



# **AMI Industry Glossary**

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Rev A**

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## Forward

This material is provided in the spirit of fostering collaboration and a common understanding within the AMI community. Aclara™ intends to promote the use of common terminology, and invites other vendors to participate in the development of the IEC 61968-2 standard.

## Common Terms

Term	Definition	Reference
Absolute	Something regarded as independent and unrelated to anything else.	Dictionary 2006
Absolute Data	Data which is based on a fixed sample at a prescribed moment in time. The data may have been scaled and may consist of a signed value (as opposed to unsigned).  <a href="#">See also "Incremental Data."</a>	ACLARA
Account Number	A unique number issued by a Customer Information System to identify a specific customer account within a given utility.	ACLARA
Accuracy	The quality of freedom from mistake or error, that is, of conformity to truth or to a rule. Notes: 1.) Accuracy is distinguished from precision as in the following example: A six-place table is more precise than a four-place table. However, if there are errors in the six-place table, it may be more or less accurate than the four-place table. 2.) The accuracy of an indicated or recorded value is expressed by the ratio of the error of the indicated value to the true value. It is usually expressed in percent. Since the true value cannot be determined exactly, the measured or calculated value of highest available accuracy is taken to be the true value or reference value. Comparison of results obtained by different measurement procedures is often useful in establishing the true value. <a href="#">See also "Resolution."</a>	IEEE 2000
Active Energy	The integral of active power with respect to time. Note: Active energy is normally measured in kilowatt-hours (kWh). <a href="#">Also known as "Real Energy."</a>	ACLARA
Active Power	Time average of the instantaneous power over one period of the wave. Note: Active power is measured in Watts. For sinusoidal quantities in a two-wire circuit, active power is the product of the voltage, the current, and the cosine of the phase angle between them. For nonsinusoidal quantities, it is the sum of all the harmonic components, each determined as above. In a polyphase circuit, it is the sum of the active powers of the individual phases. <a href="#">Also known as "Real Power."</a>	IEEE 2000

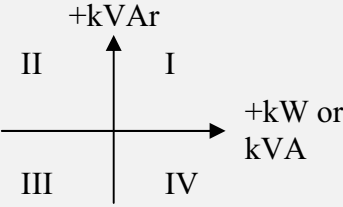
<b>Advanced Meter</b>	An electric meter, new or appropriately retrofitted, which is 1) capable of measuring and recording usage data in time differentiated registers, including hourly or such interval as is specified by regulatory authorities, 2) allows electric consumers, suppliers and service providers to participate in all types of price-based demand response programs, and 3) which provides other data and functionality that address power quality and other electricity service issues.	DRAM 2008
<b>Advanced Metering Infrastructure</b>	The communications hardware and software and associated system and data management software that creates a network between advanced meters and utility business systems which allows collection and distribution of information to customers and other parties such as competitive retail suppliers, in addition to the utility itself.	DRAM 2008
<b>AEP Code</b>	A 17 digit barcode and numbering system developed by American Electric Power Inc. which has become a standard in the electric utility industry.	ACLARA
<b>Alarm</b>	A message which indicates an abnormal condition, or that a measurement has exceeded a preset value.	ACLARA
<b>Apparent Energy</b>	The integral of apparent power with respect to time. Note: This is normally measured in kilo-Volt-Ampere-hours (kVAh).	ACLARA
<b>Apparent Power</b>	“For sinusoidal quantities in either single-phase or polyphase circuits, apparent power is the square root of the sum of the squares of the active and reactive powers.” Apparent power is usually measured in kilovoltamperes (kVA). <a href="#">See also "Real Power" and "Reactive Power."</a>	IEEE 2000
<b>Automated Meter Reading</b>	A system where aggregated kWh usage, and in some cases demand, is retrieved via automated means such as a drive-by vehicle, or walk-by hand-held system.	DRAM 2008
<b>Automatic</b>	A system that is able to operate autonomously -- without human intervention.	ACLARA
<b>Badge Number</b>	A utility assigned number to the meter assembly.	ACLARA
<b>Batch Communication</b>	Implies that the function that owns the data sends information periodically in groups. In this mode there usually is a delay between the time that new information is available and when it is sent.	MultiSpeak 2005
<b>Big Endian</b>	“A data format where the most significant byte of a multibyte object is at the lowest address and the least-significant byte is at the highest address.” <a href="#">See also "Little Endian."</a>	IEEE 2000
<b>Billing Demand</b>	The demand upon which billing to a customer is based, as specified in a rate schedule or contract. It may be based on the contract year, a contract minimum, or a previous maximum and therefore does not necessarily coincide with the actual measured demand of the billing period.	EEl 2005
<b>Billing Determinant</b>	The processed number, after all multiplications and adjustments are made (such as the normalization of demand for a particular time scale), against which one multiplies the rate, to determine the customer's bill.	ACLARA
<b>Billing Window</b>	The regulatory timeframe in which meters must be read. Note: The MS, MDM, CIS, and possibly other systems must collaborate to read meters and deliver bills within the billing window.	ACLARA

<b>Bus</b>	A three-phase electrical connection which serves as common junction to two or more ways. Note: The connection between a substation distribution transformer secondary voltage, and feeders which fan out to distribute power to the surrounding area, occurs at a piece of hardware commonly referred to as a bus.	ACLARA
<b>CBEMA Curve</b>	The ITI (CBEMA) Curve ... describes an AC input voltage which typically can be tolerated (no interruption in function) by most Information Technology Equipment (ITE)... Seven types of events are described by the composite envelope: steady-state tolerances, line voltage swell, low frequency decaying ringwave, high-frequency impulse and ringwave, voltage sags to 80% of nominal, voltage sags to 70% of nominal, and dropout; plus a no-damage-region and a prohibited-region are depicted in accordance with the ITI (CBEMA) application note.	ITI 2000
<b>Channel</b>	A single flow path for digital data usually in distinction from other parallel paths.	ACLARA
<b>Circuit</b>	See "Feeder."	ACLARA
<b>Coincident</b>	Occurring at the same time.	ACLARA
<b>Cold Load Pickup</b>	The loading imposed on a distribution feeder after service restoration in which some loss of load diversity has occurred.	Lawhead et. al. 2006
<b>Connectivity</b>	Data which describes the interconnectivity of meters to transformers, line-sections, and protective devices along the distribution network.	ACLARA
<b>Consumer</b>	1.) A user of electricity. 2.) A "rate payer." 3.) A "member." 4.) the utility's customer. One who consumes the service provided by the utility. Note: The consumer may be classified as a residential, commercial, industrial, or some other type of consumer; and may consume electricity, gas, water, and/or some other service.	ACLARA
<b>Consumption</b>	The equivalent of the dial reading of the meter for the accumulative usage of electricity, gas, or water. Consumption when stored in the transponder register may be expressed in raw pulses, scaled pulses, or in some form of the native unit of measure for the meter. Consumption is usually expressed in terms of a given flow direction.	ACLARA
<b>Critical Peak Pricing</b>	A type of dynamic pricing whereby the majority of kWh usage is priced on a TOU basis, but where certain hours on certain days where the system is experiencing high peak demand are subject to higher hourly energy prices that reflect market conditions for peak generation and delivery during peak demand periods. Note: These critical period prices may be known to electricity customers under conditions such as "day-ahead" or "hour ahead" and are typically employed a limited number of times per year.	DRAM 2008
<b>Cumulative</b>	Increasing or enlarging by successive addition.	Dictionary 2006
<b>Current Transformer</b>	An instrument transformer designed for use in the measurement or control of current. Its primary winding, which may be a single turn or bus bar, is connected in series with the load. It is normally used to reduce primary current by a known ratio to within the range of a connected measuring device.	EEI 2002
<b>Current Transformer Ratio</b>	The effective turns ratio of a current transformer.	ACLARA

