

General Information Section, FERC-727 and FERC-728

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Federal Energy Regulatory Commission Survey on Demand Response, Time-Based Rate Programs/Tariffs and Advanced Metering Infrastructure *Glossary*

Actual Annual MWh Change: The actual sum of MWh changes due to customer participation in a sponsored Demand Response program for the annual period.

Actual MWh Change: The total annual change in energy consumption (measured in MWh) that resulted from the deployment of Demand Response programs during the year.

Actual Peak Reduction: The coincident reductions to the annual peak load (measured in megawatts) achieved by customers that participate in a demand response program at the time of the annual system peak of the utility or RTO/ISO. It reflects the changes in the demand for electricity resulting from a sponsored demand response program that is in effect at the same time a utility or RTO/ISO experiences its annual system peak load, as opposed to the installed peak load reduction capability (i.e., Potential Peak Reduction). For curtailment service providers (CSP), the actual peak reduction should include the demand response load provided at the time of the peak for the region in which they aggregate customer load. For utilities, it should include the demand response load at the time of the utility annual system peak load. For RTOs/ISOs, it should include the demand response load at the time of the RTO/ISO annual system peak load.

Advanced Metering Infrastructure (AMI): AMI is defined as the communications hardware and software and associated system software that creates a network between advanced meters and utility business systems and which allows collection and distribution of information to customers and other parties, such as competitive retail providers, in addition to providing information to the utility itself.

Advanced or Smart Metering: A system including measurement devices and a communication network, public and/or private, that records customer consumption [and possibly other parameters] hourly or more frequently and that provides for daily or more frequent transmittal of measurements to a central collection point.

Affiliated: An entity which is directly or indirectly owned, operated, or controlled by another entity.

Affiliated Entities: Organizations which are directly or indirectly owned, operated, or controlled by another entity.

AMI Network: A system including measurement devices and a communication network, public and/or private, that records customer consumption [and possibly other parameters] hourly or more frequently and that provides for daily or more frequent transmittal of measurements to a central collection point.

Ancillary Services: Services that ensure reliability and support the transmission of electricity to customer loads. Such services may include: energy imbalance, spinning reserves, supplemental reserves, reactive supply and voltage control, and regulation and frequency response.

Ancillary Service Market Programs: Demand response programs in which customers bid load reductions in RTO/ISO ancillary services markets. If their bids are accepted, they are paid the market price for committing to be on standby. If their load reductions are needed, they are called by the RTO/ISO, and may be paid the spot market energy price.

Asset Management: The ability to leverage the value of metering data and other available information to increase the value of utility investments and/or to improve customer service. One example is using hourly interval data to measure the load on transformers at the time of the system peak.

Bid Limits: The maximum \$/MWh bid that can be submitted by a demand response program participant.

Billing or Revenue Meter: Meters installed at customer locations that meter electric usage and possibly other parameters associated with a customer account and provide information necessary for generating a bill to the customer for the customer account.

Billing or Revenue Purposes: The determination of charges and bills to be assessed for products and/or services used.

Capacity Market Programs (CAP): Demand response programs in which customers offer load reductions as system capacity to replace conventional generation or delivery resources. Customers typically receive notice of events and face penalties for failure to curtail when called upon to do so. Incentives usually consist of up-front reservation payments.

Commercial Sector: An energy-consuming sector that consists of service-providing facilities and equipment of: businesses; federal, state, and local governments; and other private and public organizations, such as religious, social, or fraternal groups. The commercial sector includes institutional living quarters, sewage treatment facilities, and street lighting.

Cooperative Electric Utility: An electric utility legally established to be owned by and operated for the benefit of those using its service. The utility company will generate, transmit, and/or distribute supplies of electric energy to a specified area not being serviced by another utility. Such ventures are generally exempt from federal income tax laws. Most electric cooperatives were initially financed by the Rural Utilities Service (formerly the Rural Electrification Administration), U.S. Department of Agriculture.

Company: An association, firm, corporation, estate, individual, joint venture, partnership, or sole proprietorship, or any other entity, however organized, including: (a) charitable or educational institutions; (b) the Federal Government, including corporations, departments, Federal agencies, and other instrumentalities; and State and local governments. A company may consist of (1) a parent entity, including the consolidated and unconsolidated entities (if any) that it directly or indirectly controls; (2) a parent and its consolidated entities only; (3) an unconsolidated entity; or (4) any part or combination of the above.

Critical Peak Pricing (CPP): CPP rates typically charge a much higher price during a few hours per day on critical peak days. The number of critical peak days is usually capped for a calendar year and are linked to conditions such as system reliability concerns or very high supply prices.

