until failure;
2) Measure Persistence takes into account business turnover, early retirement of installed equipment, and other reasons measures might be removed or discontinued. Measure Life is sometimes referred to as expected useful life (EUL).

**Measurement and Verification (M&V)** - A subset of program impact evaluation that is associated with the documentation of energy savings at individual sites or projects using one or more methods that can involve measurements, engineering calculations, statistical analyses, and/or computer simulation modeling.

**Measurement Error** - In the evaluation context, a reflection of the extent to which the observations conducted in the study deviate from the true value of the variable being observed. The error can be random (equal around the mean) or systematic (indicating bias).

**Measure Persistence** - The duration of an energy consuming measure, taking into account business turnover, early retirement of installed equipment, and other reasons measures might be removed or discontinued.

**Measure Retention Study** - An assessment of (a) the length of time the measure(s) installed during the program year are maintained in operating condition; and (b) the extent to which there has been a significant reduction in the effectiveness of the measure(s).

**Megawatt (MW)** - A unit for measuring electricity equal to 1,000 kilowatts or one million watts. Utility companies, power generating plants and very large users of electricity are the primary users of the term.

**Megawatt-Hour (MWh) -** A unit of electric energy; a Megawatt-hour is numerically equal to 1,000,000 watts used for one hour.

**Metered Data** - Data collected over time through a meter for a specific end use, energy-using system (e.g. lighting and HVAC), or location (e.g. floors of a building or a whole premise). Metered data may be collected over a variety of time intervals. Usually refers to electricity or gas data.

**Metering** - The collection of energy consumption data over time through the use of meters. These meters may collect information about an end-use, a circuit, a piece of equipment, or a whole building (or facility). Short-term metering generally refers to data collection for no more than a few weeks. End-use metering refers specifically to separate data collection for one or more end-uses in a facility, such as lighting, air conditioning or refrigeration. Spot metering is an instantaneous measurement (rather than over time) to determine equipment size or power draw.

**Meter Level Savings** - Savings from energy efficiency programs that are at the customer meter or premise level.

**MMBtu** - A thermal unit of energy equal to 1,000,000 Btus, the equivalent of 1,000 cubic feet of gas having a heating content of 1,000 Btus per cubic foot.

**Monitoring** - The collection of relevant measurement data over time at a facility, including but not limited to energy consumption or emissions data (e.g. energy and water consumption, temperature, humidity, volume of emissions, hours of operation, etc.), for the purpose of savings analysis or to evaluate equipment or system performance.

**Naturally Occurring Efficiency** - The effects of energy-related decisions that would have been made in the absence of the program administrator programs by both program participants and non-participants.

**Negotiated Cooperative Promotion (NCP)** - An energy efficiency strategy in which wholesale (markdown/buy down) promotions are negotiated with manufacturers or distributors, with customer incentive levels generally lower than those for direct consumer coupon or rebate approaches. The goal is to reach a broader population at lower participant and overall program cost.

**Net Savings** - The total change in load that is attributable to an energy efficiency program. This change in load may include, implicitly or explicitly, the effects of free drivers, free riders, energy efficiency

standards, changes in the level of energy service, and other causes of changes in energy consumption or demand.

**Net-to-Gross Ratio (NTGR)** - A factor representing net program savings divided by gross program savings that is applied to gross program impacts to convert them into net program load impacts. The factor itself may be made up of a variety of factors that create differences between gross and net savings, commonly including free riders and spillover. Other adjustments may include a correction factor to account for errors within the project tracking data, breakage, and other factors that may be estimated which relate the gross savings to the net effect of the program. Can be applied separately to either energy or demand savings.

**Non-Energy Effects or Non-Energy Benefits (NEB)** - Also referred to as Non-Energy Impacts (NEI). The identifiable and sometimes quantifiable non-energy results associated with program implementation or participation. Some examples of NEBs include: reduced emissions and environmental benefits, productivity improvements, jobs created, reduced program administrator debt and disconnects, and higher comfort and convenience level of participant. The effects of an energy efficiency or resource acquisition program that are other than energy saved. The value is most often positive, but may also be negative (e.g. the cost of additional heating required to replace the residual heat no longer available from incandescent lamps that have been replaced by CFLs).

**Non-Participant** - Any consumer who was eligible but did not participate in the subject efficiency program in a given program year.