<b>Customer</b>	<p>“A person or business that obtains electric service from a utility.” Note: The customer may receive service from a number of service locations. See <a href="#">"Consumer."</a></p>	MultiSpeak 2005
<b>Customer Information System</b>	<p>A system that maintains customer information. “The CIS (may) consist of a suite of applications, typically provided and integrated by a single vendor” which, in addition to maintaining customer information, perform “customer billing, ...finance and accounting functions,” and possibly other services.</p>	MultiSpeak 2005
<b>Cycle-Day</b>	<p>A recurring day on the calendar, within each month, upon which a meter reading is to occur.</p>	ACLARA
<b>Data Element</b>	<p>1.) A "measurement" or "parameter." 2.) A generic term for a data item to be read from (or written to) a meter</p>	ACLARA
<b>Data Logger</b>	<p>A system to measure a number of variables and make written tabulations and or record in a form suitable for computer input.</p>	IEEE 2000
<b>Data Warehouse</b>	<p>Repository of data.</p>	IEC 2003
<b>Delivered Energy</b>	<p>See <a href="#">"Forward Energy."</a></p>	ACLARA
<b>Demand</b>	<p>“The average power or a related quantity over a specified interval of time. Demand is expressed in kW, kVA, kVAR, or other suitable units.” An interval may be 1, 5, 10, 15, 30, or 60 minutes. See also <a href="#">"Load."</a></p>	ANSI 2001 IEEE 2000 EEI 2002
<b>Demand Delay</b>	<p>The programmable amount of time before demand calculations are restarted after a power outage. Also called Cold Load Pickup and Demand Forgiveness.</p>	EEI 2002
<b>Demand Forgiveness</b>	<p>The process of ignoring peak usage as it occurs immediately after a power restoration. See also <a href="#">"Cold Load Pickup."</a></p>	ACLARA
<b>Demand Interval</b>	<p>The interval of time over which a demand measurement is taken. See <a href="#">"Demand."</a></p>	ACLARA
<b>Demand Reset</b>	<p>The process of zeroing the maximum demand accumulator. Note: This usually involves shifting the “present maximum demand” to become the new “previous maximum demand,” and zeroing the “present maximum demand.”</p>	ACLARA
<b>Demand Reset Count</b>	<p>A count which represents the number of times a given meter has undergone a demand reset.</p>	ACLARA
<b>Demand Response</b>	<p>Refers to the reduction of customer energy usage at times of peak usage in order to help address system reliability, reflect market conditions and pricing, and support infrastructure optimization or deferral. Demand response programs may include dynamic pricing/tariffs, price-responsive demand bidding, contractually obligated and voluntary curtailment, and direct load control/cycling.</p>	DRAM 2008
<b>Demand Subinterval</b>	<p>A portion of a demand interval used in rolling block demand calculations. Note: A demand subinterval will always divide into a demand interval evenly. For example, a 15-minute demand interval can divide into three 5-minute subintervals. A subinterval may be 1, 3, 5, 10, 15, or 30 minutes in length, provided that it divides into the corresponding demand interval one or more (integer) times.</p>	ACLARA

<b>Demand, Continuous Cumulative</b>	The sum of the previous billing period maximum demands and the present period maximum demand.	EEI 2002
<b>Demand, Cumulative</b>	The sum of the previous billing period maximum demand readings. At the time of billing period reset, the maximum demand for the most recent billing period is added to the previously accumulated total of all maximum demands.	EEI 2002
<b>Demand-Side Management</b>	the planning, implementation, and monitoring of activities designed to encourage consumers to modify patterns of electricity usage, including the timing and level of electricity demand. Demand-Side Management covers the complete range of load-shape objectives, including strategic conservation and load management, as well as strategic load growth. Indirect Demand-Side Management includes such programs as conservation, improvements in efficiency of electrical energy use, rate incentives, rebates, and other similar activities to influence electricity use.	Energybuyer 2006
<b>Detent</b>	A mechanism which permits a meter dial to spin in one direction only (i.e. "Forward" or "Reverse.")	ACLARA
<b>Diagnostic</b>	A process by which hardware malfunctions may be detected.	IEEE 2000
<b>Dial Reading</b>	Literally, the value presented by the meter dials to a human meter reader before applying any display scalar indicated in a human readable label.	ACLARA
<b>Digital Data Recorder</b>	<a href="#">See "Meter Data Recorder."</a>	ACLARA
<b>Direct Load Control</b>	A system or program that allows utilities, other load serving entities, or demand response service providers to control user load via 1) directly cycling discretionary load of certain end uses, 2) directly turning off such loads or 3) implementing custom load control strategies that reduce peak usage.	DRAM 2008
<b>Dispatchable Load</b>	The amount of load under control of the Load Control System. Note: Usually, such loads are selected in advance to be "deferrable" and to have negligible adverse impact on the consumer. Examples including certain pumping, heating, and cooling applications.	ACLARA
<b>Display Multiplier</b>	Commonly called "Kr," the display reading must be multiplied by this value in order to obtain the metered usage. Note: The vast majority of meters have a Kr=1. Some meters have a Kr=10, or some other value.	ACLARA
<b>Distributable</b>	A function or process that may exist in a centrally located system, or be deployed geographically into regional or local systems.	ACLARA
<b>Distributed Generation</b>	<p>"A system utilizing small generators located on a utility's distribution system for the purpose of meeting local (substation level) peak loads and/or displacing the need to build additional (or upgrade) local distribution lines. Note: With the advent of small (&lt; 100 kW) microturbine generators, distributed generation is beginning to include customer and/or marketer-owned capacity feeding single loads (e.g., a chiller plant), customers or small groups of customers."</p> <p>Distributed Generation also includes small, customer owned, wind powered generators, hydro units, and photo-voltaic arrays whose primary purpose is to reduce the amount of power purchased from the local utility. Excess power may be</p>	Energybuyer 2006