Critical Peak Rebate (CPR): CPR rates allow customers to earn a rebate by reducing energy use from a baseline during a few hours on critical peak days. Like CPP, the number of critical peak days is usually capped for a calendar year and are linked to conditions such as system reliability concerns or very high supply prices.

Curtailment Service Provider (CSP): Demand response providers that are not necessarily load serving entities. CSPs may sponsor demand response programs and sell the demand response load to utilities, RTOs and/or ISOs.

Customer Accounts: A record at the energy provider that identifies an entity receiving electric service at one or several locations within the utility service footprint that is associated with one entity responsible for payment for the energy consumed and metered at the location(s). There may be no meter associated with the customer account (such as with street lights), or there may be one or more meters associated with a particular customer account.

Demand Bidding/Buyback (DB): A demand response program where customers or curtailment service providers offer bids to curtail based on wholesale electricity market prices or an equivalent. Mainly offered to large customers (e.g., one MW and above), but small customer demand response load can be aggregated by curtailment service providers and bid into the demand bidding program.

Demand Response: Changes in electric usage by end-use customers from their normal consumption patterns in response to changes in the price of electricity over time, or to incentive payments designed to induce lower electricity use at times of high wholesale market prices or when system reliability is jeopardized.

Demand Response Event: A period of time identified by the demand response program sponsor when it is seeking reduced energy consumption and/or load from customers participating in the program. Depending on the type of program and event (economic or emergency), customers are expected to respond or decide whether to respond to the call for reduced load and energy usage. The program sponsor generally will notify the customer of the demand response event before the event begins, and when the event ends. Generally each event is a certain number of hours, and the program sponsors are limited to a maximum number of events per year.

Demand Response Programs: A company's service/product/tariff related to changes in electric usage by end-use customers from their normal consumption patterns in response to changes in the price of electricity over time, or to incentive payments designed to induce lower electricity use at times of high wholesale market prices or when system reliability is jeopardized.

Direct Load Control (DLC): A demand response activity by which the program sponsor remotely shuts down or cycles a customer's electrical equipment (e.g. air conditioner, water heater) on short notice. Direct load control programs are primarily offered to residential or small commercial customers.

Duration of Event: The length of an Emergency or Economic Demand Response Event in hours.

EIA ID Number: Unique identification number assigned by EIA to companies and entities operating in the electric power industry and responding to the EIA-861 form.

Economic Demand Response Event: A demand response event during which a customer decreases the amount of power being used or a demand response program sponsor directs decrease in the amount of power being used because of an economic market opportunity or dispatch instructions.

Electric Power: The rate at which electric energy is transferred. Electric power is measured by capacity and is commonly expressed in megawatts (MW).

Electric Utility: A corporation, person, agency, authority, or other legal entity or instrumentality aligned with distribution facilities for delivery of electric energy for use primarily by the public. Included are investor-owned electric utilities, municipal and state utilities, federal electric utilities, and rural electric cooperatives. A few entities that are tariff based and affiliated with companies that own distribution facilities are also included.

Electricity: A form of energy characterized by the presence and motion of elementary charged particles generated by friction, induction, or chemical change.

Emergency Demand Response Event: A demand response event called by the program sponsor in response to an emergency declared by the demand response sponsor or by another entity such as a utility or RTO/ISO.

Emergency Demand Response Program (EDRP): A demand response program that provides incentive payments to customers for load reductions achieved during an emergency demand response event.

Energy: The capacity for doing work as measured by the capability of doing work (potential energy) or the conversion of this capability to motion (kinetic energy). Energy has several forms, some of which are easily convertible and can be changed to another form useful for work. Most of the world's convertible energy comes from fossil fuels that are burned to produce heat. The heat is then used as a transfer medium to mechanical or other means in order to accomplish tasks. Electric energy is usually measured in kilowatt-hours.

Energy Payment for MWh Curtailed (\$/MWh): Compensation paid or received for reductions in electric energy consumption.

Enhanced Customer Service: The ability to offer customers billing flexibility, additional rate options, better outage management, timely information on energy usage, fewer bill estimates, and flexibility in starting/ending service.

Entity: The organization that is (1) responding to the survey, (2) offering demand response programs, time-based rates/tariffs, or (3) using advanced or smart meters.

Gas Meter: A meter that measures natural gas usage for ultimate customers.

Home Area Network (HAN): The HAN is a communication network of devices in and around a customer premise offering customers the ability to better manage their energy use and their electric bill.

