

**Energy Independence and
Security Act of 2007**

PURPA Section 111(d)(17)

State Consideration of Smart Grid Information

Executive Summary

Choctawhatchee Electric Cooperative, Inc (CHELCO) is a member-owned, non-profit electric cooperative headquartered in DeFuniak Springs, Florida which provides retail electric service in the counties of Walton, Okaloosa, Holmes, and Santa Rosa in the State of Florida. CHELCO, along with nineteen other cooperatives and municipalities, is a member-owner of PowerSouth Energy Cooperative (“PowerSouth”). PowerSouth is a member-owned, non-profit electric generation and transmission cooperative providing wholesale electric service in Alabama and northwest Florida. CHELCO receives all of its electric energy from PowerSouth and has by contract placed all wholesale power supply responsibilities with PowerSouth through December 31, 2050.

On December 19, 2007, President George W. Bush signed into law the Energy Independence and Security Act of 2007 (“EISA”). The EISA requires electric utilities with annual retail sales of electric energy exceeding 500 million kilowatt hours to consider whether to adopt four new standards added to the Public Utilities Regulatory Policies Act of 1978 (“PURPA”) Section 111(d), including:

- Integrated Resource Planning;
- Rate Design Modifications to Promote Energy Efficiency Investments ([Standard already met, not being considered at this time](#));
- Consideration of Smart Grid Investments; and
- Smart Grid Information.

The EISA requires that affected utilities consider whether the standards encourage PURPA’s stated purposes of: (1) conservation of energy supplied by electric utilities; (2) optimal efficiency of electric utility facilities and resources; and (3) equitable retail rates for electric consumers. The EISA does not require adoption of any of the four new standards. Instead, the EISA requires affected utilities **to consider** each standard and make a determination concerning whether or not it is appropriate to implement such standard.

CHELCO is included on the most recent Department of Energy list of utilities which have retail sales in excess of 500 million kilowatt hours for 2007. As such, CHELCO is required to consider the four new standards. CHELCO, through its Board of Trustees, began consideration of the four new standards on November 20, 2008, including the standard requiring

cooperatives to consider offering consumers direct access to time-based wholesale and retail prices, as well as other information (the “Smart Grid Information Standard”).

The Smart Grid Information Standard was written to encourage **states** to consider providing electricity purchasers with access to information concerning pricing, usage, intervals and sources in either writing or in an electronic format. Even though the Smart Grid Investments Standard is directed at **states**, both PowerSouth and CHELCO have in the past and continue to consider various smart grid investments when updating their respective transmission and distribution systems. More specifically, CHELCO and PowerSouth have evaluated the cost effectiveness, reliability and performance associated with the incorporation of Supervisory Control and Data Systems (“SCADA”) and advanced metering infrastructure (“AMI”) and other “smart technologies” in their systems instead of similar, non-advanced grid technologies. Smart Grid technologies show potential for more efficient and cost-effective means of transmitting and distributing electric power. However, these efficiencies are often offset by the increased capital requirements and higher operation and maintenance expenses with currently available Smart Grid technologies. PowerSouth and CHELCO will continue to explore viable Smart Grid options.

Procedural Background

The EISA amends Section 111(d) of PURPA (16 U.S.C. 2621(d)) by requiring the consideration of new standards for those electric utilities with annual retail sales of electric energy exceeding 500 million kilowatt hours. The new standards added to PURPA Section 111 (d) by the EISA are titled: (16) Integrated Resource Planning; (17) Rate Design Modification to Promote Energy Efficiency investments; (16) Consideration of Smart Grid Investments; and (17) Smart Grid Information. The stated purposes of the PURPA standards are to encourage (1) conservation of energy supplied by electric utilities, (2) optimal efficiency of electric utility facilities and resources, and (3) equitable retail rates to electric consumers. [16 U.S.C 2601(1)]

The EISA requires affected utilities to consider the standards after public notice and hearing and to issue written determinations as to whether it is appropriate to implement each standard based upon the evidence presented at the hearings and using the procedures established by the nonregulated electric utility. [16 U.S.C 2621(b)] The EISA specifically states that “...each nonregulated electric utility shall consider each standard...and make a determination concerning whether or not it is appropriate to implement such standard...Nothing in this subsection prohibits any...nonregulated electric utility from making any determination that it is not appropriate to implement any such standard...” [16 U.S.C. 2621(a)] Therefore, affected utilities are only required to consider each standard and may choose not to implement any of the standards. [16 U.S.C. 2621(a)]

Proposed Standard

The EISA requires utilities to consider a standard which offers consumers direct access to time-based wholesale and retail electric prices as well as other information. More specifically, Section 1307(a) of the EISA of 2007 amends PURPA by adding Standard 17 (PURPA Section 111(d)(17)), which states in its entirety:

“(17) SMART GRID INFORMATION.—

(A) STANDARD.—All electricity purchasers shall be provided direct access, in written or electronic machine-readable form as appropriate, to information from their electricity provider as provided in subparagraph (B).