**Normalized Annual Consumption (NAC) Analysis** - A regression-based method that analyzes monthly energy consumption data and adjusts the consumption data to eliminate annual or other periodic fluctuations in an influencing factor (such as weather on heating and cooling needs) based on a historical normal or average pattern of the influencing factor.

**Off-Peak Energy kWh Savings** - The kWh reduction that occurs during a specified period of off-peak hours for energy savings (e.g. Monday-Friday, 9 pm to 8 am, and all day on weekends and holidays).

**Offset** - Program mechanism that allows an entity to neutralize the amount of its greenhouse gas contribution by orchestrating or funding projects offsite that should cause an equal reduction of emissions.

**On-Peak Demand – The average hourly demand during a defined peak period (e.g. summer or winter peak periods).**

**On-Peak Energy kWh Savings** - The kWh reduction that occurs during a specified period of on-peak hours for energy savings. (e.g. Monday-Friday, 8 a.m. to 9 p.m. and except holidays).

**Other Demand Resources (ODR)** - Term used by ISO-New England in its Market Rules to mean installations undertaken as part of merchant, utility, or state sponsored program, and may include energy efficiency, load management, and distributed generation projects that are installed after June 16, 2006, and that result in additional and verifiable reductions in end-use customer demand on the electricity network in the New England Control Area during ODR Performance Hours (which may include Critical Peak Hours), as described in Section III.8.3.6.2 of Market Rule 1.

**Ozone Nonattainment** - Ambient ozone (emitted at ground level) is a national ambient air quality pollutant, also referred to as a criteria pollutant. EPA establishes the national ambient air quality standards (NAAQS) per its authority in the Clean Air Act. If the ozone level in a geographic area does

not meet the national standard, the geographic area is called a nonattainment area. A state or local air quality agency develops a state implementation plan (SIP) to demonstrate how it plans to bring an area into attainment with the applicable NAAQS.

## PQR

**Participant Cost Test (PCT)** - A cost-effectiveness test that measures the economic impact to the participating customer of adopting an energy efficiency measure.

**Peak Demand** - The maximum level of hourly demand during a specified period. The peak periods most commonly identified are annual and seasonal (summer and winter).

**Peak Load** - The highest electrical demand within a particular period of time. Daily electric peaks on weekdays typically occur in late afternoon and early evening. Annual peaks typically occur on hot summer days.

**Performance Contracts** - See Energy Performance Contracts.

**Persistence** – See Savings Persistence Rate and Measure Persistence.

**Pilot Program** - A program that is generally limited in scope or targeted to a select group of customers and is intended to test the program concept and implementation design. Pilot programs often are evaluated to determine if they can be expanded to a full scale program and deliver savings cost-effectively, and what program adjustments may be necessary in order to do so.

**Portfolio** - (a) A collection of similar programs addressing the same market (e.g. a portfolio of residential programs), technology (e.g. motor efficiency programs), or mechanisms (e.g. loan programs), (b) the set of all programs conducted by one or more organizations, such as a program administrator (and which could include programs that cover multiple markets, technologies, etc…).

**Potential Studies** - Studies conducted to assess market baselines and future savings that may be expected for different technologies and customer markets over a specified time horizon. Potential is typically defined in terms of 1) technical potential - savings estimate based solely on currently and anticipated available technology; 2) achievable potential - savings estimate based on market forces, codes and standards, equipment efficiency, and energy efficiency programs; and 3) economic potential - estimate of savings limited by only those found to be cost-effective.

**Practice Retention Study** - An assessment of the length of time a customer continues the energy efficiency or conservation behavioral changes after adoption of these changes.

**Precision** - The indication of the closeness of agreement among repeated measurements of the same physical quantity. It is also used to represent the degree to which an estimated result in social science (e.g. energy savings) would be replicated with repeated studies.

**Prescriptive Program** - An energy efficiency program focused on measures that are one-for-one replacements of the existing equipment and for which fixed customer incentives can be developed based on the anticipated similar savings that will accrue from their installation.

**Prescriptive Value** – See Deemed Savings.

**Primary Effects** - Effects that the project or program are intended to achieve. For efficiency programs, this is predominantly a reduction in energy use per unit of output.

**Process Evaluation** - A systematic assessment of an energy efficiency program for the purposes of documenting program operations at the time of the examination and identifying and recommending improvements to increase the program's efficiency or effectiveness for acquiring energy resources, while maintaining high levels of participant satisfaction.