Hourly Pricing: A pricing plan where prices for energy vary by the hour usually based in part on a wholesale market price for energy.

ICAP Credit: An RTO/ISO installed capacity (ICAP) credit that can be used to satisfy a resource requirement.

Incentive-based Programs: Provide motivation or direct payments to customers to induce load reductions when needed, usually for system reliability.

Industrial: The energy-consuming sector that consists of all manufacturing facilities and equipment used for producing, processing, or assembling goods. The industrial sector encompasses the following types of activities: manufacturing; agriculture, forestry, and fisheries; mining; and construction. Overall energy use in this sector is largely for process heat and cooling and powering machinery, with lesser amounts used for facility heating, air conditioning, and lighting. This sector may include energy deliveries to large commercial customers, and may exclude deliveries to small industrial customers since these may be included in the commercial sector. It also may classify through the North American Industry Classification System or on the basis of energy demand or annual usage exceeding some specified limit set by the energy provider.

Interface with Water or Gas Meters: The ability of the AMI network to collect water or gas meter readings and to transmit those readings over the AMI network to a central collection point.

Internet: The worldwide, publicly accessible series of interconnected computer networks that transmit data by packet switching using the standard Internet Protocol.

Interruptible/Curtailable Service (I/C): Curtailment options integrated into retail tariffs that provide a rate discount or bill credit for agreeing to reduce load during system contingencies. Penalties may be assessed for failure to curtail. In some instances, the demand reduction may be affected by direct action by a utility or other system operator (remote tripping) after notice to the customer in accordance with contractual provisions. For example, demands that can be interrupted to fulfill planning or operating reserve requirements normally should be reported as Interruptible Demand. Interruptible programs have traditionally been offered only to the largest industrial (or commercial) customers. Interruptible Demand as reported here does not include Direct Control Load or Price Responsive Demand Response.

Intervals: The period of time for which advanced or smart meters measure energy usage and possibly other measurements, usually in increments of minutes, such as five minute intervals, 15 minute intervals, or hourly intervals.

Interval Usage: The amount of energy measured by the advanced or smart meters for the specified interval. Examples are the energy measured in kWh for five minutes, 30 minutes, or an hour.

Kilowatt-hour (kWh): One thousand watt-hours.

Line Loss: Electric energy lost through the transmission of electricity. Much of the loss is thermal in nature.

Load (Electric): The amount of electric power delivered or required at any specific point or points on a system. The requirement originates at the energy-consuming equipment of the consumers.

Load Forecasting: The estimation of future load requirements for specified intervals over a period of time. The load forecast may provide an estimate of hourly loads for a group of ultimate customers for the next five years, for example.

Mandatory: Participation in the demand response program is required based on the customer's size or rate class. Customers are not offered the option to take service under a different pricing plan or tariff.

Maximum Demand of Enrolled Customers: The highest level of total demand in MWs for customers enrolled and participating in a demand response program. This may be reported as tracked by your entity, such as hourly demand, 30-minute demand, 15-minute demand, or 5-minute demand.

Maximum Demand: The highest level of demand in MWs as tracked by your entity, such as an hourly demand, 30-minute demand, 15-minute demand or 5-minute demand.

Maximum Duration of Event: A specified maximum length of time a particular demand response event will continue, usually defined by 30 minute or hourly increments.

Megawatt (MW): One million watts of electricity.

Megawatt-hour (MWh): One thousand kilowatt-hours or one million watt-hours.

Minimum Payment Rate: The smallest amount of money a program sponsor will provide a demand response program participant for reduced energy consumption and/or load.

Minimum Reduction: A threshold established by the demand response program sponsor as the minimum demand reduction a participant must achieve during a demand response event to be considered as participating in that event or to qualify for the demand response program.

Minimum Term: The minimum length in years that customers are obligated to participate in the demand response program.

Municipality: A village, town, city, county, or other political subdivision of a state.

Operating Company: The name a utility uses in doing business within a particular state associated with a particular service territory.

Other Programs/Tariff: A company or utility's service/product/compilation of all effective rate schedules, general terms and conditions and standard forms related to demand response/AMI services for customers which are not residential, commercial, industrial or transportation.

Outage Detection: The ability of an advanced or smart metering system to determine the absence of electric energy to a customer meter.

Outage Management: The response of an electric utility to an outage affecting the ultimate customers of the electric service. The utility may use the AMI network to detect outages, verify outages, map the extent of an outage, or verify the service has been restored after repairs have been made.

