
GLOSSARY

Energy Argot

Affiliated Reference
to
Watertown Hydro-Electric Project
REVENUE OPTIONS
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ANCILLARY SERVICES - Services that support the reliable operation of the power system, which can include voltage support, frequency regulation, operating reserves, and black-start capabilities.

CAPACITY - Capacity is the maximum electric output that a generator can produce. It is measured in megawatts (MW).

A MW is a measure of electricity that is the equivalent of 1 million watts. It is generally estimated that a megawatt provides enough electricity to supply the power needs of 800 to 1,000 homes. The MW is used in the wholesale market and capacity is a fungible commodity whose price is determined by an annual auction. The retail market uses the metric of kW (kilowatt) due to lower economies to scale. One MW is equal to 1,000 kW.

CCA (Community Choice Aggregation) - The purpose of Community Choice Aggregation is to allow participating local governments to procure energy supply service and distributed energy resources (DER) for eligible energy customers in the community. These customers will have the opportunity to opt out of the procurement, while maintaining transmission and distribution service from the existing Distribution Utility. CCA allows local governments to work together through a shared purchasing model to put out for bid the total amount of electricity and/or natural gas being purchased by eligible customers within the jurisdictional boundaries of participating municipalities. Eligible customers will have the opportunity to have more control to lower their overall energy costs, to spur clean energy innovation and investment, to improve customer choice and value, and to protect the environment, thereby fulfilling an important public purpose.

NYSERDA has developed a toolkit to assist local governments and CCA Administrators to develop CCA programs in New York State.

EDI - On July 23, 2001, the Commission issued Opinion 01-03 (case 98-M-0667), approving the policies and data standards for the implementation of the **electronic data interchange (EDI)** to provide for uniformity in the business communications between ESCOs and utilities in New York, continuing the collaborative industry effort to develop and implement EDI procedures and transactions to support customer retail access.

ELECTRIC COOPERATIVE - The idea of providing federal assistance to accomplish rural electrification gained ground rapidly when President Roosevelt took office in 1933. On May 11, 1935, Roosevelt signed Executive Order No. 7037 establishing the Rural Electrification Administration (REA). It was not until a year later that the Rural Electrification Act was passed and the lending program that became the REA got underway. Within months, it became evident to REA officials that established investor-owned utilities were not interested in using federal loan funds to serve sparsely populated rural areas. But loan applications from farmer-based cooperatives poured in, and REA soon realized electric cooperatives would be the entities to make rural electrification a reality.

In 1937, the REA drafted the Electric Cooperative Corporation Act, a model law that states could adopt to enable the formation and operation of not-for-profit, consumer-owned electric cooperatives.

ENERGY - Energy is the amount of electricity a generator produces over a specific period of time. It is measured in megawatt-hours (MWh). For example, a generating unit with a 1 megawatt capacity operating at full capacity for one hour will produce 1 megawatt-hour of electricity.

A megawatt-hour is equal to one megawatt of energy produced or consumed continuously for one hour. The MWh is the normal trading metric at the wholesale level. At the retail level the energy metric used is kWh which is a 1 kW potential (capacity) operating at full capacity for one hour. 1 MWh is equal to 1,000 kWhs.

ESCO (ENERGY SERVICE COMPANY) - An energy service company is a company that provides comprehensive energy solutions to its customers, including auditing, redesigning and implementing changes to the ways the customer consumes energy, the main goal being improved efficiency. It is not a succinct legal term but rather a broad brush that paints a wide spectrum of energy services. In the **REVENUE OPTIONS REPORT** “ESCO” was used in context of a NYISO market participant, consumption data and billing services, retail delivery services and general energy consultant and portfolio manager. It is this comprehensiveness of services that differentiates an ESCO from a common energy company, whose main business is solely providing energy to its customers. Typically compensation to the ESCO is performance based so that the benefits of improved energy efficiency are shared between the client and the ESCO. ESCOs often use performance contracting, meaning that if the project does not provide returns on the investment, the ESCO is responsible to pay the difference, thus assuring their clients of the energy and cost savings.

GADS (GENERATING AVAILABILITY DATA SYSTEM) - data is required by NYISO to determine the amount of capacity available for the Installed Capacity Market and to evaluate the reliability within the NY Control Area. The data is used to calculate the De-rating Factors for the NYISO Capacity Market. GADS data is used as an input into NYISO and the New York State Reliability Council's (NYSRC) Reliability Studies, specifically the Annual Installed Reserve Margin (IRM) Study for the New York Control Area and the NYCA Locational Capacity

Requirements calculation. There are three types of data: Design Data identifies the unit as a unique entity; Performance Data provides a summary of unit operation for a month; and Event Data consists of specific data for each event.

