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Via E-FILE

March 2, 2015

Public Utilities Commission of Ohio
PUCO Docketing
180 E. Broad Street, 10th Floor
Columbus, Ohio 43215

In re: Case No. 14-1297-EL-SSO

Dear Sir/Madam:

Please find attached the SUPPLEMENTAL TESTIMONY AND EXHIBITS OF STEPHEN J. BARON on behalf of OHIO ENERGY GROUP e-filed today in the above-referenced matters.

Copies have been served on all parties on the attached certificate of service. Please place this document of file.

Respectfully yours,

Michael L. Kurtz, Esq.
Kurt J. Boehm, Esq.
Jody Kyler Cohn, Esq.
BOEHM, KURTZ & LOWRY

MLKkew
Encl.
Cc: Certificate of Service

CERTIFICATE OF SERVICE

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BEFORE THE
PUBLIC UTILITIES COMMISSION OF OHIO

In The Matter Of The Application Of The Ohio Edison Company, The Cleveland Electric Illuminating Company, and The Toledo Edison Company For Authority To Establish A Standard Service Offer Pursuant To R.C. § 4928.143 In The Form Of An Electric Security Plan.	:	**Case No. 14-1297-EL-SSO**

SUPPLEMENTAL TESTIMONY

OF

STEPHEN J. BARON

ON BEHALF OF

THE OHIO ENERGY GROUP

J. KENNEDY AND ASSOCIATES, INC.
ROSWELL, GEORGIA

March 2015

BEFORE THE
PUBLIC UTILITIES COMMISSION OF OHIO

In The Matter Of The Application Of The Ohio Edison Company, The Cleveland Electric Illuminating Company, and The Toledo Edison Company For Authority To Establish A Standard Service Offer Pursuant To R.C. § 4928.143 In The Form Of An Electric Security Plan.	:	**Case No. 14-1297-EL-SSO**

TABLE OF CONTENTS

I. QUALIFICATIONS AND SUMMARY

Q. Please state your name and business address.

A. My name is Stephen J. Baron. My business address is J. Kennedy and Associates, Inc. ("Kennedy and Associates"), 570 Colonial Park Drive, Suite 305, Roswell, Georgia 30075.

Q. What is your occupation and by whom are you employed?

A. I am the President and a Principal of Kennedy and Associates, a firm of utility rate, planning, and economic consultants in Atlanta, Georgia.

Q. Please describe briefly the nature of the consulting services provided by Kennedy and Associates.

A. Kennedy and Associates provides consulting services in the electric and gas utility industries. Our clients include state agencies and industrial electricity consumers. The firm provides expertise in system planning, load forecasting, financial analysis, cost-of-service, and rate design. Current clients include the Georgia and Louisiana Public Service Commissions, and industrial and commercial consumers throughout the United States. My educational background and professional experience are summarized on Exhibit SJB-1.

Q. On whose behalf are you testifying in this proceeding?

A. I am testifying on behalf of The Ohio Energy Group (“OEG”), a group of large industrial customers of Toledo Edison, Ohio Edison, and Cleveland Electric

Illuminating Company (collectively, "FirstEnergy" or "Companies"). The members of OEG who take service from the Companies are: Air Products and Chemicals, Inc., AK Steel Corporation, Alcoa Inc., ArcelorMittal USA, BP-Husky Refining, LLC, Cargill, Incorporated, Charter Steel, Chrysler Group LLC, E.I. duPont de Nemours and Company, Ford Motor Company, General Motors LLC, Johns Manville, Linde, LLC, Martin Marietta Magnesia Specialties, LLC, Materion Brush Inc., North Star BlueScope Steel, LLC, POET Biorefining, Praxair Inc., and Worthington Industries.

Q. Have you previously presented testimony in any of the Companies cases in Ohio?

A. Yes. I have previously testified in multiple Public Utilities Commission of Ohio ("PUCO" or "Commission") cases related to FirstEnergy, including Case Nos. 09-906-EL-SSO, 07-551-EL-AIR *et al*., as well as the Companies' 2008 Market Rate Offer ("MRO") proceeding, Case No. 08-936-EL-SSO, and the Companies' 2008 Electric Security Plan ("ESP") proceeding, Case No. 08-935-EL-SSO.

Q. Have you previously presented testimony in Standard Service Offer cases in Ohio?

A. Yes. I have testified in ESP and MRO cases involving FirstEnergy, Duke Energy Ohio, Inc. ("Duke"), and Ohio Power Company ("AEP Ohio"). *See* Case Nos. 10-2586-EL-SSO, 11-346-EL-SSO, 13-2385-EL-SSO, 14-841-EL-SSO, and the cases mentioned above.

Q. What is the purpose of your testimony?

A. I discuss specific portions of the Stipulation and Recommendation filed December 22, 2014 in the above-captioned proceeding ("Stipulation"), including: 1) the portions recommending adoption of the Economic Stability Program proposed by FirstEnergy; 2) the portions recommending the continuation and enhancement of FirstEnergy's Economic Load Response ("ELR") interruptible rate program; 3) the portions related to continuing the automaker incentive rate which encourages increased production in Ohio; 4) the portions describing the gradual phase-down of the General Service – Transmission ("Rate GT") provision which encourages large customers to operate at a high load factor; and 5) the portions outlining various rate designs changes.

Q. Would you please summarize your testimony and recommendations?

A. Yes. As an initial matter, I would note that OEG believes that the entire Stipulation is reasonable and I am advised by counsel that it satisfies the requisite legal standards for approval. However, the scope of my testimony is limited to the portions I specifically discuss herein, each of which I recommend the Commission approve in this proceeding.

First, the Commission should approve the Stipulation provision that would adopt FirstEnergy's proposed Economic Stability Program and associated Retail Rate Stability Rider ("Rider RRS"). FirstEnergy has described in detail the reasons supporting its proposed Economic Stability Program and Rider RRS. My testimony is limited to describing why the policy behind FirstEnergy's proposal is sound. As I

explain, FirstEnergy's proposal makes sense as a general policy matter because it will provide additional rate stability to customers in FirstEnergy's territory through establishment of a stability mechanism that can mitigate future spikes and increases in market prices.