(B) INFORMATION.—Information provided under this section, to the extent practicable, shall include:

- (i) PRICES.—Purchasers and other interested persons shall be provided with information on--
 - (I) time-based electricity prices in the wholesale electricity market; and
 - (II) time-based electricity retail prices or rates that are available to the purchasers.
 - (ii) USAGE.—Purchasers shall be provided with the number of electricity units, expressed in kWh, purchased by them.
 - (iii) INTERVALS AND PROJECTIONS.—Updates of information on prices and usage shall be offered on not less than a daily basis, shall include hourly price and use information, where available, and shall include a day-ahead projection of such price information to the extent available.
 - (iv) SOURCES.—Purchasers and other interested persons shall be provided annually with written information on the sources of the power provided by the utility, to the extent it can be determined, by type of generation, including greenhouse gas emissions associated with each type of generation, for intervals during which such information is available on a cost effective basis.
- (C) ACCESS.—Purchasers shall be able to access their own information at any time through the Internet and on other means of communication elected by that utility for Smart Grid applications. Other interested persons shall be able to access information not specific to any purchaser through the Internet. Information specific to any purchaser shall be provided solely to that purchaser.’’

The EISA establishes deadlines for the commencement and completion of the required consideration for each standard. For the Smart Grid Information Standard (Standard 17), the affected utility must begin consideration of the standard or set a hearing date for the consideration of the standard one year after the enactment of the EISA (i.e., by December 19, 2008). By December 19, 2009, the affected utility must complete the consideration and make a determination on whether or not to adopt Standard 17.

Relationship between CHELCO and PowerSouth

CHELCO is a member-owner of PowerSouth along with nineteen other electric distribution cooperatives and municipalities located in central and south Alabama and northwest Florida. In addition to being a member-owner of PowerSouth, CHELCO has entered into a Contract for Wholesale Power Service with PowerSouth which requires that CHELCO purchase all of its electric power and energy from PowerSouth until December 31, 2050. It is the long-

standing intent of both CHELCO and PowerSouth that all wholesale power supply responsibilities be placed upon PowerSouth.

PowerSouth is a nonprofit membership corporation which operates on a cooperative basis. CHELCO, being one member among PowerSouth's twenty, has only limited effect upon the practices of PowerSouth without the majority participation of PowerSouth's remaining members.

Summary of Smart Grid Information at PowerSouth

PowerSouth's Board of Trustees establishes its wholesale rates in November for the following calendar year. PowerSouth's Board meets monthly and reviews PowerSouth's financial situation to determine if any changes in PowerSouth's rate or structure is appropriate. PowerSouth's wholesale power rates to CHELCO do not vary on an hourly or daily basis. PowerSouth, as a generation and transmission cooperative, currently provides CHELCO with detailed operational information from its electric transmission grid including load profiles and usage data.

PowerSouth provides CHELCO with load profile and usage data through the use of microprocessor-based protective relays. PowerSouth utilizes these microprocessor relays with communications capabilities throughout much of its territory. PowerSouth actively replaces older, non-advanced, protective relays with microprocessor-based protective relays that provide real-time communications. These replacement relays enhance communications with remote devices and provide pertinent information and data, including amps, power Factors, voltage levels, kW, kVA, etc.

PowerSouth permits CHELCO, and its other member owners, to utilize its communications infrastructure to backhaul data to and from key points in its system for SCADA applications. CHELCO may transmit this data to and from these key points in the system back to its headquarters utilizing PowerSouth's communication infrastructure.

PowerSouth provides information pertaining to its sources of generation on its website. In addition, PowerSouth complies with all U.S. Environmental Protection Agency (EPA) and Alabama Department of Environmental Management (ADEM) regulation and requirements for operations and emissions from generation facilities. PowerSouth's generation emissions are analyzed and reported to ADEM and EPA through the use of continuous emissions monitors

(CEMS). PowerSouth's and all other utilities' emission information are current publicly available on EPA's website.

Summary of Smart Grid Information at CHELCO

As a distribution cooperative, CHELO does not generate electricity, instead relying on PowerSouth for its wholesale needs. CHELCO provides information pertaining to PowerSouth's sources of generation on its website and in print and email newsletters provided to its members.

CHELCO's wholesale rates are established each November for the following calendar year. CHELCO's wholesale power rates do not vary on an hourly or daily basis. PowerSouth provides generation and transmission services (as well as other services) to CHELCO and its other member owners pursuant to its Rate Schedule P-2009-C. Rate Schedule P-2009-C is designed with a fixed annual energy charge and monthly coincident demand charges established during PowerSouth's seasonal peak periods. PowerSouth's winter peak period extends from 5:00 AM until 9:00 PM Central Standard Time or Central Daylight Time daily during the months of November through April. PowerSouth's summer peak periods are from 10:00 AM through 8:00 PM Central Standard Time or Central Daylight Time daily during the months of May through October.