<b>Distributed Generation (Continued)</b>	sold back to the utility by means of Net Metering or some similar tariff. Significant incentives by state and federal agencies have made these programs increasingly attractive as alternatives to burning carbon-based fuels.	Energybuyer 2006
<b>Distribution Network</b>	The distribution-voltage side of a substation including all of the lines, switches, transformers, and protective devices.	ACLARA
<b>Dynamic Pricing</b>	Retail prices for energy consumed that offer different prices during different time periods and reflect the fact that power generation costs and wholesale power purchase costs vary during different time periods. Types include Time-of-Use Pricing, Critical Peak Pricing and Real-Time Pricing.	DRAM 2008
<b>Editing</b>	The process of applying corrections to data.	ACLARA
<b>Electricity Meter</b>	A device that measures and registers the integral of an electrical quantity with respect to time.	IEEE 2000
<b>Emergency Demand Response Programs</b>	Programs which are dispatched by system operators when system operating reserves drop to levels such that load reductions are needed to maintain short-term system reliability.	DRAM 2008
<b>End Device</b>	Equipment located at the end of the communication system, usually on the customer premises, which may perform functions such as metrology, connect/disconnect, load control, demand response, or other functions, and may have power relay and/or communications capability.	IEC 2008
<b>Energy Management System</b>	A system typically used to control lighting, heating, air conditioning, and other discretionary loads in a commercial or industrial facility.	ACLARA
<b>Engineering Quantity</b>	Any measurable electrical quantity that may be useful to an Engineering Analysis system. Examples include voltage, current, Active Energy (kWh), Reactive Energy (kVARh), power factor, etc.	ACLARA
<b>Estimating</b>	The process of replacing bad or missing data with reasonable values.	ACLARA
<b>False Alarm</b>	An indicated fault where no fault exists.	IEEE 2000
<b>False Negative</b>	A test result that is incorrect because the test failed to recognize an existing condition or finding. Note: In the context of testing for a power outage, a “false negative” will indicate that power is on to devices which are actually suffering from a power interruption.	ACLARA
<b>False Positive</b>	A test result that is incorrect because the test indicated a condition or finding that does not exist. Note: In the context of testing for a power outage, a “false positive” would be an indication that power is out to devices which are actually powered.	ACLARA
<b>Fault</b>	An unplanned power interruption.	IEC 2003
<b>Feeder</b>	An electrical connection in the distribution network which begins in the substation yard and travels outward to the surrounding service area (usually on a given compass heading) to carry and distribute electrical power. Feeders typically provide three phase power near the substation, but in many locations will provide fewer phases as the feeder fans out into the country-side.	ACLARA

<b>Firmware</b>	“The combination of software and data that reside on (ROM),” E <sup>2</sup> ROM, or some similar permanent or semi-permanent storage medium.	IEEE 2000
<b>Fixed-Interval Demand Calculation</b>	The monitoring of demand by using a method that measures the average power over a fixed period of time. Note: Demand intervals are typically 15 or 30 minutes in length.	ACLARA
<b>Flow Direction</b>	An accounting of the flow of energy through a meter. There are 4 basic flow directions: “Forward,” “Reverse,” “Net,” and “Total.” <b>See also "Forward Energy," "Reverse Energy," "Net Energy," and "Total Energy."</b>	ACLARA
<b>Forward Energy</b>	A quantity of energy delivered by the distribution network to the electrical service. Note: Forward Energy may include "Active," "Apparent," and/or "Reactive" types. The value may roll-over to zero at some point depending on the capability of the meter register. <b>Also known as “Positive Energy” and “Delivered Energy.”</b> <b>See also "Reverse Energy," "Net Energy," "Total Energy," and “Flow Direction.”</b>	ACLARA
<b>Four-Quadrant Metering</b>	The process of measuring reactive and either real or apparent energy accounting for both forward and reverse flows. Note: Reactive energy is plotted on the ordinate axis. Real or apparent energy is plotted on the abscissa. Quadrant I is defined as an area where both energies flow positively (both are delivered to the service). In Quadrant II reactive energy is positive and the other energy flows negatively. In Quadrant III reactive energy flows negatively as does the other energy (both energies are received from the service). In Quadrant IV reactive energy flows negatively, and the other energy flows positively.  	ACLARA
<b>Frequency Relay</b>	“A frequency relay is a device that functions on a predetermined value of frequency - either under or over normal system frequency or rate of change of frequency. When it is used to function on a predetermined value below nominal frequency, it is generally called an ‘under-frequency relay’, and when it functions on a predetermined value above nominal, it is called an ‘over-frequency relay.’ “	IEEE 1986
<b>Geographic Information System</b>	A data system which provides a visualization of spatially (geographic) related data.	ACLARA
<b>Home Area Network</b>	A communications network that links together devices within the home and allows them to inter-operate.	ACLARA
<b>Inbound Transaction</b>	A communication that is traveling (inward) to the central control or main office.	ACLARA
<b>Incremental</b>	A small positive or negative change in the value of a variable.	Dictionary 2006

<b>Incremental Data</b>	Data which is based on the difference between two data samples at two prescribed moments in time. The data may have been scaled and may consist of a signed or unsigned value. <b>See also “Absolute Data.”</b>	ACLARA
<b>Instantaneous Readings</b>	Values that are computed in a way so as to describe the measurement at current moment. Note: Instantaneous values are usually measured over a short period of time. For example, values such as “demand” are normally measured over 15 or 30 minute intervals for tariff purposes. “Instantaneous demand” however measures kW (or kVAr) values over a very brief interval, which, at most, is a few seconds.	ACLARA
<b>Interoperable</b>	Systems that work together.	ACLARA
<b>Interruptible Power</b>	Power made available under agreements that permit curtailment or cessation of delivery by the supplier.	EI 2005
<b>Interruption</b>	“The loss of service to one or more customers” connected to the distribution network.	IEEE 2000
<b>Interruption Threshold</b>	A voltage magnitude specified for the purpose of detecting the start and the end of a voltage interruption.	IEC 2003
<b>Interval Data</b>	Data captured at regular intervals of time. Interval data could be captured as incremental data, absolute data, or relative data. The source for the data is usually a tariff quantity or an engineering quantity. Data is typically captured in time-tagged, uniform, fixed-length intervals of 5, 10, 15, 30, or 60 minutes. “Interval Data” is sometimes also called “Interval Data Readings” (IDR).	ACLARA
<b>Interval Data Recorder</b>	A system which records metrology data in the form of a series of time-stamped readings (i.e. Interval Data). Some IDR systems are capable of simultaneously recording multiple channels of interval data.	ACLARA
<b>Interval Meter</b>	“A meter that measures and records data on either predetermined or remotely configurable time intervals, where the intervals are in increments such as minutes or hours.”  Note: The data collected is typically usage in kWh expressed a specific flow direction (such as Net, Forward, or Reverse). Some interval meters are capable of recording multiple channels of interval data. The collection of kVArh intervals is also quite common. Usage is usually recorded as a series of incremental values, while other quantities such as voltage and current are typically recorded as absolute values.	DRAM 2008
<b>Lagging Current</b>	An alternating current which, in each half-cycle, reaches its maximum value a fraction of a cycle later than the maximum value of the voltage which produces it.	EI 2002
<b>Leading Current</b>	An alternating current which, in each half-cycle, reaches its maximum value a fraction of a cycle sooner than the maximum value of the voltage which produces it.	EI 2002
<b>Little Endian</b>	A data format where the most significant byte of a multibyte object is at the highest address and the least-significant byte is at the lowest address. <b>See also “Big Endian.”</b>	ACLARA
<b>Load (Electric)</b>	The electric power used by devices connected to an electrical generating system.	IEEE 2000