Second, the Commission should approve the Stipulation provisions that recommend continuation of FirstEnergy's ELR program and associated interruptible credit during the proposed ESP period with several enhancements, including: the elimination of economic buy-through events; the opportunity for shopping customers to participate in the program; and an increase over ESP III levels in the potential amount of load that can participate in the program. By doing so, the Commission can provide reliability, economic, and energy conservation benefits to customers in FirstEnergy's territory. Additionally, maintaining demand response programs at the state level is particularly important now given that the legality of PJM's demand response program is in serious question.

Third, the Commission should approve the Stipulation provisions recommending the continuation of a decreased automaker credit through FirstEnergy's Economic Development Rider ("Rider EDR") during the proposed ESP period. That credit incentivizes increased production at domestic automaker facilities in Ohio, facilitating economic development in the State.

Fourth, the Commission should approve the Stipulation provisions related to FirstEnergy's General Service – Transmission ("Rate GT") provision which

encourages large customers to operate at a high load factor. The gradual phase-down of the Rate GT provision outlined in the Stipulation would mitigate potential adverse impacts to Rate GT customers that would otherwise occur if the provision were immediately eliminated or entirely phased-out over the proposed ESP period. It would also provide some level of rate stability for customers who have come to depend upon that provision, which was incorporated in FirstEnergy's previous ESPs.

Finally, the Commission should approve the rate design changes to Riders DRR and RRS outlined in the Stipulation. Allocating Rider DRR charges based upon a percentage of base distribution charges is consistent with how the Commission has allowed another Ohio utility (AEP Ohio) to allocate similar charges. Further, recovering Rider RRS credits or charges for GS, GP, GSU, and GT customers on the basis of billing demand is consistent with principles of cost causation.

II. ECONOMIC STABILITY PROGRAM

Q. What is your opinion with respect to FirstEnergy's proposed Economic Stability Program and Rider RRS, which would be established if the Commission approves the Stipulation?

A. OEG supports the complete Stipulation, including the Economic Stability Program. While I have not analyzed the substantive economic analyses associated with the Economic Stability Program (other than the rate recovery issues for large customer classes), I support the conceptual underpinning of this Stipulation provision

to provide a cost-based stability mechanism to market power purchases for the Companies' customers in Northern Ohio.

Q. Why is FirstEnergy's proposal reasonable as a general policy matter?

A. In my opinion, it is reasonable for Ohio to maintain some control over generation. Ohio is home to many energy-intensive industrial customers, several of which are located in FirstEnergy's territory. Unlike PJM, the Commission has an interest in protecting and facilitating economic development in Ohio. Hence, maintaining state control over some aspects of generation pricing provides needed flexibility for the Commission to facilitate Ohio's effectiveness in the global economy consistent with state policy.

Further, adoption of FirstEnergy's proposal would establish a financial portfolio approach whereby FirstEnergy's retail generation pricing would be partially market-based and partially cost-based. The diversity offered by base load coal and nuclear capacity in FirstEnergy's generation portfolio has the potential to reduce risk and provide additional rate stability to customers by protecting them in the event that market prices increased in the future, thus furthering the state policy of ensuring the availability to consumers of reasonably priced retail electric service. This rate stability mechanism can provide protection to individual customers, especially smaller customers, who would not likely be able to secure a long-term cost-based hedge of PJM market prices for 15 years.

Q. Are there risks associated with this type of 15 year rate stability mechanism plan?

A. Of course. There is a chance that the costs of Sammis, OVEC and Davis Besse will be higher than forecast. But there is also a chance that those costs will be lower. There is a chance that market prices will be lower than forecast. But there is also a chance that market prices will be higher. In the end, there are a set of risks associated with approving FirstEnergy's proposal, and a different set of risks associated with rejecting it. But diversification, by not putting all of your eggs in either the cost of service basket or the market basket, is a sound risk mitigation policy. Mitigating these risks and uncertainties is the reason for a stability mechanism such as this to protect customers.

Q. Would adopting FirstEnergy's proposal harm customer shopping in Ohio?

A. No, not at all. Proposed Rider RRS does not impose a *physical* limit on retail shopping in Ohio. Establishing the Rider will not affect the amount of power that retail customers must buy from competitive retail electric service providers nor will it affect FirstEnergy's standard service offer auctions. Proposed Rider RRS is a financial limitation on customer shopping that is intended to stabilize and provide certainty regarding retail electric service. The end financial result is that customer bills would be partially based on the cost of FirstEnergy's plants dedicated to its Economic Stability Program and partially based on PJM pricing.

Given that FirstEnergy's proposal would not harm customer shopping in Ohio, the proposal is not anti-competitive. Nor would the proposal result in customers paying

an unlawful subsidy. Any charges or credits that customers pay or receive under Rider RRS would be for a product that those customers actually received – rate stability.

Q. Is FirstEnergy's proposal consistent with your understanding of Ohio's regulatory structure?

A. Yes. My understanding is that Ohio has adopted a hybrid regulatory structure under which generation pricing is not required to be based entirely upon federally-regulated wholesale energy market pricing. Instead, counsel informs me that Senate Bill 221 preserved the Commission's ability to adopt rate stability mechanisms in ESP cases such as the present case.

Q. Would rejecting FirstEnergy's proposal mean that only the "market" will determine customer generation supply rates?

A. Not really. The PJM Reliability Pricing Model that is used by PJM to acquire and price capacity for all but the load served by LSE's electing the Fixed Resource Requirement ("FRR") option is an administratively-determined process in many respects and not simply a "market" in the traditional sense, such as exists for other commodities. The RPM process utilizes an administratively determined Variable Resource Requirement ("VRR") demand curve. This demand curve is developed using numerous assumptions, including the shape of the curve itself, the net Cost of New Entry ("Net CONE"). In addition, to the extent that PJM determines which demand response and non-PJM resources can participate in the Base Residual Auction, the supply curve also had administratively determined inputs.

The PJM market rules are continually evolving, as demonstrated by PJM's recent "capacity performance" proposal.