GATS (GENERATING ATTRIBUTES TRACKING SYSTEM) - NYGATS is an online certificate-tracking system that records information about electricity generated, imported, and consumed within New York State.

Using unique serial numbers, it can issue, track, and manage energy attribute certificates and renewable energy certificates (RECs). It prevents double counting of RECs, provides public reports, and records a full audit trail of all transactions to support the integrity of the RECs issued and held in the system.

Registered NYGATS users can trade, retire, or verify and substantiate ownership of RECs to support compliance or voluntary claims. Certificates can be bundled and traded with megawatt-hours of energy, but this is not a requirement in NYGATS.

NYGATS also serves as the platform for applying for Renewable Energy Standard (RES) certification under the New York's Clean Energy Standard. NYGATS retains records of resources that have received a statement of qualification and designates the RECs created by a facility as several complicated tiers of purpose that are currently in flux.

HEPFA - Home Energy Fair Practices Act (HEPFA) – Amendments of Chapter 686, the Laws of 2002 (Cases 98-M-1343 & 99-M-0631/05-M-0117). HEPFA provides residential energy customers with comprehensive protections in areas such as application for service, customer billing, and payment and complaint procedures.

In 2002, the Home Energy Fair Practices Act (HEFPA) (Public Service Law Article 2) was amended to apply the same consumer rights and protections to residential electric and natural gas customers of ESCOs and other energy entities as those afforded to utility consumers. These provisions ensure fair treatment of all residential energy customers, and serve to strengthen consumer protections and consumer confidence in the State's competitive energy market.

All applicants filing for approval to be an ESCO or sub-meterer in New York, and who intend to provide energy supply to residential consumers, must file a package of HEFPA documents for a compliance review, as part of the eligibility process.

LBMP - Locational Based Marginal Pricing (LBMP) is a pricing methodology for the cost of energy at each location in the New York State transmission system. LBMP is the cost to serve the next megawatt (MW) of load at a specific location that includes losses to get the energy to that point, congestion created by delivering energy and the next incremental cost of generation. Locational marginal pricing is a way for wholesale electric energy prices to reflect the value of electric energy at different locations, accounting for the patterns of load, generation, and the physical limits of the transmission system.

MUNICIPAL UTILITY - Municipal utilities are owned and operated by local communities and often operate within the local municipal public works department. Municipal utilities can own and operate their own generation and distribution system, such as those in Austin, Texas; Jacksonville, Florida; and Colorado Springs, Colorado. However, more than half of the municipal utilities only own and operate the local distribution system and purchase their power wholesale, either from federal agencies or from IOUs or other entities. This class of utility is often not regulated by state or federal agencies, and municipalities may

operate the utility as a tool to promote local economic expansion or lower local tax burdens. Municipal utilities can range in size from one customer to over a million customers (e.g., the city of Los Angeles).

NYDPS (NEW YORK DEPARTMENT OF PUBLIC SERVICES) - The Department of Public Service has a broad mandate to ensure access to safe, reliable utility service at just and reasonable rates. The Department is the staff arm of the Public Service Commission. The Commission regulates the state's electric, gas, steam, telecommunications, and water utilities. The Commission also oversees the cable industry. The Commission is charged by law with responsibility for setting rates and ensuring that adequate service is provided by New York's utilities. In addition, the Commission exercises jurisdiction over the siting of major gas and electric transmission facilities and has responsibility for ensuring the safety of natural gas and liquid petroleum pipelines.

NYSERDA (NEW YORK STATE ENERGY RESEARCH AND DEVELOPMENT AUTHORITY) - NYSERDA offers objective information and analysis, innovative programs, technical expertise, and funding to help New Yorkers increase energy efficiency, save money, use renewable energy, and reduce reliance on fossil fuels. During the energy crisis of the 1970s, oil embargoes made the United States acutely aware that the world's petroleum supplies were finite. NYSERDA's earliest efforts focused solely on research and development of renewable energy technologies with the goal of reducing New York State's petroleum consumption. NYSERDA's funding structure changed in 1996 when the New York State Public Service Commission approved the ratepayer-supported System Benefits Charge Program and designated NYSERDA as the program's administrator. As renewable energy

was becoming popular in other parts of the country, New York State wanted to make it attractive to the State's residents and businesses. Between 2004 and 2008, the Public Service Commission approved two new programs related to funding renewable energy and energy efficiency as NYSERDA pursued a market-driven approach to doing business including creating effective partnerships among private industry, government, and academia that benefit all New Yorkers. By 2010, NYSERDA programs focused on reducing energy use, increasing energy efficiency, creating jobs, creating public-private partnerships to stimulate entrepreneurial spirit, and preparing tomorrow's workforce to excel in the clean energy economy. They now oversee the Renewable Energy Credits (RECs) program and the Aggregated Community Choice programs.