PowerSouth's peak is determined each month when energy demand is at its highest and is expressed in megawatts (MW). Each of PowerSouth's members, including CHELCO, are billed for the number of megawatts their usage contributed to PowerSouth's peak demand during the month. Thus, PowerSouth uses a coincidental peak rate methodology which allows members to shift load to nonpeak periods and save demand charges. PowerSouth's rate structure also includes average and excess energy charges, which provide the correct price signals for the efficient use of PowerSouth's facilities.

CHELCO has invested in the development of an Advanced Metering Infrastructure (AMI), through its use of smart meters and integration of advanced software packages. Additionally, PowerSouth currently provides CHELCO detailed load profiles and usage data. By utilizing its available resources, CHELCO offers consumers alternate rate options based on time-of-use.

In 2007, the Florida Public Service Commission approved optional residential and commercial time-of-use rates (RST, GST) for CHELCO members. These rates reflect

PowerSouth's seasonal peak periods and were designed to provide time-based price signals to CHELCO's member owners and promote energy conservation and investments in energy efficiency.

The time-of-use rates offered by CHELCO are designed to be revenue neutral for the cooperative based on the average usage within the Residential and General Service rate classes. Both rates rely on an energy charge that is higher than that of the standard residential rate during peak periods and lower during off peak periods. CHELCO's winter peak period extends from 5:00 AM until 9:00 PM Central Standard Time or Central Daylight Time daily during the months of November through April. CHELCO's summer peak periods are from 10:00 AM through 8:00 PM Central Standard Time or Central Daylight Time daily during the months of May through October.

CHELCO provides its consumers with information pertaining to time based retail pricing on its website, in brochures, and in both print and email member publications. Each consumer's electricity usage, expressed in kWh, is provided on their monthly billing statement. More detailed hourly usage data obtained through the AMI system is available upon request.

Discussion

PowerSouth strives to provide CHELCO, as well as its other member-owners, with pertinent data and information relating to the operation of its generation and transmission system. Included in the data available to CHELCO is information about rates, usage and peaks. The rate PowerSouth charges to CHELCO is not determined on either an hourly or daily basis. Instead, CHELCO's wholesale power rate is determined by combining a fixed annual energy charge with a monthly coincident demand charge (determined during PowerSouth's seasonal peak periods).

CHELCO's Advanced Metering Infrastructure (AMI), provides detailed usage information for individual consumers. Each account utilizing a smart meter registers usage, time of use, peak demand, and the time that demand occurred.

As required, the Smart Grid Information Standard has been considered by CHELCO using the three stated purposes of the PURPA amendment. [16 U.S.C. 2611] Title I of PURPA identifies the three purposes for implementing this standard as follows:

(1) Conservation of energy supplied by electric utilities.

Smart Grid Information could be useful to retail consumers if the price of electricity is high enough to induce consumers to conserve and use less electricity. If the pricing signals successfully change consumer behavior and decrease consumption of electricity, then Smart Grid Information could promote one of PURPA's stated purposes of conserving electric energy.

(2) The optimization of efficiency of use of facilities and resources by electric utilities.

Smart Grid Information could be useful to retail consumers if the price of electricity varies enough over time to induce consumers to change their electricity usage behavior and use electricity during lower demand periods instead of expensive, high energy demand periods. If consumers used less electricity during higher demand periods and more during lower demand periods, base load and intermediate load generation facilities could possibly be more efficiently used on a continuous basis. However, this shifting from peak to off-peak periods may render some peaking generation facilities under-utilized or "stranded." The fixed costs of those stranded investments would have to be paid while the variable costs such as fuel could be saved.

(3) Equitable rates to electric customers.

Whether providing Smart Grid Information can lead to equitable rates to electric customers ultimately depends upon the rate structure of the cooperative and the marketplace. Other than the increase in infrastructure and operational costs to purchase, install and maintain Smart Grid technology, Smart Grid Information has no effect on rates unless consumers alter their electric consumption behavior.

PowerSouth currently charges an average hourly energy rate that does not vary over time. CHELCO currently offers two rate options for residential and general service (commercial) accounts. One offers an energy charge that does not vary over time. The second offers an energy charge that varies based on PowerSouth's seasonal peak periods. If PowerSouth's and CHELCO's rate structures were changed and the Smart Grid Information included time-based rates with significant price differentials across time for energy, consumers who can alter their electricity consumption over time could benefit. Those consumers who cannot alter their electricity consumption over time will incur higher costs for the same electricity as they used

prior to receiving the Smart Grid Information. Therefore, Smart Grid Information may not promote PURPA's stated purpose of equitable rates to electric consumers.

Contacts and Other Resources

Consumers seeking additional information about rate design modifications to promote energy efficiency investments may contact the cooperative or visit our website for information on this and other matters of interest as follows:

Cooperative: CHELCO
P.O. Box 512
DeFuniak Springs, FL 32433

Phone Number: (850) 892-2111

Website: <http://www.chelco.com>

In addition, the following resources are available as reference material:

Rose, Kenneth and Mike Murphy, *Reference Manual and Procedures for Implementation of the "PURPA Standards" in the Energy Independence and Security Act of 2007*, APPA/EEI/NARUC/NRECA, August 11, 2008.