III. ECONOMIC LOAD RESPONSE PROGRAM

Q. Please provide your understanding of FirstEnergy's Economic Load Response program.

A. FirstEnergy's ELR program and Rider ELR were initially established in PUCO Case No. 08-935-EL-SSO. The ELR program allows non-shopping customers taking service at primary voltages or higher who meet several conditions outlined in Rider ELR to nominate part of their load as being subject to interruption. In exchange for subjecting their load to interruption, participating customers receive an interruptible credit of $10/kW-month. If participating customers fail to interrupt their load pursuant to the requirements of the ELR program, they are subject to significant penalties.

Q. Do you agree that it is appropriate to continue FirstEnergy's ELR program?

A. Yes. State-sponsored interruptible load programs provide reliability, economic, and energy efficiency benefits to customers. The interruptible load of large customers can be used to reduce strains on the electric grid during peak times, increasing the reliability of the grid. In addition, interruptible resources can provide economic benefits by lowering market prices for all consumers during peak times and by reducing the need for additional capacity resources to be constructed. Interruptible

load programs can also bolster economic development by allowing large customers, who must compete both nationally and internationally, to secure more competitive electric rates by choosing to take a lower quality of service from their utility. Finally, interruptible load programs increase energy conservation by reducing the amount of power that would otherwise be consumed during peak times. If FirstEnergy's ELR program were immediately terminated, all of these potential benefits to customers would be lost.

Q. Could you provide a specific example of how interruptible load programs like FirstEnergy's ELR program can provide reliability benefits to customers in Ohio and PJM?

A. Yes. During the "polar vortex" in January 2014, PJM experienced significant reliability issues. Outages and other weather-related reliability problems caused PJM to lose "roughly 40,000 MW," or 20 percent, of its generating capacity during the coldest, highest load periods. Of this lost capacity, 9,000 MW was due to gas curtailments. However, demand response resources (including interruptible load resources) were available during that period and helped PJM to meet firm loads and maintain a reliable grid. *See* Exhibit SJB-2. In addition to the Polar Vortex, in the summer of 2013 and during September 2013 PJM experienced reliability events. During the 2013/2014 PJM Planning Year, ELR customers were physically interrupted (with no buy-through opportunity) a total of seven times. These seven physical interruptions provided important system reliability benefits.

Q. Why is it important to retain FirstEnergy's ELR program as a reliability resource going forward?

A. A wide array of upcoming plant retirements will likely tighten the demand/supply balance in PJM in future years, thus increasing the need for and the value of reliability resources like interruptible load. Nearly 25,000 MW of coal capacity in the U.S. was permanently retired from 2009 to October 1, 2014. And more than 23,000 MW of additional coal capacity is scheduled to retire by the end of 2022, with many of those retirements expected to occur during the next four years. In PJM, 10,400 MW of coal capacity was expected to be retired in just 2014 and 2015. More than half of those retirements are AEP East coal units located in Ohio, Kentucky, West Virginia, and Indiana. In addition, over 16,000 MW of non-coal operating capacity is scheduled to retire by 2025. *See* Exhibit SJB-3 for articles discussing these developments. Retaining state-level interruptible load programs such as FirstEnergy's ELR program going forward can help maintain the reliability of the grid during this critical period when the makeup of the electric grid is in flux.

Further, PJM's own estimates indicated that it could fail to meet its peak load requirements in the winter of 2015/2016 if it faces generator outages, extreme cold, and expected coal retirements at a similar rate as last winter. Heightened concern over potential reliability issues resulted in PJM's recent proposal to establish a new product known as "capacity performance" for its RPM market. *See* Exhibit SJB-4. This development highlights the value of resources that can provide additional reliability to the electric grid going forward, such as interruptible load resources.

Q. Has the Commission already recognized the benefits of state-sponsored interruptible load programs?

A. Yes. In its Order in Case No. 11-346-EL-SSO, the Commission specifically recognized the benefits of AEP Ohio's interruptible load program and approved an interruptible credit of $8.21/kW-month, stating:

> The Commission finds the IRP-D credit should be approved as proposed at $8.21/kW-month. In light of the fact that customers receiving interruptible service must be prepared to curtail their electric usage on short notice, we believe Staff's proposal to lower the credit amount to $3.34/kW-month understates the value interruptible service provides both AEP-Ohio and it customers. In addition, the IRP-D credit is beneficial in that it provides flexible options for energy intensive customers to choose their quality of service, and is also consistent with state policy under Section 4928.02(N), Revised Code, as it furthers Ohio's effectiveness in the global economy. In addition, since AEP-Ohio may utilize interruptible service as an additional demand response resource to meet its capacity obligations, we direct AEP-Ohio to bid its additional capacity resources into PJM's base residual auctions held during the ESP.

All of the benefits that were cited by the Commission for AEP Ohio's interruptible load program also support the continuation of FirstEnergy's ELR program during the term of the proposed ESP.

Q. What other benefit would continuing FirstEnergy's ELR program provide?

A. Continuing the program would also provide greater rate stability for interruptible customers who currently base their planning and operations on participation in the program.

Q. Please describe the enhancements to FirstEnergy's ELR program outlined in the Stipulation.

A. The Stipulation recommends enhancing FirstEnergy's current ELR program by: eliminating economic buy-through events; providing the opportunity for shopping customers to participate in the program; and increasing the potential amount of load that can participate in the program by 75 mw.

Q. Could these enhancements provide even greater potential benefits to customers?

A. Yes. These enhancements could incentivize increased participation in the program by customers who are able to subject their business to interruptions, which could likewise increase the potential reliability, economic, and environmental benefits to other customers. Additionally, requiring participating customers to react more quickly to emergency events can increase the reliability of the system, which is increasingly important given the developments discussed above. The requirement for a 30 minute notice period also conforms the ELR program to current PJM requirements.

Q. Why else is it especially important for the Commission to maintain state-sponsored interruptible load programs in Ohio?

A. Counsel informs me that a decision by the D.C. Circuit Court calls into question whether PJM will be permitted to continue allowing demand response resources to participate in its energy and capacity markets.[1] The full U.S. Court of Appeals for the D.C. Circuit refused to grant review of the three member Court of Appeals

[1] *Electric Power Supply Association v. Federal Energy Regulatory Commission*, D.C. Circuit Case No. 11-1486 (May 23, 2014).

decision, although that decision may still be reviewed by the U.S. Supreme Court. *See* Exhibit SJB-5. In light of the possibility that the D.C. Circuit Court's decision may stand and may ultimately result in the elimination of PJM's demand response programs, it is especially important that the Commission retain a state-administered interruptible load program in order to preserve the benefits offered by interruptible resources going forward.