NYISO (NEW YORK INDEPENDENT SYSTEM OPERATOR)

- One of the seven regional transmission organizations (RTOs) and independent system operators (ISOs) operating in the US, the NYISO manages the electric grid in the state of New York. Although the NYISO operates only in New York State, it is subject to the jurisdiction of the Federal Energy Regulatory Commission because the state's transmission grid is interconnected with other grids in the Northeast.

The FERC proposed the creation of ISOs in 1996 in response to the Energy Policy Act of 1992. FERC's Order 888 in 1996 provided for the creation of ISOs to consolidate and manage the operation of transmission facilities to provide nondiscriminatory open transmission service for all generators and transmission customers. FERC Order 2000 supported the role of RTOs to oversee electric transmission and operate wholesale markets across a broad territory (multi-states).

NYPSC (NEW YORK PUBLIC SERVICE COMMISSION)

- The Public Service Commission was established in 1907. The New York Public Service Commission is the public utilities commission of the New York state government that regulates and oversees the electric, gas, water, and telecommunication industries in New York as part of the Department of Public Service. Their authority is for the distribution of electricity as FERC has the jurisdiction of transmission and generation.

QUALIFIED FACILITY - The Public Utility Regulatory Policies Act of 1978 (PURPA) was implemented to encourage, among other things,

1. The conservation of electric energy.
2. Increased efficiency in the use of facilities and resources by electric utilities.
3. Equitable retail rates for electric consumers.
4. Expeditious development of hydroelectric potential at existing small dams.
5. Conservation of natural gas while ensuring that rates to natural gas consumers are equitable.

One of the ways PURPA set out to accomplish its goals was through the establishment of a new class of generating facilities that would receive special rate and regulatory treatment. Generating facilities in this group are known as qualifying facilities (QFs), and fall into two categories: qualifying small power production facilities and qualifying cogeneration facilities.

QFs may enjoy certain benefits under Federal, State, and local laws. The benefits that are conferred upon QFs by Federal law generally fall into three categories:

1. The right to sell energy or capacity to a utility.

2. The right to purchase certain services from utilities.
3. Relief from certain regulatory burdens.

RECS (RENEWABLE ENERGY CERTIFICATES) -

New York, like many states across the country, has a standard by which certain qualifying renewable generation assets are awarded one Renewable Energy Certificate (REC) for each MWh of electricity delivered to the grid. RECs provide two main functions to the market:

1. RECs provide the ability for renewable generators to receive additional revenue to support their development, while also allowing the wholesale power market to value the MWh of energy they produce in a market-derived manner without having a distinct energy market price mechanism for renewable generators.
2. RECs also allow the renewable attributes of that MWh generated to be purchased by another entity and adequately tracked and accounted for by an independent third party. In New York, that entity is the New York State Energy Research and Development Authority (NYSERDA).

This market solution for RECs New York is a common practice; however, the different types of RECs, referred to as “Tiers”, are unique to New York. In this market, there are three tiers of RECs: Tier 1, Tier 2 (Maintenance Resources and Competitive Program), and Tier 4. These tiers of RECs should not be confused with Zero Emission Credits (ZECs), which are similar in name and structure but are distinct as they are only applicable to nuclear generation facilities.

SYNCHRONIZED SPINNING RESERVE - Operating reserves are a location-dependent ancillary service, so the NYISO must procure a set amount of reserves within NYCA and within specific regions.

- The NYISO must consider transmission constraints when determining where reserves are located and scheduled. There are three tiers of spinning reserve, each less valuable than the first:

10-Minute Spinning Reserve: Currently synchronized to the NYS power system; Can change output or reduce demand level in 10 minutes

10-Minute Non-Synchronized Reserve: Can be started, synchronized, and change output level or reduce demand within 10 minutes

30-Minute Spinning Reserve(Spinning and Non-Synchronized) Spinning - currently synchronized and can change output level or reduce demand within 30 minutes; and, **Non-Synchronized** - can be started, synchronized, and change output level or reduce demand within 30 minutes