**Program Administrator (PA)** - Those entities that oversee public benefit funds in the implementation of energy efficiency programs. This generally includes regulated utilities, other organizations chosen to implement such programs, and state energy offices.

**Program Administrator Cost Test (PACT)** - See Utility/Program Administrator Cost Test

**Program Incentive** - An incentive, generally monetary, that is offered to a customer through an energy efficiency program to encourage the customer to participate in the program. The incentive is intended to overcome one or more barriers that keep the customer from taking the energy efficiency activity on his own.

**Program Manager** - The individual who manages an energy efficiency program as it is implemented in the field.

**Program Participant -** A consumer that received a service offered through an efficiency program in a given program year. The term "service" can be one or more of a wide variety of services, including financial rebates, technical assistance, product installations, training, energy efficiency information or other services, items, or conditions.

**Program Theory** - A presentation of the goals of a program, incorporated with a detailed presentation of the activities that the program will use to accomplish those goals and the identification of the causal relationships between the activities and the program's effects.

**Project** - An activity or course of action involving one or multiple energy efficiency measures, at a single facility or site.

**Proxy Variable** - In program evaluation or project modeling, a proxy variable is used to estimate energy savings, and is intended to represent a variable that is more directly related to the energy savings activity but that cannot itself be directly measured.

**Qualitative Data** - Information expressed in the form of words.

**Quantitative Data** - Information expressed in the form of numbers.

**R-Value** - A measure of thermal resistance of a material, equal to the reciprocal of the U-Value. The R-Value is expressed in terms of degrees Fahrenheit multiplied by hours, multiplied by square feet per Btu.

**Ratepayer Impact Measure Test (RIM)** - A cost-effectiveness test that measures the impact on utility operating margin and whether rates would have to increase to maintain the current levels of margin if a customer installed energy efficient measures. The Ratepayer Impact Measure (RIM) test measures

what happens to customer bills or rates due to changes in utility revenues and operating costs caused by the program.

**Realization Rate** - The term is used in several contexts in the development of reported program savings. The primary applications include the ratio of project tracking system savings data (e.g. initial estimates of project savings) to savings: 1) adjusted for data errors, 2) that incorporate evaluated or verified results of the tracked savings, and 3) that account for free ridership and/or spillover.

**Rebate** – See Incentive.

**Rebate Program** - An energy efficiency program in which the program administrator offers a financial incentive for the installation of energy-efficient equipment.

**Rebound Effect** - Also called Snap Back. A change in energy-using behavior that yields an increased level of service that is accompanied by an increase in energy use and occurs as a result of taking an energy efficiency action. The result of this effect is that the savings associated with the direct energy efficiency action is reduced by the resulting behavioral change.

**Re-commissioning (ReCx)** - The process of commissioning a building several years after it has been commissioned to help keep it operating optimally.

**Regression Analysis** - Analysis of the relationship between a dependent variable (response variable) to specified independent variables (explanatory variables). The mathematical model of their relationship is the regression equation.

**Regression Model** - A mathematical model based on statistical analysis where the dependent variable is quantified based on its relationship to the independent variables which are said to determine its value. In so doing, the relationship between the variables is estimated statistically from the data used.

**Reliability** - The quality of a measurement process that would produce similar results on: (1) repeated observations of the same condition or event; or (2) multiple observations of the same condition or event by different observers.

**Renewable Energy** - Energy derived from resources that are naturally replenishing but flow-limited. They are virtually inexhaustible in duration but limited in the amount of energy that is available per unit of time. Renewable energy resources include: biomass, hydro, geothermal, solar, wind, ocean thermal, wave action, and tidal action.

**Reporting Period** - The time following implementation of an energy efficiency activity during which results are to be determined.

**Representative Sample** - A sample that has approximately the same distribution of characteristics as the population from which it was drawn.

**Resource Acquisition Program** - A program designed to achieve directly energy and or demand savings. Such a program generally involves encouraging customers to replace existing equipment with more efficient equipment. Also called Retrofit Program.

**Retro-commissioning** - The application of the commissioning process to existing buildings. Retro-commissioning is a process that seeks to improve how building equipment and systems function together. Depending on the age of the building, retro-commissioning can often resolve problems that

occurred during design or construction, or address problems that have developed throughout the building's life. In all, retro-commissioning improves a building's operations and maintenance (O&M) procedures to enhance overall building performance.