Both FirstEnergy and PJM have acknowledged the potential implications of the D.C. Circuit Court's decision. FirstEnergy raised the issue of whether demand response should be able to bid into PJM's capacity market in a complaint filed at the FERC.[2] And PJM recently submitted a filing at FERC proposing new rules that would change how demand response resources would impact its capacity market.[3] In its filing, PJM acknowledges that under its new rules, the responsibility for continuing demand response programs would fall to the states:

> PJM's new rules leave to LSEs, retail customers, and state regulatory authorities all arrangements regarding compensation to end-use consumers that support Wholesale Load Reductions by reducing their electricity consumption. PJM anticipates that some state commissions will prescribe by rule or order terms for retail customers' role in facilitating Wholesale Load Reductions, while in other states such arrangements may be governed solely by contracts between end users and LSEs.[4]

[2] Formal Compliant of FirstEnergy Service Company, FERC Docket No. EL14-55 (May 23, 2014).

[3] Revisions to Reliability Pricing Market ("RPM") and Related Rules in the PJM Open Access Transmission Tariff ("Tariff") and Reliability Assurance Agreement Among Load Serving Entities ("RAA"), FERC Docket No. ER15-852-000 (January 14, 2015).

[4] Id. at 8-9.

The PJM Independent Market Monitor ("IMM") has also raised a serious question regarding the continuation of the PJM demand response programs in the capacity market, stating:

> The capacity market should no longer include any demand side resources on the supply side of the market, including energy efficiency resources (EE). Demand side resources should be on the demand side of the market where they can and should be a very significant component of the capacity market. PJM needs to take clearly defined steps to facilitate such demand side participation. Load that does not want to pay for capacity and is willing to interrupt its use of capacity when that capacity is needed by those who do pay for it, should be able to avoid paying for capacity. That is the demand side of the market as it should work and can work.[5]

In light of the significant uncertainty regarding the fate of PJM's demand response programs and PJM's proposal to shift demand response programs to individual state regulatory commissions, the Commission should approve the enhanced FirstEnergy ELR program outlined in the Stipulation. This would ensure that the potential benefits of FirstEnergy's ELR program continue throughout the ESP period regardless of the outcome of proceedings related to the D.C. Circuit Court decision that may remove demand response entirely from participation in the PJM capacity market.

Q. If the D.C. Circuit Court decision is overturned by the Supreme Court, is there still value in maintaining FirstEnergy's ELR program through the proposed ESP period?

[5] Comments of the Independent Market Monitor on PJM's Capacity Performance Proposal and IMM Proposal, PJM IMM (September 17, 2014), *available at http://www.monitoringanalytics.com/reports /Reports/2014/IMM_Comments_on_PJM%27s_Capacity_Performance_Proposal_and_IMM_Proposal_20140917.pdf* at 8.

A. Yes. Not only can FirstEnergy's ELR program provide reliability, economic, and energy conservation benefits to customers even if PJM's demand response program continue to operate, it can also provide greater financial incentive for customers to subject their load to interruption than the PJM program may provide, thereby increasing the potential benefits to other customers. Moreover, under the ELR Program, customers are subject to physical interruption not only if PJM experiences reliability problems, but also if any of the FirstEnergy distribution utilities or ATSI experience reliability problems.

IV. AUTOMAKER INCENTIVE PROGRAM

Q. Please summarize the Stipulation recommendation regarding the provision that encourages car production in Ohio and why the Commission should approve that recommendation.

A. The automaker incentive rate in FirstEnergy's Rider EDR was initially adopted in PUCO Case No. 08-935-EL-SSO in order to incentivize increased production at domestic automaker facilities in Ohio. The Stipulation continues that credit at a decreased level throughout the proposed ESP period. Simply put, if Ford, Chrysler, or General Motors increase production at any of their eight Northern Ohio manufacturing facilities over a baseline amount, then they receive an incentive credit associated only with the increased production of $0.01/kWh. For purposes of this provision, increased energy usage is a proxy for increased production. Approving this portion of the Stipulation will help facilitate economic development in the State.

V. RATE GT PROVISION

Q. Please provide your understanding of FirstEnergy's Rate GT Provision.

A. FirstEnergy's Rate GT Provision was initially adopted in PUCO Case No. 08-935-EL-SSO. The Rate GT Provision is a nonbypassable charge and credit designed to stabilize electric service by encouraging large industrial customers to operate at a high load factor

Q. Why is the Stipulation recommendation related to the Rate GT Provision reasonable?

A. While high load factor customers would likely prefer that the Rate GT Provision continue as it currently exists, other Rate GT customers may wish modify and/or eliminate that provision. The Stipulation seeks to strike a balance between these interests by outlining a gradual phase-down of the Rate GT provision. This approach is consistent with the ratemaking principle of gradualism, which is important in this case. High load factor customers have grown to depend upon the Rate GT Provision during FirstEnergy's past ESPs. Immediate elimination of that provision could substantially harm those customers through significant rate increases, which could in turn adversely impact economic development in Ohio.

Rather than eliminating or phasing-out the Rate GT provision, the Stipulation preserves, but phases-down the Rate GT provision over the proposed ESP period. This approach would continue some of the Rate GT provision benefits to high load

factor customers while easing any adverse impacts of the provision on other Rate GT customers. It also provides a reasonable level of time for large industrial customers, many of whom face significant competitive pressures nationally and internationally, to adjust to what would otherwise be a significant change in their power costs.

VI. RATE DESIGN CHANGES

Q. Please summarize the Stipulation provisions outlining rate design changes for Riders DRR and RRS.

A. The Stipulation recommends that Rider DRR be modified to provide that costs recovered from this Rider will be allocated to rate schedules based on a percentage of base distribution charges under the Companies' distribution schedules and recovered on a kWh basis within the rate schedules. The Stipulation also recommends that the Rider RRS credit or charge for GS, GP, GSU, and GT customers will be based on billing demand while the residential and lighting schedule Rider RRS rate will be a kWh charge.