<b>Load Analysis</b>	The modeling and prediction of loads on the distribution network. Note: Models will frequently be based on historical usage patterns as a function of time of day, circuit topology, load flow, transmission constraints, customer demographics, and weather. Prediction may typically support analysis where scenarios show the loss of a critical asset, changes to the circuit topology, new construction, and weather forecasts. The Load Analysis might occur as part of an Engineering Analysis program, or a Load Analysis program running in the Network operations center.	ACLARA
<b>Load Control</b>	See "Direct Load Control."	ACLARA
<b>Load Management</b>	"A term used to refer to interruptible rates, curtailment programs and direct load control programs."	DRAM 2008
<b>Load Management System</b>	A system that encompasses the complete load management needs of the utility. The system will support one or more of the following functions: Load Control, Load Analysis, or Demand Response.	ACLARA
<b>Load Profile</b>	"The graphic representation of the demand load, usually on an hourly basis, for a particular day."	IEEE 2000
<b>Load Profile</b>	The recording, storage and analysis of consumption data, captured in discrete intervals, and presented over a period of time for a particular installation. Data may be represented as one or more channels of positive, negative, total, or net consumption for any tariff quantity. Load Profile data is a specialization of Interval Data.	ACLARA
<b>Load Shedding</b>	"The process of deliberately removing (either manually or automatically) pre-selected customer demand from a power system in response to an abnormal condition to maintain the integrity of the system and minimize overall customer outages."	EnergyBuyer
<b>Log</b>	A record of events and the time of their occurrence.	ACLARA
<b>Maximum Demand</b>	The largest observed demand, using the configured demand calculation method, since the last demand reset.	ACLARA
<b>Member</b>	An individual who has joined a cooperative and is both part-owner of the operation, and a "consumer" of the goods or services provided.	ACLARA
<b>Metadata</b>	"Data that defines and describes other data."	IEEE 2000
<b>Meter</b>	"A type of End Device which performs metrology and supports the tariffing of the distribution network."	IEC 2008
<b>Meter Badge</b>	The utility defined area of a meter nameplate. Note: The meter badge may contain a barcode, an AEP code, required CT and VT ratios, etc.	ACLARA
<b>Meter Class</b>	For a Watthour meter, the class designation identifies the maximum of the load range in amperes.	ANSI 2001, IEEE 2000
<b>Meter Communication Module</b>	A component of a meter which enables participation in a communication network.	ACLARA
<b>Meter Data Management</b>	A system that manages meter reading data. Meter readings can be saved as needed for billing and historical analysis. The MDM will manage configuration information for meters and maintain measurement histories. The MDM may also perform certain levels of validation to the data.	IEC 2008

<b>Meter Data Recorder</b>	An interval data recording system which records metrology data in the form of a series of incremental, absolute, or relative readings, and attributes a capture time and status to the recorded value.	ACLARA
<b>Meter Divergence</b>	A form of cumulative error where the AMR supplied value differs from the dial-face reading, and over time, the error grows.	ACLARA
<b>Meter Form</b>	“An alphanumeric designation denoting the circuit arrangement for which the meter is applicable and its specific terminal arrangement. The same designation is applicable to equivalent meters of all manufacturers.”	ANSI C12, IEEE 2000 Watthour – meter form
<b>Meter Nameplate</b>	A nameplate placed on the meter by the manufacturer. Note: The nameplate will contain all of the information required by ANSI C12.10 (form, volts, class, etc.), and may also have a utility defined area.	ACLARA
<b>Meter Number</b>	The number assigned to the meter by the system of record in the utility.	ACLARA
<b>Meter Seal</b>	A device which mechanically seals the meter and provides an indication of tampering when the seal is broken. Note: Early seal designs simply used pressed lead to join two wires. Many modern seal designs are lead-free and have unique ID numbers, or display a company logo.	ACLARA
<b>Meter Serial Number</b>	The number assigned to the meter by the meter manufacturer.	ACLARA
<b>Metered Usage</b>	Usage measured and displayed by the meter. Note: This usage is the value presented before applying any CTR or VTR scalars, yet after conversion to the native unit of measure (e.g. kWh).	ACLARA
<b>Meter Shop</b>	A place where meters are inspected, repaired, tested, and adjusted.	ANSI 2001
<b>Near Real Time</b>	1.) Pertaining to the delay introduced, by automated data processing, between the occurrence of an event and the use of the processed data, e.g., for display or feedback and control purposes. Note 1: For example, a near-real-time display depicts an event or situation as it existed at the current time less the processing time. Note 2: The distinction between near real time and real time is somewhat nebulous and must be defined for the situation at hand. Contrast with real time. 2.) Pertaining to the timeliness of data or information which has been delayed by the time required for electronic communication and automatic data processing. This implies that there are no significant delays.	DoD 2002
<b>Negative Energy</b>	See "Reverse Energy."	ACLARA
<b>Net Energy</b>	A flow direction that is accounted for as forward energy minus reverse energy.  $Net\ Energy =  forward\ energy  -  reverse\ energy $ <p>See also “Forward Energy,” “Reverse Energy,” “Total Energy,” and “Flow Direction.”</p>	ACLARA

<b>Net Metering</b>	“A utility metering practice in which utilities measure and bill for the net electricity consumption or generation of their customers with small generators. Net metering can be accomplished through two means: (1) A single, bi-directional electric meter that turns backward when the customer’s generator is producing energy in excess of his demand and forward when the customer’s demand exceeds the energy generated or (2) By separately metering the flows of electricity into and out of the customer’s facility. Net metering provisions vary by state and utility, but usually apply only to very small generators that typically use solar or wind energy.”	EEI 2005
<b>Network</b>	A system for delivering services. Note: An electrical distribution network would consist of all of the interconnected electrical elements starting at the end of the transmission network, and ending at the start of the premises wiring. A communication network would consist of all interconnected or inter-related communication nodes. Some AMI systems leverage portions of the distribution network hardware in order to form a communication network, other AMI technologies establish an infrastructure to carry information which is completely separate from the electrical distribution network.	ACLARA
<b>Notification</b>	A message which reports a change in the operational state of a piece of equipment.	ACLARA
<b>One-Way</b>	In reference to communication technology, a system that communicates in one direction only, i.e. from the sender to the receiver. Note: The system might be architected to move data from the central office to the communication endpoint(s) in the field (outbound-only), or it might be built to move data from the endpoint(s) in the field to the central office (inbound-only). Some systems which are capable of one-way communication are also capable of two-way communication. Some systems support two-way communication at certain levels in their architecture, and one-way communication at other levels. <a href="#">See also "Two-Way," "Inbound," and "Outbound."</a>	ACLARA
<b>On-Demand Read</b>	<a href="#">See “On-Request Read.”</a>	ACLARA
<b>On-Request Read</b>	A request by a data consumer to create a fresh reading by a data provider. The request carries with it an expectation of a near real time response.	ACLARA
<b>Out Of Service</b>	A consumer is Out-Of-Service (OOS) if their electrical service is experiencing an outage. The corresponding energization status for their equipment is “dead.”	ACLARA
<b>Outage</b>	1.) “The state of a component or system when it is not available to properly perform its intended function due to some event directly associated with that component....” 2.) “A loss of service to a consumer’s electrical service due to the failure of a component.”	IEEE 2000
<b>Outage Analysis</b>	The process of analyzing outage detection reports, as well as launching additional investigations, in order to “predict” the protective device which has operated.	ACLARA
<b>Outage Detection</b>	The process of automatically detecting the existence of an outage.	ACLARA