**Retrofit Program** - An energy efficiency program that provides incentives, information and technical support to encourage customers to replace existing and operating equipment with more efficient equipment that provides the same function.

**Rigor** - The level of effort expended to minimize uncertainty due to factors such as sampling error and bias. The higher the level of rigor, the more confident one is that the results of the evaluation are both accurate and precise.

## STU

**Sample** - In program evaluation, a portion of the population selected to represent the whole. Differing evaluation approaches rely on simple or stratified (based on some characteristic of the population) samples.

**Sample Design** - The approach used to select the sample units.

**Sampling Error** - The error in estimating a parameter caused by the fact that in the sample at hand all the disturbances are not zero.

**Sampling Precision** – See Precision.

**Savings Persistence** – See Savings Persistence Rate.

**Savings Persistence Rate** - Percentage of first year energy or demand savings expected to persist over the life of the installed energy efficiency equipment; developed by conducting surveys of installed equipment several years after installation to determine presence and operational capability of the equipment.

**Seasonal Energy Efficiency Ratio (SEER)** - The total cooling output of a central air conditioning unit in Btus during its normal usage period for cooling divided by the total electrical energy input in watt-hours during the same period, as determined using specified federal test procedures.

**Seasonal Performance Factor (SPF)** - Ratio of useful energy output of a device to the energy input, averaged over an entire heating season.

**Sensible Cooling Load** - The interior heat gain due to heat conduction, convection, and radiation from the exterior into the interior, and from occupants and appliances.

**Simple Random Sample** - A method for drawing a sample from a population such that all samples of a given size have equal probability of being drawn.

**Simulation Model** - An assembly of algorithms that calculates energy use based on engineering equations and user-defined parameters.

**Smart Meter** - See Advanced Meter.

**Snap Back** - See Rebound Effect.

**Societal Cost Test (SCT)** - A cost-effectiveness test that measures the net economic benefit to the utility service territory, state, or region, as measured by the total resource cost test, plus indirect benefits such as environmental benefits.

**Spillover (Participant and Non-Participant)** - Reductions in energy consumption and/or demand caused by the presence of an energy efficiency program, beyond the program-related gross savings of the participants and without financial or technical assistance from the program. There can be participant and/or non-participant spillover. **Participant spillover** is the additional energy savings that occur when a program participant independently installs energy efficiency measures or applies energy saving practices after having participated in the efficiency program as a result of the program's influence. **Non-participant spillover** refers to energy savings that occur when a program non-participant installs energy efficiency measures or applies energy savings practices as a result as a result of a program's influence.

**Spillover Rate** - Estimate of energy savings attributable to spillover effects expressed as a percent of savings installed by participants through an energy efficiency program.

**Split System** - An HVAC system in which some components are located inside the structure of the house and some are located outside.

**Standard Error** – A measure of the variability in a data sample, how far a "typical" data point is from the mean of a sample. In a large sample, about 2/3 of observations lie within one standard error of the mean, and 95 percent of observations lie within two standard errors.

**Standard Industrial Classification Code (SIC)** - Four digit numerical codes assigned by the U.S. government to business establishments to identify the primary business of the establishment.

**State Implementation Plan (SIP)** - A federally approved and enforceable plan, it is a state's blueprint for clean air. Each state identifies how it will attain and/or maintain the health-related primary and welfare-related secondary National Ambient Air Quality Standards (NAAQS) described in Section 109 of the Clean Air Act (CAA) and 40 Code of Federal Regulations 50.4 through 50.12. The primary and secondary NAAQS that EPA established to protect public health and welfare, pertain to criteria pollutants, which include carbon monoxide, lead, nitrogen oxides, ozone, particulate matter (PM 10, PM 2.5), and sulfur dioxide. SIPs include:

- State regulations that US EPA has approved
- State-issued, US EPA-approved orders requiring pollution control at individual companies
- In rare cases, federally promulgated regulations, designated as "FIP" (federal implementation plan)
- Planning documents such as area-specific compilations of emissions estimates and computer simulations (modeling analyses) demonstrating that the regulatory limits assure that the air will meet air quality standards.

**Statistically Adjusted Engineering (SAE) Models** - A category of statistical analysis models that incorporates the engineering estimate of savings as a dependent variable. The regression coefficient in these models is the percentage of the engineering estimate of savings observed in changes in energy usage. For example, if the coefficient on the SAE term is 0.8, this means that the customers are on average realizing 80% of the savings from their engineering estimates.