Q. Are these provisions reasonable?

A. Yes. Allocating Rider DRR charges based upon a percentage of base distribution charges is consistent with how the Commission has allowed another Ohio utility (AEP Ohio) to allocate similar charges through its Economic Development Rider.[6] Such an approach makes sense. Reasonable Arrangements are usually approved for

large manufacturers because they promote economic development and job growth or job retention. There are also typically large multiplier effects whereby one high paying manufacturing job in an industry that sells its product out-of-state or overseas creates numerous additional spin-off jobs. Reasonable Arrangement customers also typically purchase significant amounts of materials from local suppliers. Therefore, in addition to the Reasonable Arrangement customer itself, the primary beneficiaries are residential and commercial customers. For these customers, the distribution component of their bill is larger than for industrial customers. Therefore, allocating delta revenue on the basis of distribution revenue is reasonable. On the other hand, if delta revenue is allocated on a kWh basis, then other large industrial customers who receive little or no benefit from the Reasonable Arrangement are unreasonably impacted, which hurts their national and international competitiveness.

Allocating Rider RRS credits and charges for GS, GP, GSU, and GT customers on the basis of billing demand is consistent with principles of cost causation, which dictate that capacity-related credits and costs should be recovered on the basis of demand when possible. This new rate design does not change the dollar amount of any charge or credit that a rate schedule receives. It only changes how the charge or credit is recovered within the rate schedule. When the RRS is a credit, then customers who have a load factor that is below the rate schedule average are helped. But when the RRS is a charge, the opposite occurs.

Q. Does that complete your Direct Testimony?

[6] Opinion & Order, Case No. 11-346-EL-SSO (August 8, 2012) at 67.

A. Yes.

BEFORE THE
PUBLIC UTILITIES COMMISSION OF OHIO

In The Matter Of The Application Of The Ohio Edison Company, The Cleveland Electric Illuminating Company, and The Toledo Edison Company For Authority To Establish A Standard Service Offer Pursuant To R.C. § 4928.143 In The Form Of An Electric Security Plan.	:	**Case No. 14-1297-EL-SSO**

EXHIBITS

OF

STEPHEN J. BARON

ON BEHALF OF

THE OHIO ENERGY GROUP

J. KENNEDY AND ASSOCIATES, INC.
ROSWELL, GEORGIA

March 2015

BEFORE THE
PUBLIC UTILITIES COMMISSION OF OHIO

In The Matter Of The Application Of The Ohio Edison Company, The Cleveland Electric Illuminating Company, and The Toledo Edison Company For Authority To Establish A Standard Service Offer Pursuant To R.C. § 4928.143 In The Form Of An Electric Security Plan.	:	**Case No. 14-1297-EL-SSO**

EXHIBIT__(SJB-1)

OF

STEPHEN J. BARON

ON BEHALF OF

THE OHIO ENERGY GROUP

J. KENNEDY AND ASSOCIATES, INC.
ROSWELL, GEORGIA

Professional Qualifications

Of

Stephen J. Baron

Mr. Baron graduated from the University of Florida in l972 with a B.A. degree with high honors in Political Science and significant coursework in Mathematics and Computer Science. In 1974, he received a Master of Arts Degree in Economics, also from the University of Florida. His areas of specialization were econometrics, statistics, and public utility economics. His thesis concerned the development of an econometric model to forecast electricity sales in the State of Florida, for which he received a grant from the Public Utility Research Center of the University of Florida. In addition, he has advanced study and coursework in time series analysis and dynamic model building.

Mr. Baron has more than thirty years of experience in the electric utility industry in the areas of cost and rate analysis, forecasting, planning, and economic analysis.

Following the completion of my graduate work in economics, he joined the staff of the Florida Public Service Commission in August of 1974 as a Rate Economist. His responsibilities included the analysis of rate cases for electric, telephone, and gas utilities, as well as the preparation of cross-examination material and the preparation of staff recommendations.

In December 1975, he joined the Utility Rate Consulting Division of Ebasco Services, Inc.

as an Associate Consultant. In the seven years he worked for Ebasco, he received successive promotions, ultimately to the position of Vice President of Energy Management Services of Ebasco Business Consulting Company. His responsibilities included the management of a staff of consultants engaged in providing services in the areas of econometric modeling, load and energy forecasting, production cost modeling, planning, cost-of-service analysis, cogeneration, and load management.

He joined the public accounting firm of Coopers & Lybrand in 1982 as a Manager of the Atlanta Office of the Utility Regulatory and Advisory Services Group. In this capacity he was responsible for the operation and management of the Atlanta office. His duties included the technical and administrative supervision of the staff, budgeting, recruiting, and marketing as well as project management on client engagements. At Coopers & Lybrand, he specialized in utility cost analysis, forecasting, load analysis, economic analysis, and planning.

In January 1984, he joined the consulting firm of Kennedy and Associates as a Vice President and Principal. Mr. Baron became President of the firm in January 1991.

During the course of his career, he has provided consulting services to more than thirty utility, industrial, and Public Service Commission clients, including three international utility clients.

He has presented numerous papers and published an article entitled "How to Rate Load Management Programs" in the March 1979 edition of "Electrical World." His article on "Standby Electric Rates" was published in the November 8, 1984 issue of "Public Utilities Fortnightly." In February of 1984, he completed a detailed analysis entitled "Load Data Transfer Techniques" on behalf of the Electric Power Research Institute, which published the study.

Mr. Baron has presented testimony as an expert witness in Arizona, Arkansas, Colorado, Connecticut, Florida, Georgia, Indiana, Kentucky, Louisiana, Maine, Michigan, Minnesota, Maryland, Missouri, New Jersey, New Mexico, New York, North Carolina, Ohio, Pennsylvania, Texas, Utah, Virginia, West Virginia, Wisconsin, Wyoming, the Federal Energy Regulatory Commission and in United States Bankruptcy Court. A list of his specific regulatory appearances follows.