<b>Outage Management System</b>	A system which helps a utility manage an outage event. Such systems typically accept customer call-ins as the triggering mechanism, and help the dispatcher manage crew assignments to affect repairs.	ACLARA
<b>Outage Mapping</b>	The process of discovering the scope of an outage as it relates to the affected service territory.	ACLARA
<b>Outbound transaction</b>	A communication that is traveling (outward) away from the central control or main office.	ACLARA
<b>Overflow</b>	“The condition that arises when the result of an arithmetic operation exceeds the capacity of the number representation system used in a digital computer.”	IEEE 2000
<b>Over-Voltage Event</b>	An increase in the measured voltage of the power system above a predefined (critical) voltage and duration threshold.	ACLARA
<b>Performance Based Rates</b>	A method of determining compensation for an electric utility based upon its performance. Note: Reliability is often one of the measures used to compute performance.	ACLARA
<b>Performance Based Regulation</b>	“Any rate-setting mechanism which attempts to link rewards (generally profits) to desired results or targets. PBR sets rates, or components of rates, for a period of time based on external indices rather than a utility’s cost-of-service. A form of rate regulation which provides utilities with better incentives to reduce their costs than does cost-of-service regulation.”	EnergyBuyer 2006
<b>Permanent Location Number</b>	A number assigned to an area of land independent of any improvements upon it.	ACLARA
<b>Phase imbalance</b>	A condition in which the vector sum of the electrical phases has moved significantly away from zero.	ACLARA
<b>Ping</b>	A short, efficient communication to verify successful two-way communication.	ACLARA
<b>Point of Common Coupling</b>	“The point at which the electric utility and the interface to the premises wiring occurs.” Typically, this point is at the utility revenue meter. <a href="#">See also "Service Point."</a>	IEEE 2000
<b>Port ID</b>	The name of a physical (or sometimes logical) connection between a communication module and an End Device. Note: Communication modules can often support multiple end devices. Port IDs are used to identify the module-to-meter relationship(s) and will be synonymous with wiring where it exists.	ACLARA
<b>Positive Energy</b>	<a href="#">See "Forward Energy."</a>	ACLARA
<b>Potential Transformer</b>	<a href="#">See "Voltage Transformer."</a>	ACLARA
<b>Power Factor</b>	The ratio of the active power to the apparent power.	ANSI 2001, IEEE 2000
<b>Power Line Carrier</b>	“A communication system where the utility power line is used as the primary element in the communication link.”	EI 2005
<b>Power Quality</b>	“The characteristics of electricity that determine its usefulness.”	EI 2005
<b>Powerdown Count</b>	The number of times a communication module has powered down, as maintained in a counter. Note: The circumstances under which a module will power down are described by its voltage tolerance curve.	ACLARA

<b>Precision</b>	<p>“The degree of exactness or discrimination with which a quantity is stated; for example, a precision of 2 decimal places versus a precision of 5 decimal places.” <b>See also “Resolution.”</b></p>	<b>IEEE 2000</b>
<b>Premises</b>	<p>The building(s) and geographic area around a particular area being served. Note: Such an area is usually confined to a single lot or piece of property, and all of the improvements on it.</p>	<b>ACLARA</b>
<b>Premises Wiring</b>	<p>“Interior and exterior wiring, including power, lighting, control, and signal circuit wiring together with all their associated hardware, fittings, and wiring devices, both permanently and temporarily installed. This includes (a) wiring from the service point or power source to the outlets or (b) wiring from and including the power source to the outlets where there is no service point. Such wiring does not include wiring internal to appliances, luminaries, motors, controllers, motor control centers, and similar equipment.”</p>	<b>NFPA 2008</b>
<b>Pre-Paid Metering</b>	<p>A method of billing in which payment is received by the utility in advance of the sale of electricity.</p>	<b>ACLARA</b>
<b>Present Demand</b>	<p>The most recently available demand reading, as presented in the meter registers.</p>	<b>ACLARA</b>
<b>Present Energy</b>	<p>The most recently available energy reading, as presented in the meter registers. Note: The “present” value should represent the dial-reading of the meter, with allowances for update frequencies and communications latencies.</p>	<b>ACLARA</b>
<b>Previous Demand</b>	<p>The value of the "Present Demand" register which was "shifted" as a result of a demand reset.</p>	<b>ACLARA</b>
<b>Previous Energy</b>	<p>The value of the "Present Energy" register which was "shifted" or "frozen" at a particular moment in time. Note: Registers are typically shifted at midnight.</p>	<b>ACLARA</b>
<b>Primary Metering</b>	<p>A metering application in which a voltage transformer is imposed between the meter and the service.</p>	<b>ACLARA</b>
<b>Primary Voltage</b>	<p>The voltage of the circuit supplying power to a transformer is called the primary voltage, as opposed to the output voltage or load-supply voltage, which is called secondary voltage. In power supply practice the primary is almost always the high-voltage side and the secondary the low-voltage side of a transformer, except at generating stations.</p>	<b>EI 2005</b>
<b>Profile</b>	<p>The recording, storage and analysis of engineering or tariff quantities, captured and presented in discrete intervals over a period of time for a particular installation. Note: Common applications include load profiles and voltage profiles. Each channel of data is usually represented as a sequence of either signed or unsigned values - each representing the changes in the metered quantity over a series of intervals of time.</p>	<b>ACLARA</b>
<b>Programmable Communicating Thermostat</b>	<p>A thermostat capable of accepting user preferences for time and temperature, and also capable of communicating messages between the utility and the consumer. Note: Programmable Communicating Thermostats have the ability to receive a price based or system reliability based load curtailment signal through a communications system, and then automatically reduce energy consumption by modifying the air conditioning or heating system setpoint.</p>	<b>ACLARA</b>