**Stipulated Values** - See Deemed Savings.

**Stratified Random Sampling** - The population is divided into X units of subpopulations, called strata, that are non-overlapping and together comprise the entire population. A simple random sample is taken of each strata to create a sample based upon stratified random sampling.

**Stratified Ratio Estimation** - A sampling method that combines a stratified sample design with a ratio estimator to reduce the coefficient of variation by using the correlation of a known measure for the unit (e.g. expected energy savings) to stratify the population and allocate sample from strata for optimal sampling.

**Structured Interview** - An interview in which the questions to be asked, their sequence, and the detailed information to be gathered are all predetermined. These are used where maximum consistency across interviews and interviewees is needed.

**Sustainability** - The ability to meet the needs of the present without compromising the ability of future generations to meet their needs. In the context of energy efficiency, sustainability refers to the likelihood that observed program-induced market changes would continue in the absence of the program.

**Takeback Effect -** See Rebound Effect.

**Technical Potential** - An estimate of energy savings based on the assumption that all existing equipment or measures will be replaced with the most efficient equipment or measure that is technically feasible over a defined time horizon, without regard to cost or market acceptance.

**Technical Reference Manual** (**TRM**)- A resource document that includes information used in program planning and reporting of energy efficiency programs. It can include savings values for measures, engineering algorithms to calculate savings, impact factors to be applied to calculated savings (e.g., net-to-gross values), source documentation, specified assumptions, and other relevant material to support the calculation of measure and program savings.

**Therm** - One hundred thousand (100,000) British thermal units (1 therm = 100,000 Btus).

**Time Series Analysis** - An analysis of an ordered sequence of values of a variable at equally spaced time intervals to obtain an understanding of the underlying forces and structure that produced the observed data.

**Ton** - Unit of measure for determining cooling capacity. One ton equals 12,000 Btus heat removed per hour.

**Total Resource Cost Test (TRC)** - A cost-effectiveness test that measures the net direct economic impact to the utility service territory, state, or region

**U-Value** - The quantity of heat transmitted per hour through one square foot of a building section (wall, roof, window, etc.) for each degree Fahrenheit of temperature difference between the air on the warm side and the air on the cold side of the building section.

**Uncertainty** - The range or interval of doubt surrounding a measured or calculated value within which the true value is expected to fall with some degree of confidence.

**Upstream Program** - A program that provides information and/or financial assistance to entities in the delivery chain of high-efficiency products at the retail, wholesale, or manufacturing level. Such a program is intended to yield lower retail prices for the products.

**Utility/Program Administrator Cost Test** - Also called Program Administrator Cost Test (PACT) and also known as the utility cost test. A cost-effectiveness test that measures the change in the amount the utility must collect from the customers every year to meet an earnings target—e.g. a change in revenue requirement. In a number of states, this test is referred to as the program administrator cost test. In those cases, the definition of the "utility" is expanded to program administrators (utility or third party).

## VWXYZ

**Verification** - An independent assessment of the reliability (considering completeness and accuracy) of claimed energy savings or an emissions source inventory.

**Watt** - A unit of measure of electric power at a point in time, as capacity or demand. One watt of power maintained over time is equal to one joule per second. The watt is named after Scottish inventor James Watt and is capitalized when shortened to W and used with other abbreviations, as in kWh.

**Watt-Hour** - One watt of power expended for one hour. One thousandth of a kilowatt-hour.

**Wet-Bulb Temperature** - The temperature at which water, by evaporating into air, can bring the air to saturation at the same temperature. Wet-bulb temperature is measured by a wet-bulb psychrometer.

**Whole-Building Calibrated Simulation Approach** - A savings measurement approach (defined in IPMVP Option D and ASHRAE Guideline 14) that involves the use of an approved computer simulation program to develop a physical model of the building in order to determine energy and demand savings. The simulation program is used to model the energy used by the facility before and after the retrofit. The pre or post-retrofit models are developed by calibration with measured energy use and demand data and weather data.

**Whole-Building Metered Approach** - A savings measurement approach (defined in the IPMVP Option C and ASHRAE Guideline 14) that determines energy and demand savings through the use of whole-facility energy (end use) data, which may be measured by utility meters or data loggers. This approach may involve the use of monthly utility billing data or data gathered more frequently from a main meter.