Outage Mapping: The ability of an advanced or smart metering system to provide information as to the extent and location of an outage within a distribution grid.

Outage Restoration: The ability of an advanced or smart metering system to verify power is supplied to a meter.

Peak MW Demand for 2007: The largest demand (MW) on the power system during 2007.

Penalties: Reduced payments or fines which result when a demand response program participant fails to meet target reductions in power demand or elects to not reduce consumption during a demand response event.

Potential MWh Change: The potential total annual change in energy consumption (measured in MWh) that would result from the deployment of demand response programs. It reflects the total change in consumption if the full demand reduction capability of the program was deployed, as opposed to the actual MWh change during the year without the program in place.

Potential Peak Reduction: The potential annual peak load reduction (measured in megawatts) that can be deployed from demand response programs. It represents the demand reduction that can be achieved either by the direct control of the utility system operator or by the consumer in response to a utility request to curtail load. It reflects the installed demand reduction capability, as opposed to the Actual Peak Reduction achieved by participants, during the time of annual system peak load. For utilities, it should be the potential sum of demand reduction capability to their annual peak load (measured in megawatts) achieved by the program participants. For an RTO or ISO, it should be the sum of coincident reduction capability to the RTO or ISO achieved by participants at the time of system peak of the RTO or ISO. Similarly, for CSPs, it should be the sum of coincident reduction capability sponsored by the CSP, achieved by demand response program participants at the time of the peak for the region in which they aggregate customer load.

Power Quality: The measure, analysis, and improvement of voltage to reduce transients, sags, swells, harmonics and momentary interruptions.

Power Quality Monitoring: The ability of the AMI network to discern, record, and transmit to the utility, instances where the voltage and/or frequency were not in ranges acceptable for reliability.

Premise Device/Load Control Interface or Capability: The ability of the AMI network to communicate directly with a device located on the premises of the ultimate customer, which may or may not be owned by the utility. These might include a programmable communicating thermostat or a load control switch.

Pre-Pay Metering: A metering and/or software payment system that allows the ultimate customer to pay for electric service in advance.

Price-Based Rate/Tariff: The terms and conditions under which customers can choose their energy consumption pattern based on the price they would pay for power during a specific period of time. Examples include time-of-use, real-time pricing, hourly pricing, critical peak pricing and critical peak rebates.

Price-Responsive Demand Response: All demand response programs that include the use of time-based rates to encourage retail customers to reduce demand when prices are relatively high. Demand response programs may also include the use of automated responses. Customers may or may not have the option of overriding the automatic response.

Pricing Event Notification Capability: The ability of the AMI network to convey to utility customers participating in a price responsive demand response program that a demand response event is planned, beginning, ongoing, and/or ending.

Program End Date: A date specified when the demand response program will cease.

Program Start Date: A date specified when a demand response program will begin.

Programs/Tariffs: A company or utility's service/product/compilation of all effective rate schedules, general terms and conditions and standard forms related to demand response/AMI services.

Provide the Information to the Entity at Least Daily: The information measured by the advanced or smart metering system will be communicated to the entity providing energy and/or delivery services via the communication network at least once per day and possibly more frequently (such as four times per day or hourly.)

Provision of Usage Information to Customers: The ability of the AMI network to timely convey usage information to ultimate customers. Timely in this context would be dependent on the customer class, with larger customers generally receiving the information with less lag time than residential customers.

Public Utility: Enterprise providing essential public services, such as electric, gas, telephone, water, and sewer under legally established monopoly conditions.

Public Utility District: Municipal corporations organized to provide electric service to both incorporated cities and towns and unincorporated rural areas.

Publicly Owned Electric Utility: A class of ownership found in the electric power industry. This group includes those utilities operated by municipalities, political subdivisions, and state and federal power agencies (such as the Bonneville Power Administration and the Tennessee Valley Authority).

Railroad and Railway Electric Service: Electricity supplied to railroads and interurban and street railways for general railroad use, including the propulsion of cars or locomotives, where such electricity is supplied under separate and distinct rate schedules.

Real Time Pricing (RTP): A retail rate in which the price for electricity typically fluctuates hourly reflecting changes in the wholesale price of electricity. RTP prices are typically known to customers on a day-ahead or hour-ahead basis.

Reduce Line Losses: The ability to use the AMI network to lower line losses on a transmission or distribution system.

Regional Council: One of eight groups organized around the eight major interconnections in the North American bulk power system that work with the North American Electric Reliability Corporation to improve the reliability of the bulk power system.