Public Service Commission	A regulatory body that is empowered to regulate utilities and set tariffs. The terms "Public Service Commission" and "Public Utility Commission" are often used interchangeably.	ACLARA
Public Utility Commission	Generic term for a state agency holding regulatory power over energy pricing, and issues related thereto.	EnergyBuyer 2006
Publish/Subscribe Communication	"Implies that the server (data provider) makes available (or publishes) data stored in its system to one or more clients, which subscribe to such data."	MultiSpeak 2005
Pulse	A unit of consumption that operates in proportion to the flow of the substance being metered. Note: Pulses typically are generated by devices that have mechanical motion, and may correspond to one rotation of a disk in the metering device. Many solid-state meters also maintain the tradition of generating pulses. In this case, a pulse may correspond to a Wh or some other arbitrary reference. Pulses must be scaled (by Kh and possibly other scalars) to convert the measurement into a value that has an official (SI) unit of measure.	ACLARA
Pulse Device	The functional unit for initiating, transmitting, retransmitting, or receiving electric pulses, representing finite quantities, such as energy, normally transmitted from some form of electricity meter to a receiver unit.	ANSI 2001, IEEE 2000
Q-hour	"The quantity obtained by effectively lagging the applied voltage to a watt-hour meter by 60 degrees. This quantity is one of the quantities used in calculating quadergy" Note: Q-hour is usually expressed in kQh.	IEEE 2000
Quadergy	"The integral of reactive power with respect to time." Quadergy is usually expressed in kVArh. <b>Also known as "Reactive Energy."</b>	ANSI 2001, IEEE 2000
Rate Class	"A group of customers identified as a class and subject to a rate different from the rates of other groups."	EEl 2005
Rate Component	Any measurable quantity which may be used to compute a consumer's bill. Note: Also known as a "tariff component." Typical energy components include forward, reverse, net and/or total quantities of: Real Energy (kWh), Apparent Energy (kVAh), and/or Reactive Energy (kVArh). Typical power components include Real Power (kW), Apparent Power (kVA), and/or Reactive Power (kVAr). Some tariffs may also invoke a penalty calculation based on maximum demand and/or Power Factor (PF).	ACLARA
Rate Payer	The "consumer," the utility's customer.	ACLARA
Rate Schedule	An electric rate and its contract terms accepted by a regulatory agency.	EEl 2005
Rate Structure	The design and organization of billing charges to customers. A rate structure can comprise one or more of the rate schedules defined herein.	EEl 2005
Reactive Energy	<b>See "Quadergy."</b>	ACLARA
Reactive Power	"For sinusoidal quantities in a two-wire circuit, reactive power is the product of the voltage, the current, and the sine of the phase angle between them. For nonsinusoidal quantities, it is the sum of all harmonic components, each determined as above. In a polyphase circuit, it is the sum of the reactive powers of the individual phases." Reactive Power is normally expressed in kVAr.	IEEE 2000

Real Energy	See <a href="#">“Active Energy.”</a>	ACLARA
Real Power	See <a href="#">“Active Power.”</a>	ACLARA
Real-Time Pricing	“Energy prices that are set for a specific time period on an advance or forward basis and that may change according to price changes in the generation spot market. Prices paid for energy consumed during these periods are typically established and known to consumers a day ahead (“day-ahead pricing”) or an hour ahead (“hour-ahead pricing”) in advance of such consumption, allowing them to vary their demand and usage in response to such prices and manage their energy costs by shifting usage to a lower cost period, or reducing consumption overall.”	DRAM 2008
Received Energy	See <a href="#">“Reverse Energy.”</a>	ACLARA
Register	For an electromechanical meter, a register is a means of recording revolutions of the rotor, which it does through gearings to the disk shaft. Either a clock (pointer type) or cyclometer type register may be used. For a solid-state meter, a register is a storage location for a specific data element. <a href="#">See also “Tables.”</a>	ACLARA
Register Constant	“The factor by which the register reading must be multiplied in order to provide proper consideration of the register, or gear ratio, and of the instrument transformer ratios to obtain the registration in the desired unit. Note: it is commonly denoted by the symbol Kr.”	IEEE 2000
Register Reading	“The numerical value indicated by the register. Neither the register constant nor the test dial (or dials), if any exist, is considered.”	IEEE 2000
Regulator	A government agency responsible for controlling or directing economic entities through the process of rule-making and adjudication.	ACLARA
Relative Data	Data which is based on the difference between a predetermined constant data value and a sampled data value at a particular moment in time. The data may have been scaled and may consist of a signed or unsigned value. It is computed by dividing the raw data interval by a scalar (a constant) then subtracting the reference value (another constant). The result is the relative data interval value.  <a href="#">See also “Incremental Data” and “Absolute Data.”</a>	ACLARA
Remote Connect/ Disconnect	The action to perform "connect," "disconnect," or "arm" a service remotely by means of a communication network and on-site switching hardware. <a href="#">See also "Virtual Connect/Disconnect."</a>	ACLARA
Request/ Response Communication	Implies that a client (data consumer) requests that a specific action be taken by the server (data provider); the server responds with a message outlining the results of that action.	MultiSpeak 2005
Resolution	The least value of the measured quantity that can be distinguished. Note: When data is exchanged between systems, resolution is often expressed as the number of digits to the right of the decimal point.	ACLARA
Response	A reply.	ACLARA

<b>Restoration Monitoring</b>	The process of monitoring the progress of a restoration, especially as it relates to ensuring that all affected consumers have had their service restored.	ACLARA
<b>Retry</b>	“A mechanism whereby a transaction that (for whatever reason) could not complete in the current operation is attempted again at a later time.”	IEEE 2000
<b>Reverse Energy</b>	A quantity of energy received by the distribution network from the electrical service. Reverse Energy is stored as a positive (unsigned, non-negative) value. Energy may consist of any tariff energy quantity (Active, Apparent, and/or Reactive energy), but active energy (kWh) is the most common. <b>Also known as “Negative Energy” and “Received Energy.” See also “Forward Energy,” and “Flow Direction.”</b>	ACLARA
<b>Rolling-Interval Demand Calculation</b>	The monitoring of demand by using a method that measures the average power over a sliding period of time. Note: Demand intervals are typically 15 or 30 minutes in length and divided into “subintervals” which are typically 5 minutes in length. The process then sums adjacent subintervals together to form a value for a complete demand interval.	ACLARA
<b>Roll-Over</b>	The process that occurs when a display or a stored unsigned integer value goes from its maximum allowed value to zero as a result of adding one. For example, when forward energy flows through a 5-dial electric meter, its dials will go from 99999 to 00000 when it rolls-over.	ACLARA
<b>Roll-Under</b>	The process that occurs when a display or a stored unsigned integer value goes from zero to its maximum allowed value as a result of subtracting one. For example, when reverse energy flows through a 5-dial electric meter, its dials will go from 00000 to 99999 when it rolls-under.	ACLARA
<b>Sampling Rate</b>	“The frequency with which the event recorder regularly monitors an input channel to determine its value.”	IEEE 2000
<b>SCADA</b>	An acronym for Supervisory, Control, And Data Acquisition equipment. SCADA equipment is used to monitor and control electrical transmission and distribution equipment.	ACLARA
<b>Scale</b>	“To multiply the representation of a number by a factor in order to bring its range within prescribed limits.” Note: when scalars are applied there may also be a corresponding change in the unit of measure. For example, a meter reading might be converted from “pulses” to “kWh” by application of the appropriate scalar.	IEEE 2000
<b>Schedule</b>	A plan for performing work or achieving an objective, specifying the order and allotted time for each part.	Dictionary 2006
<b>SCRAM</b>	An action in response to an emergency in which all dispatchable load is shed as quickly as possible. Note: This term has an interesting etymology. During the origin of nuclear energy in the United States, there might be a “Safety Control Rod Axe Man” who was on stand-by to literally cut ropes with an axe which would then cause control rods to drop into the nuclear pile. The term subsequently became quite popular in American slang. It is now part of the vocabulary for certain types of emergency response process.	ACLARA
<b>Season</b>	A calendar-specified period used for activation of rate schedules.	IEEE 2000
<b>Secondary Metering</b>	A metering application in which a voltage transformer is not present (between the meter and the service being measured).	ACLARA