## Acronyms

| | |
|---|---|
| **AB32** | California Global Warming Solutions Act of 2006 |
| **ACEEE** | American Council for an Energy-Efficient Economy |
| **ADM2** | Building energy simulation model |
| **AFD** | Adjustable frequency drive |
| **AFUE** | Annualized fuel utilization efficiency |
| **AHAM** | Association of Home Appliance Manufacturers |
| **AHRI** | Air-Conditioning, Heating, and Refrigeration Institute |
| **AHU** | Air handling unit |
| **AMR** | Automated or Automatic meter reading |
| **ANSI** | American National Standards Institute |
| **ARRA** | American Recovery and Reinvestment Act |
| **ASD** | Adjustable speed drive |
| **ASE** | Alliance to Save Energy |
| **ASHP** | Air source heat pump |
| **ASHRAE** | American Society of Heating, Refrigerating and Air-Conditioning Engineers |
| **BAU** | Business-as-usual |
| **BCF** | Billion cubic feet |
| **BCR** | Benefit cost ratio |
| **BLAST** | Building energy simulation model |
| **BOC** | Building Operator Certification |
| **BOMA** | Building Owners & Managers Association |
| **BPI** | Building Performance Institute |
| **Btu** | British thermal unit |
| **Btu/hr** | British thermal unit per hour |
| **CAA** | Clean Air Act |

| | |
|---|---|
| **CAC** | Central air conditioner |
| **CADMAC** | California Demand-Side Management Advisory Council |
| **CALMAC** | California Measurement Advisory Council |
| **CDA** | Conditional demand analysis |
| **CDD** | Cooling degree day |
| **CEE** | Consortium for Energy Efficiency |
| **CEQ** | Council on Environmental Quality |
| **CFL** | Compact fluorescent lamp |
| **CFM, cfm** | Cubic feet per minute |
| **CHP** | Combined heat and power |
| **CHPS** | Collaborative for high performance schools |
| **C/I** | Commercial and industrial |
| **CO2** | Carbon dioxide |
| **COP** | Coefficient of performance |
| **CSA** | Conditional savings analysis |
| **CV** | Coefficient of variation |
| **CV (RMSE)** | Coefficient of variation of the RMSE |
| **CX** | Commissioning |
| **DD** | Degree-day |
| **DEER** | California Database for Energy Efficiency Resources |
| **DEP** | Department of Environmental Protection |
| **DG** | Distributed generation |
| **DHW** | Domestic hot water |
| **DOE** | Department of Energy |
| **DOE-2** | Building energy simulation model |

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|---|---|
| **D&R** | D&R International, LTD. |
| **DR** | Demand response |
| **DRI** | Data Resources Incorporated |
| **DSM** | Demand side management |
| **ECM** | Energy conservation measure |
| **EE** | Energy efficiency |
| **EER** | Energy efficiency ratio |
| **EEPS** | Energy efficiency portfolio standard |
| **EERS** | Energy efficiency resource standard |
| **EFLH** | Equivalent full load hours |
| **EIA** | Energy Information Administration |
| **EMS** | Energy management system |
| **EM&V** | Evaluation, measurement, and verification |
| **EPA** | Environmental Protection Agency |
| **EPACT** | Energy Policy Act of 1992 |
| **EPRI** | Electric Power Research Institute |
| **ESCO** | Energy services company |
| **ESPC** | Energy savings performance contract |
| **EUI** | Energy use index |
| **EUL** | Effective useful life |
| **FCM** | Forward capacity market |
| **FERC** | Federal Energy Regulatory Commission |
| **FLH** | Full load hours |
| **FTE** | Full time equivalent |
| **GHG** | Greenhouse gas |
| **GPM** | Gallons per minute |

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|---|---|
| **GSHP** | Ground source heat pump |
| **GWh** | Gigawatt-hour |
| **HDD** | Heating degree days |
| **HEDD** | High electricity demand day |
| **HEM** | Home energy management |
| **HERS** | Home Energy Rating System |
| **HID** | High intensity discharge (lamp) |
| **HOU** | Hours of use |
| **Hp** | Horsepower |
| **HP** | Heat pump |
| **HPWH** | Heat Pump water heater |
| **HSPF** | Heating seasonal performance factor |
| **HVAC** | Heating, ventilation, and air conditioning |
| **IECC** | International Energy Conservation Code |
| **IEPEC** | International Energy Program Evaluation Conference |
| **IOU** | Investor-owned utility |
| **IPMVP** | International Performance Measurement and Verification Protocol |
| **IRP** | Integrated resource plan |
| **IRR** | Internal rate of return |
| **ISO** | Independent system operator |
| **ISO-NE** | ISO New England |
| **kW** | Kilowatt |
| **kWh** | Kilowatt-hour |
| **LED** | Light emitting diode |
| **LEED** | Leadership in Energy and Environmental Design |