Remotely Change Metering Parameters: The ability to change any parameter that affects the operation or communications of an advanced or smart meter via the communication network as opposed to visiting the location of the metering device.

Remotely Upgrade Firmware in Endpoint: The ability to remotely change the operating functionality of metering endpoints..

Remote Connect/Disconnect: The ability to physically turn on or turn off power to a particular billing or revenue meter without a site visit to the meter location.

Residential: The energy-consuming sector that consists of living quarters for private households. Common uses of energy associated with this sector include space heating, water heating, air conditioning, lighting, refrigeration, cooking, and running a variety of other appliances. The residential sector excludes institutional living quarters. This sector may exclude deliveries or sales to apartment buildings or homes on military bases (these buildings or homes may be included in the commercial sector).

Respondent ID: A number FERC assigns to a company or individual who does not have an EIA number and did not complete and return an EIA-861 form.

Response Time: The maximum notice and lead time that a demand response program sponsor provides to demand response program participants prior to an economic or emergency demand response event.

Retail: Sales covering electrical energy supplied for residential, commercial, and industrial end-use purposes. Other small classes, such as agriculture and street lighting, also are included in this category.

Retail Customers: Purchasers of energy who consume the energy product.

Revenue Assurance: A set of activities designed to accurately match revenue from providing electric service to customers with customers' use of energy.

Revenue/Billing Meters: A device that charges an entity for the energy products and/or services used.

Service Territory: The area in a particular state within which an electric utility is allowed to serve ultimate customers for distribution, transmission, or energy services.

Specific Event Limits: The maximum number of events that can be called during a year.

System (Electric): Physically connected generation, transmission, and distribution facilities operated as an integrated unit under one central management or operating supervision.

System Peak MW Demand: Largest possible size of load (MW) on a power system during 2007. [GIQ8 (table)]

Theft Detection: The ability to detect potential tampering, bypassing or unauthorized removal of revenue or billing meters that should be investigated by the utility.

Time-Based Rates/Tariffs: A retail rate or tariff in which customers are charged different prices for different times during the day. Examples are time-of-use (TOU) rates, real time pricing, hourly pricing, and critical peak pricing. These rates do not include seasonal rates and inverted block or declining block rates.

Time-of-Use (TOU) Rate: A rate where usage unit prices vary by time period, typically greater than one hour within a 24-hour day. TOU rates reflect the average cost of generating and delivering power during those time periods. Daily pricing blocks might include an on-peak, partial-peak, and off-peak price for non-holiday weekdays, with the on-peak price as the highest price, and the off-peak price as the lowest price.

Transformer: A device that operates on magnetic principles to increase (step up) or decrease (step down) voltage.

Transformer Sizing: Analysis of the ideal rating for a transformer on a distribution/transmission grid to minimize line losses and provide sufficient capacity to handle peak loads now and in the future.

Transmission: The movement or transfer of electric energy over an interconnected group of power lines and associated equipment between points of supply and points at which it is stepped-down for delivery to consumers or is delivered to other electric systems. Transmission is considered to end when the electric energy is stepped-down for distribution to the consumer.

Transmission System (Electric): An interconnected group of electric transmission lines and associated equipment for moving or transferring electric energy in bulk between points of supply and points at which it is stepped-down to the distribution system for end-use consumers.

Transportation: An energy consuming sector that consists of electricity supplied and services rendered to railroads and interurban and street railways, for general railroad use including the propulsion of cars or locomotives, where such electricity is supplied under separate and distinct rate schedules.

Transportation Programs/Tariffs: A company or utility's service/product/compilation of all effective rate schedules, general terms and conditions and standard forms related to demand response/AMI services for transportation customers.

Ultimate Consumer: A consumer that purchases electricity for its own use and not for resale.

Unaffiliated (Entities): Entities that are separately owned and operated and controlled.

Uncommitted Capacity: Generating resources that are physically located in the region, but are not dedicated or contractually committed to serve load in the region.

Voluntary: In this context, customers have the option to participate or not participate. This would include opt-out programs where customers are automatically enrolled but are allowed to discontinue their participation.

Water Meter: A meter that measures water usage for end-use customers.

Watt (W): The unit of electrical power equal to one ampere of current flowing under the pressure of one volt. A watt is equal to 1/746 horsepower.

Watt-hour (Wh): The electrical energy unit of measure equal to one watt of power supplied to, or taken from, an electric circuit steadily for one hour.

Wholesale (Customer): Customers that purchase power that is to be resold in bulk power markets.

Year of Study: Identification of the projected year covered by a specified study.