Expert Testimony Appearances
of
Stephen J. Baron
As of February 2015

Date	Case	Jurisdict.	Party	Utility	Subject
4/81	203(B)	KY	Louisville Gas & Electric Co.	Louisville Gas & Electric Co.	Cost-of-service.
4/81	ER-81-42	MO	Kansas City Power & Light Co.	Kansas City Power & Light Co.	Forecasting.
6/81	U-1933	AZ	Arizona Corporation Commission	Tucson Electric Co.	Forecasting planning.
2/84	8924	KY	Airco Carbide	Louisville Gas & Electric Co.	Revenue requirements, cost-of-service, forecasting, weather normalization.
3/84	84-038-U	AR	Arkansas Electric Energy Consumers	Arkansas Power & Light Co.	Excess capacity, cost-of-service, rate design.
5/84	830470-EI	FL	Florida Industrial Power Users' Group	Florida Power Corp.	Allocation of fixed costs, load and capacity balance, and reserve margin. Diversification of utility.
10/84	84-199-U	AR	Arkansas Electric Energy Consumers	Arkansas Power and Light Co.	Cost allocation and rate design.
11/84	R-842651	PA	Lehigh Valley Power Committee	Pennsylvania Power & Light Co.	Interruptible rates, excess capacity, and phase-in.
1/85	85-65	ME	Airco Industrial Gases	Central Maine Power Co.	Interruptible rate design.
2/85	I-840381	PA	Philadelphia Area Industrial Energy Users' Group	Philadelphia Electric Co.	Load and energy forecast.
3/85	9243	KY	Alcan Aluminum Corp., et al.	Louisville Gas & Electric Co.	Economics of completing fossil generating unit.
3/85	3498-U	GA	Attorney General	Georgia Power Co.	Load and energy forecasting, generation planning economics.
3/85	R-842632	PA	West Penn Power Industrial Intervenors	West Penn Power Co.	Generation planning economics, prudence of a pumped storage hydro unit.
5/85	84-249	AR	Arkansas Electric Energy Consumers	Arkansas Power & Light Co.	Cost-of-service, rate design return multipliers.
5/85		City of Santa Clara	Chamber of Commerce	Santa Clara Municipal	Cost-of-service, rate design.

Expert Testimony Appearances
of
Stephen J. Baron
As of February 2015

Date	Case	Jurisdict.	Party	Utility	Subject
6/85	84-768-E-42T	WV	West Virginia Industrial Intervenors	Monongahela Power Co.	Generation planning economics, prudence of a pumped storage hydro unit.
6/85	E-7 Sub 391	NC	Carolina Industrials (CIGFUR III)	Duke Power Co.	Cost-of-service, rate design, interruptible rate design.
7/85	29046	NY	Industrial Energy Users Association	Orange and Rockland Utilities	Cost-of-service, rate design.
10/85	85-043-U	AR	Arkansas Gas Consumers	Arkla, Inc.	Regulatory policy, gas cost-of-service, rate design.
10/85	85-63	ME	Airco Industrial Gases	Central Maine Power Co.	Feasibility of interruptible rates, avoided cost.
2/85	ER-8507698	NJ	Air Products and Chemicals	Jersey Central Power & Light Co.	Rate design.
3/85	R-850220	PA	West Penn Power Industrial Intervenors	West Penn Power Co.	Optimal reserve, prudence, off-system sales guarantee plan.
2/86	R-850220	PA	West Penn Power Industrial Intervenors	West Penn Power Co.	Optimal reserve margins, prudence, off-system sales guarantee plan.
3/86	85-299U	AR	Arkansas Electric Energy Consumers	Arkansas Power & Light Co.	Cost-of-service, rate design, revenue distribution.
3/86	85-726-EL-AIR	OH	Industrial Electric Consumers Group	Ohio Power Co.	Cost-of-service, rate design, interruptible rates.
5/86	86-081-E-GI	WV	West Virginia Energy Users Group	Monongahela Power Co.	Generation planning economics, prudence of a pumped storage hydro unit.
8/86	E-7 Sub 408	NC	Carolina Industrial Energy Consumers	Duke Power Co.	Cost-of-service, rate design, interruptible rates.
10/86	U-17378	LA	Louisiana Public Service Commission Staff	Gulf States Utilities	Excess capacity, economic analysis of purchased power.
12/86	38063	IN	Industrial Energy Consumers	Indiana & Michigan Power Co.	Interruptible rates.

Expert Testimony Appearances
of
Stephen J. Baron
As of February 2015

Date	Case	Jurisdict.	Party	Utility	Subject
3/87	EL-86-53-001 EL-86-57-001	Federal Energy Regulatory Commission (FERC)	Louisiana Public Service Commission Staff	Gulf States Utilities, Southern Co.	Cost/benefit analysis of unit power sales contract.
4/87	U-17282	LA	Louisiana Public Service Commission Staff	Gulf States Utilities	Load forecasting and imprudence damages, River Bend Nuclear unit.
5/87	87-023-E-C	WV	Airco Industrial Gases	Monongahela Power Co.	Interruptible rates.
5/87	87-072-E-G1	WV	West Virginia Energy Users' Group	Monongahela Power Co.	Analyze Mon Power's fuel filing and examine the reasonableness of MP's claims.
5/87	86-524-E-SC	WV	West Virginia Energy Users' Group	Monongahela Power Co.	Economic dispatching of pumped storage hydro unit.
5/87	9781	KY	Kentucky Industrial Energy Consumers	Louisville Gas & Electric Co.	Analysis of impact of 1986 Tax Reform Act.
6/87	3673-U	GA	Georgia Public Service Commission	Georgia Power Co.	Economic prudence, evaluation of Vogtle nuclear unit - load forecasting, planning.
6/87	U-17282	LA	Louisiana Public Service Commission Staff	Gulf States Utilities	Phase-in plan for River Bend Nuclear unit.
7/87	85-10-22	CT	Connecticut Industrial Energy Consumers	Connecticut Light & Power Co.	Methodology for refunding rate moderation fund.
8/87	3673-U	GA	Georgia Public Service Commission	Georgia Power Co.	Test year sales and revenue forecast.
9/87	R-850220	PA	West Penn Power Industrial Intervenors	West Penn Power Co.	Excess capacity, reliability of generating system.
10/87	R-870651	PA	Duquesne Industrial Intervenors	Duquesne Light Co.	Interruptible rate, cost-of-service, revenue allocation, rate design.
10/87	I-860025	PA	Pennsylvania Industrial Intervenors		Proposed rules for cogeneration, avoided cost, rate recovery.
10/87	E-015/	MN	Taconite	Minnesota Power	Excess capacity, power and