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|---|---|
| **LIHEAP** | Low-Income Heating Assistance Program |
| **LIRM** | Load impact regression model |
| **LPD** | Lighting power density |
| **MACRUC** | Mid-Atlantic conference of regulatory utilities commission |
| **M&V** | Measurement and verification |
| **MBtu** | One thousand Btus |
| **Mcf** | One thousand cubic feet |
| **MEC** | Model Energy Code |
| **MMBtu** | One million Btus |
| **MMcf** | One billion cubic feet |
| **MOU** | Memorandum of understanding |
| **MPER** | Market Progress and Evaluation Report |
| **MT** | Market transformation |
| **MW** | Megawatt |
| **MWh** | Megawatt-hour |
| **NAAQS** | National Ambient Air Quality Standard |
| **NAESB** | North American Energy Standards Board |
| **NAPEE** | National Action Plan for Energy Efficiency |
| **NARUC** | National Association of Regulatory Utility Commissioners |
| **NATE** | North American Technician Excellence Program |
| **NEB** | Non-energy benefit |
| **NECPUC** | New England Conference of Public Utility Commissioners |
| **NEEP** | Northeast Energy Efficiency Partnerships |
| **NEMA** | National Electrical Manufacturers Association |
| **NEI** | Non-energy impact |
| **NERC** | North American Electric Reliability Council |

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| **NESCAUM** | Northeast States for Coordinated Air Use Management |
| **NOX** | Nitrogen oxides |
| **NTGR** | Net-to-gross ratio |
| **NYISO** | New York Independent System Operator |
| **ODR** | Other demand resources |
| **OEM** | Original equipment manufacturer |
| **OLED** | Organic light emitting diode |
| **O&M** | Operation and maintenance |
| **PA** | Program administrator |
| **PACT** | Program administrator cost test |
| **PCT** | Participant cost test |
| **PEARL** | Program for the Evaluation and Analysis of Residential Lighting |
| **PJM** | Pennsylvania, New Jersey, Maryland Interchange (the mid-Atlantic regional transmission organization) |
| **PRISM** | Princeton scorekeeping method |
| **PTAC** | Packaged terminal air conditioner |
| **PUC** | Public Utility Commission |
| **PURPA** | Public Utility Regulatory Policies Act |
| **R&D** | Research and development |
| **RARP** | Residential appliance recycling program |
| **RASS** | Residential appliance saturation studies |
| **RCx** | Retro-commissioning |
| **RCS** | Residential conservation services |
| **ReCx** | Re-commissioning |
| **RESNET** | Residential Energy Services Network |
| **RFP** | Request for proposal |

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|---|---|
| **RFQ** | Request for qualifications |
| **RGGI** | Regional Greenhouse Gas Initiative |
| **RIM** | Ratepayer impact measure |
| **RPS** | Regional portfolio system |
| **RTF** | Regional Technical Forum (advisory committee to the Northwest Power and Conservation Council) |
| **RTU** | Roof top unit |
| **RMS** | Root mean square |
| **RMSE** | Root mean square error |
| **RTO** | Regional transmission organization |
| **RTP** | Real-time pricing |
| **SAE** | Statistically-adjusted engineering model |
| **SBC** | System benefits charge |
| **SCT** | Societal cost test |
| **SEER** | Seasonal energy efficiency ratio |
| **SIC** | Standard industrial classification |
| **SIP** | State implementation plan |
| **SPF** | Seasonal performance factor |
| **SSL** | Solid state lighting |
| **SO2** | Sulfur dioxide |
| **SPF** | Seasonal performance factor |
| **T&D** | Transmission and distribution |
| **TOU** | Time of use |
| **TRC** | Total resource cost test |
| **TRM** | Technical reference manual |
| **UCT** | Utility cost test |

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|---|---|
| **VAV** | Variable air volume |
| **VFD** | Variable frequency drive |
| **VSD** | Variable speed drive |
| **WAP** | Weatherization assistance program |
| **Wx** | Weatherization |