<b>Secondary Watthour Constant</b>	Commonly called “Kh,” this value represents the number of Watthours per disk revolution.	ACLARA
<b>Self Read</b>	The process by which a meter or meter communication module can automatically capture a reading according to a schedule or other trigger mechanism.	ACLARA
<b>Service</b>	“The conductors and equipment for delivering electric energy from the serving utility to the wiring system of the premises served.”	NFPA 2008
<b>Service Drop</b>	“The overhead service conductors from the last pole or other aerial support to and including the splices, if any, connecting to the service-entrance conductors at the building or other structure.”	NFPA 2008
<b>Service Lateral</b>	“The underground service conductors between the street main, including any risers at a pole or other structure or from transformers, and the first point of connection to the service-entrance conductors in a terminal box or meter or other enclosure, inside or outside the building wall. Where there is no terminal box, meter, or other enclosure, the point of connection shall be considered to be the point of entrance of the service conductors into the building.”	NFPA 2008
<b>Service Level Agreement</b>	A formal written agreement made between a service provider and the service recipient which defines the basis of understanding between the two parties for delivery of the service itself. Note: A service level agreement will generally contain clauses that define a specified level of service, support options, incentive awards for when service levels are exceeded, and/or penalty provisions when services are not provided.	ACLARA
<b>Service Location</b>	The physical location served by a given electrical service. A given service location may contain multiple premises, services, or meters. The data attributes normally include a description of the street address, city, state, zip, and possibly some type of map coordinate or location.	ACLARA
<b>Service Multiplier</b>	A multiplier used to convert "metered usage" to the "service usage." Usually the multiplier is VTR x CTR. Some may also factor in Kr.	ACLARA
<b>Service Point</b>	“The point of connection between the facilities of the serving utility and the premises wiring.” Note: “The service point is the point on the wiring system where the serving utility ends and where the premises wiring begins.” <a href="#">See also “Point of Common Coupling.”</a>	NFPA 2008, NFPA 1999
<b>Service Territory</b>	“Area in which a utility system is required or has the right to supply ... service to ... customers.”	EI 2005
<b>Service Usage</b>	Usage on a given electrical service. Note: This type of reading may be computed as the metered usage times any CT or VT ratios, or it may be equal to the dial reading times the Kr. <a href="#">Also known as a "Direct Reading."</a>	ACLARA

<b>Set-Back Thermostat</b>	A thermostat intended to minimize energy usage without sacrificing comfort by allowing customers to preset each home's cooling or heating patterns. The thermostat will automatically raise and lower the temperature at the times programmed by the customer. Note: These thermostats are particularly effective in modifying consumption patterns to follow static Time-of-Use rates.	ACLARA
<b>Shelf-Life</b>	The length of time that data may be stored and remain suitable for use in the meter or meter communication module. Some data elements may be available only for a day, others only for an hour before they are overwritten or otherwise unavailable. <b>Also known as "Data Availability."</b>	ACLARA
<b>Solid-State Meter</b>	A meter in which the metrology is performed by solid-state components (as opposed to the mechanism used in more traditional electro-mechanical meters).	ACLARA
<b>Smart Meter</b>	<b>See "Advanced Meter."</b>	ACLARA
<b>Source Register</b>	The register which is used as the basis for the calculation of Interval Data. Note: Interval data will inherit the unit of measure of the source register.	ACLARA
<b>Spinning Reserve</b>	"Unloaded generation that is synchronized and ready to serve additional demand."	IEEE 2000
<b>Standard Meter</b>	"An electromechanical or solid state meter that cumulatively measures, records and stores aggregated kWh that is periodically retrieved for use in customer billing."	DRAM 2008
<b>Substation</b>	"An area or group of equipment containing switches, circuit breakers, busses, and transformers for switching power circuits and to transform power from one voltage to another or from one system to another."	IEEE 2000
<b>System of Record</b>	The system which is the authoritative data source for a given data element or piece of information.	ACLARA
<b>Tamper</b>	To interfere with the normal operation of a meter in an effort to falsify its readings.	ACLARA
<b>Tariff</b>	"A document, approved by the responsible regulatory agency, listing the terms and conditions, including a schedule of prices, under which utility services will be provided."	EnergyBuyer 2006
<b>Telemetry</b>	"The ability to read a meter from a distance using electronic communications devices."	EEl 2003
<b>Thermal-Response Demand Calculation</b>	The monitoring of demand by using a method that relies on the temperature rise in a thermal element to indicate the average power flowing through the meter. Note: Modern solid-state meters, if they support this calculation method at all, will use an algorithm to simulate the result.	ACLARA
<b>Time-Of-Use Pricing</b>	"Energy prices that are set for a specific time period on an advance or forward basis, typically not changing more often than twice a year (summer and winter season). Prices paid for energy consumed during these periods are pre-established and known to consumers in advance of such consumption, allowing them to vary their demand and usage in response to such prices and manage their energy costs by shifting usage to a lower cost period, or reducing consumption overall. The time periods are pre-established, typically include from two to no more than four periods per day, and do not vary in start or stop times."	DRAM 2008