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As of February 2015

Date	Case	Jurisdict.	Party	Utility	Subject
	GR-87-223		Intervenors	& Light Co.	cost-of-service, rate design.
10/87	8702-EI	FL	Occidental Chemical Corp.	Florida Power Corp.	Revenue forecasting, weather normalization.
12/87	87-07-01	CT	Connecticut Industrial Energy Consumers	Connecticut Light Power Co.	Excess capacity, nuclear plant phase-in.
3/88	10064	KY	Kentucky Industrial Energy Consumers	Louisville Gas & Electric Co.	Revenue forecast, weather normalization rate treatment of cancelled plant.
3/88	87-183-TF	AR	Arkansas Electric Consumers	Arkansas Power & Light Co.	Standby/backup electric rates.
5/88	870171C001	PA	GPU Industrial Intervenors	Metropolitan Edison Co.	Cogeneration deferral mechanism, modification of energy cost recovery (ECR).
6/88	870172C005	PA	GPU Industrial Intervenors	Pennsylvania Electric Co.	Cogeneration deferral mechanism, modification of energy cost recovery (ECR).
7/88	88-171-EL-AIR 88-170-EL-AIR Interim Rate Case	OH	Industrial Energy Consumers	Cleveland Electric/ Toledo Edison	Financial analysis/need for interim rate relief.
7/88	Appeal of PSC	19th Judicial Docket U-17282	Louisiana Public Service Commission Circuit Court of Louisiana	Gulf States Utilities	Load forecasting, imprudence damages.
11/88	R-880989	PA	United States Steel	Carnegie Gas	Gas cost-of-service, rate design.
11/88	88-171-EL-AIR 88-170-EL-AIR	OH	Industrial Energy Consumers	Cleveland Electric/ Toledo Edison. General Rate Case.	Weather normalization of peak loads, excess capacity, regulatory policy.
3/89	870216/283 284/286	PA	Armco Advanced Materials Corp., Allegheny Ludlum Corp.	West Penn Power Co.	Calculated avoided capacity, recovery of capacity payments.
8/89	8555	TX	Occidental Chemical Corp.	Houston Lighting & Power Co.	Cost-of-service, rate design.

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Date	Case	Jurisdict.	Party	Utility	Subject
8/89	3840-U	GA	Georgia Public Service Commission	Georgia Power Co.	Revenue forecasting, weather normalization.
9/89	2087	NM	Attorney General of New Mexico	Public Service Co. of New Mexico	Prudence - Palo Verde Nuclear Units 1, 2 and 3, load fore-casting.
10/89	2262	NM	New Mexico Industrial Energy Consumers	Public Service Co. of New Mexico	Fuel adjustment clause, off-system sales, cost-of-service, rate design, marginal cost.
11/89	38728	IN	Industrial Consumers for Fair Utility Rates	Indiana Michigan Power Co.	Excess capacity, capacity equalization, jurisdictional cost allocation, rate design, interruptible rates.
1/90	U-17282	LA	Louisiana Public Service Commission Staff	Gulf States Utilities	Jurisdictional cost allocation, O&M expense analysis.
5/90	890366	PA	GPU Industrial Intervenors	Metropolitan Edison Co.	Non-utility generator cost recovery.
6/90	R-901609	PA	Armco Advanced Materials Corp., Allegheny Ludlum Corp.	West Penn Power Co.	Allocation of QF demand charges in the fuel cost, cost-of-service, rate design.
9/90	8278	MD	Maryland Industrial Group	Baltimore Gas & Electric Co.	Cost-of-service, rate design, revenue allocation.
12/90	U-9346 Rebuttal	MI	Association of Businesses Advocating Tariff Equity	Consumers Power Co.	Demand-side management, environmental externalities.
12/90	U-17282 Phase IV	LA	Louisiana Public Service Commission Staff	Gulf States Utilities	Revenue requirements, jurisdictional allocation.
12/90	90-205	ME	Airco Industrial Gases	Central Maine Power Co.	Investigation into interruptible service and rates.
1/91	90-12-03 Interim	CT	Connecticut Industrial Energy Consumers	Connecticut Light & Power Co.	Interim rate relief, financial analysis, class revenue allocation.
5/91	90-12-03 Phase II	CT	Connecticut Industrial Energy Consumers	Connecticut Light & Power Co.	Revenue requirements, cost-of-service, rate design, demand-side management.

Expert Testimony Appearances
of
Stephen J. Baron
As of February 2015

Date	Case	Jurisdict.	Party	Utility	Subject
8/91	E-7, SUB SUB 487	NC	North Carolina Industrial Energy Consumers	Duke Power Co.	Revenue requirements, cost allocation, rate design, demand-side management.
8/91	8341 Phase I	MD	Westvaco Corp.	Potomac Edison Co.	Cost allocation, rate design, 1990 Clean Air Act Amendments.
8/91	91-372 EL-UNC	OH	Armco Steel Co., L.P.	Cincinnati Gas & Electric Co.	Economic analysis of cogeneration, avoid cost rate.
9/91	P-910511 P-910512	PA	Allegheny Ludlum Corp., Armco Advanced Materials Co., The West Penn Power Industrial Users' Group	West Penn Power Co.	Economic analysis of proposed CWIP Rider for 1990 Clean Air Act Amendments expenditures.
9/91	91-231 -E-NC	WV	West Virginia Energy Users' Group	Monongahela Power Co.	Economic analysis of proposed CWIP Rider for 1990 Clean Air Act Amendments expenditures.
10/91	8341 - Phase II	MD	Westvaco Corp.	Potomac Edison Co.	Economic analysis of proposed CWIP Rider for 1990 Clean Air Act Amendments expenditures.
10/91	U-17282	LA	Louisiana Public Service Commission Staff	Gulf States Utilities	Results of comprehensive management audit.
Note: No testimony was prefiled on this.					
11/91	U-17949 Subdocket A	LA	Louisiana Public Service Commission Staff	South Central Bell Telephone Co. and proposed merger with Southern Bell Telephone Co.	Analysis of South Central Bell's restructuring and
12/91	91-410-EL-AIR	OH	Armco Steel Co., Air Products & Chemicals, Inc.	Cincinnati Gas & Electric Co.	Rate design, interruptible rates.
12/91	P-880286	PA	Armco Advanced Materials Corp., Allegheny Ludlum Corp.	West Penn Power Co.	Evaluation of appropriate avoided capacity costs - QF projects.
1/92	C-913424	PA	Duquesne Interruptible Complainants	Duquesne Light Co.	Industrial interruptible rate.
6/92	92-02-19	CT	Connecticut Industrial Energy Consumers	Yankee Gas Co.	Rate design.