<b>Total Energy</b>	<p><b>Forward energy plus reverse energy.</b></p> $Total\ Energy =  forward\ energy  +  reverse\ energy $ <p><b>Note: Total Energy is sometimes as a deterrent to energy theft. It is used in metering applications where the service location (and corresponding customer program and tariff) are known to not support any distributed generation.</b></p> <p><b>Also known as “Secured Energy” or “Added Energy.” See Also “Forward Energy,” “Net Energy,” “Reverse Energy,” and “Flow Direction.”</b></p>	<b>ACLARA</b>
<b>Transaction</b>	<b>A unit of interaction between systems.</b>	<b>ACLARA</b>
<b>Transceiver</b>	<b>“A device that both transmits and receives data.”</b>	<b>IEEE 2000</b>
<b>Transformer</b>	<b>“An electromagnetic device for changing the voltage level of alternating-current electricity.”</b>	<b>EI 2005</b>
<b>Transformer-Rated</b>	<b>A meter designed to work with CTs or VTs.</b>	<b>ACLARA</b>
<b>Transponder</b>	<b>“A device that responds to a physical or electrical stimulus and emits an electrical signal in response to the stimulus.”</b>	<b>IEEE 2000</b>
<b>Two-Way</b>	<p>In reference to communication technology, a system that enables communication between the originator of a transaction and the recipient, and back again. <b>Note: A two-way system can be half-duplex or full-duplex. A two-way system can in many cases also operate as a one-way system.</b></p> <p><b>See also "One-Way," "Inbound," and "Outbound."</b></p>	<b>ACLARA</b>
<b>Underflow</b>	<b>The condition that arises when a mathematical operation is performed to produce a result that is near zero, and the system represents it as zero.</b>	<b>ACLARA</b>
<b>Under-Frequency Event</b>	<b>The slowing of the power system frequency below a predefined (critical) frequency and duration threshold.</b>	<b>ACLARA</b>
<b>Under-Frequency Load Shed</b>	<b>The automatic shedding of load in response to an under-frequency event.</b>	<b>ACLARA</b>
<b>Under-Voltage Event</b>	<b>A decrease in the measured voltage of the power system below a predefined (critical) voltage and duration threshold.</b>	<b>ACLARA</b>
<b>Validating</b>	<b>The process of applying various rules to provide a reasonability test to data.</b>	<b>ACLARA</b>
<b>Virtual Connect/Disconnect</b>	<p><b>The action to simulate the disconnection of an electrical service by monitoring the metered usage and throwing an alarm when a threshold is exceeded.</b></p> <p><b>See also "Remote Connect/Disconnect."</b></p>	<b>ACLARA</b>
<b>Voltage Sag</b>	<b>See “Under-Voltage Event.”</b>	<b>ACLARA</b>
<b>Voltage Swell</b>	<b>See “Over-Voltage Event.”</b>	<b>ACLARA</b>
<b>Voltage Threshold Alarm</b>	<b>An alarm caused by an under-voltage or over-voltage event.</b>	<b>ACLARA</b>
<b>Voltage Tolerance Curve</b>	<b>A curve that characterizes the AC input voltage envelope that can be tolerated, with no interruption in function, by an electronic product.</b>	<b>ACLARA</b>

<b>Voltage Tolerance Curve</b>	A curve that describes the upper and lower voltage limits under which a device will continue to operate normally with the passage of time. Note: Exceeding the upper voltage limit generally causes damage to the device. Exceeding the lower voltage limit generally causes the device to power down. The ITIC has published a curve (sometimes called a "CBEMA curve") which is an important reference for characterizing the behavior of I/T hardware.	ACLARA
<b>Voltage Transformer</b>	"An instrument transformer intended for measurement or control purposes which is designed to have its primary winding connected in parallel with a circuit, the voltage of which is to be measured or controlled."	EI 2002
<b>Voltage Transformer Ratio</b>	The effective turns ratio of a voltage transformer.	ACLARA
<b>Volt-Ampere Reactive TD</b>	The reactive power as measured using a time-delay method.	ACLARA
<b>Volt-Ampere RMS</b>	The apparent power as measured using a root-mean-square averaging formula.	ACLARA
<b>Volt-Ampere TD</b>	The apparent power as measured using a time-delay method.	ACLARA
<b>Watt-hour meter</b>	"An electricity meter that measures and registers the integral, with respect to time, of the active power of the circuit in which it is connected. This power integral is the energy delivered to the circuit during the interval over which the integration extends, and the unit in which it is measured is usually the kilowatt-hour" (kWh).	ANSI 2001, IEEE 2000

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## Common Abbreviations

<b>CIS</b>	<b>Customer Information System</b>
<b>AEP</b>	<b>American Electric Power Inc.</b>
<b>AMI</b>	<b>Advanced Metering Infrastructure</b>
<b>AMR</b>	<b>Automated Meter Reading</b>
<b>CBEMA</b>	<b>Computer Business Equipment Manufacturer's Association</b>
<b>CPP</b>	<b>Critical Peak Pricing</b>
<b>CT</b>	<b>Current Transformer</b>
<b>CTR</b>	<b>Current Transformer Ratio</b>
<b>DG</b>	<b>Distributed Generation</b>
<b>DR</b>	<b>Demand Response</b>
<b>DSM</b>	<b>Demand-Side Management</b>
<b>EMS</b>	<b>Energy Management System</b>
<b>GIS</b>	<b>Geographic Information System (GIS)</b>
<b>HAN</b>	<b>Home Area Network</b>
<b>I/T</b>	<b>Information Technology</b>
<b>ITIC</b>	<b>Information Technology Industry Council (ITIC) <a href="http://www.itic.org/">http://www.itic.org/</a>.</b>
<b>LA</b>	<b>Load Analysis</b>
<b>LC</b>	<b>Load Control</b>
<b>LM</b>	<b>Load Management</b>
<b>LMS</b>	<b>Load Management System</b>
<b>LV</b>	<b>Low Voltage</b>
<b>MDM</b>	<b>Meter Data Management system</b>
<b>MS</b>	<b>Metering System</b>
<b>OA</b>	<b>Outage Analysis</b>
<b>OD</b>	<b>Outage Detection</b>
<b>OMS</b>	<b>Outage Management System</b>
<b>OOS</b>	<b>Out-Of-Service</b>
<b>PBR</b>	<b>Performance Based Rates</b>
<b>PBR</b>	<b>Performance Based Regulation</b>
<b>PCT</b>	<b>Programmable Communicating Thermostat</b>
<b>PF</b>	<b>Power Factor</b>
<b>POC</b>	<b>Point of Common Coupling</b>
<b>PSC</b>	<b>Public Service Commission</b>
<b>PT</b>	<b>Potential Transformer</b>
<b>PUC</b>	<b>Public Utility Commission</b>
<b>PV</b>	<b>Photovoltaic</b>
<b>RTP</b>	<b>Real-Time Pricing</b>
<b>SCADA</b>	<b>Supervisory, Control, And Data Acquisition equipment</b>
<b>SLA</b>	<b>Service Level Agreement</b>
<b>TOU</b>	<b>Time-Of-Use</b>
<b>UFLS</b>	<b>Under Frequency Load Shed</b>
<b>VAR</b>	<b>Volt-Ampere Reactive</b>
<b>VEE</b>	<b>Validating, Editing, and Estimating</b>
<b>VT</b>	<b>Voltage Transformer</b>
<b>VTR</b>	<b>Voltage Transformer Ratio</b>