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Stephen J. Baron
As of February 2015

Date	Case	Jurisdict.	Party	Utility	Subject
8/92	2437	NM	New Mexico Industrial Intervenors	Public Service Co. of New Mexico	Cost-of-service.
8/92	R-00922314	PA	GPU Industrial Intervenors	Metropolitan Edison Co.	Cost-of-service, rate design, energy cost rate.
9/92	39314	ID	Industrial Consumers for Fair Utility Rates	Indiana Michigan Power Co.	Cost-of-service, rate design, energy cost rate, rate treatment.
10/92	M-00920312 C-007	PA	The GPU Industrial Intervenors	Pennsylvania Electric Co.	Cost-of-service, rate design, energy cost rate, rate treatment.
12/92	U-17949	LA	Louisiana Public Service Commission Staff	South Central Bell Co.	Management audit.
12/92	R-00922378	PA	Armco Advanced Materials Co. The WPP Industrial Intervenors	West Penn Power Co.	Cost-of-service, rate design, energy cost rate, SO_2 allowance rate treatment.
1/93	8487	MD	The Maryland Industrial Group	Baltimore Gas & Electric Co.	Electric cost-of-service and rate design, gas rate design (flexible rates).
2/93	E002/GR-92-1185	MN	North Star Steel Co. Praxair, Inc.	Northern States Power Co.	Interruptible rates.
4/93	EC92 21000 ER92-806-000 (Rebuttal)	Federal Energy Regulatory Commission	Louisiana Public Service Commission Staff	Gulf States Utilities/Entergy agreement.	Merger of GSU into Entergy System; impact on system
7/93	93-0114-E-C	WV	Airco Gases	Monongahela Power Co.	Interruptible rates.
8/93	930759-EG	FL	Florida Industrial Power Users' Group	Generic - Electric Utilities	Cost recovery and allocation of DSM costs.
9/93	M-009 30406	PA	Lehigh Valley Power Committee	Pennsylvania Power & Light Co.	Ratemaking treatment of off-system sales revenues.
11/93	346	KY	Kentucky Industrial Utility Customers	Generic - Gas Utilities	Allocation of gas pipeline transition costs - FERC Order 636.
12/93	U-17735	LA	Louisiana Public Service Commission Staff	Cajun Electric Power Cooperative	Nuclear plant prudence, forecasting, excess capacity.

Expert Testimony Appearances
of
Stephen J. Baron
As of February 2015

Date	Case	Jurisdict.	Party	Utility	Subject
4/94	E-015/ GR-94-001	MN	Large Power Intervenors	Minnesota Power Co.	Cost allocation, rate design, rate phase-in plan.
5/94	U-20178	LA	Louisiana Public Service Commission	Louisiana Power & Light Co.	Analysis of least cost integrated resource plan and demand-side management program.
7/94	R-00942986	PA	Armco, Inc.; West Penn Power Industrial Intervenors	West Penn Power Co.	Cost-of-service, allocation of rate increase, rate design, emission allowance sales, and operations and maintenance expense.
7/94	94-0035-E-42T	WV	West Virginia Energy Users Group	Monongahela Power Co.	Cost-of-service, allocation of rate increase, and rate design.
8/94	EC94 13-000	Federal Energy Regulatory Commission	Louisiana Public Service Commission	Gulf States Utilities/Entergy	Analysis of extended reserve shutdown units and violation of system agreement by Entergy.
9/94	R-00943 081 R-00943 081C0001	PA	Lehigh Valley Power Committee	Pennsylvania Public Utility Commission	Analysis of interruptible rate terms and conditions, availability.
9/94	U-17735	LA	Louisiana Public Service Commission	Cajun Electric Power Cooperative	Evaluation of appropriate avoided cost rate.
9/94	U-19904	LA	Louisiana Public Service Commission	Gulf States Utilities	Revenue requirements.
10/94	5258-U	GA	Georgia Public Service Commission	Southern Bell Telephone & Telegraph Co.	Proposals to address competition in telecommunication markets.
11/94	EC94-7-000 ER94-898-000	FERC	Louisiana Public Service Commission	El Paso Electric and Central and Southwest	Merger economics, transmission equalization hold harmless proposals.
2/95	941-430EG	CO	CF&I Steel, L.P.	Public Service Company of Colorado	Interruptible rates, cost-of-service.
4/95	R-00943271	PA	PP&L Industrial Customer Alliance	Pennsylvania Power & Light Co.	Cost-of-service, allocation of rate increase, rate design, interruptible rates.
6/95	C-00913424 C-00946104	PA	Duquesne Interruptible Complainants	Duquesne Light Co.	Interruptible rates.

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Date	Case	Jurisdict.	Party	Utility	Subject
8/95	ER95-112 -000	FERC	Louisiana Public Service Commission	Entergy Services, Inc.	Open Access Transmission Tariffs - Wholesale.
10/95	U-21485	LA	Louisiana Public Service Commission	Gulf States Utilities Company	Nuclear decommissioning, revenue requirements, capital structure.
10/95	ER95-1042 -000	FERC	Louisiana Public Service Commission	System Energy Resources, Inc.	Nuclear decommissioning, revenue requirements.
10/95	U-21485	LA	Louisiana Public Service Commission	Gulf States Utilities Co.	Nuclear decommissioning and cost of debt capital, capital structure.
11/95	I-940032	PA	Industrial Energy Consumers of Pennsylvania	State-wide - all utilities	Retail competition issues.
7/96	U-21496	LA	Louisiana Public Service Commission	Central Louisiana Electric Co.	Revenue requirement analysis.
7/96	8725	MD	Maryland Industrial Group	Baltimore Gas & Elec. Co., Potomac Elec. Power Co., Constellation Energy Co.	Ratemaking issues associated with a Merger.
8/96	U-17735	LA	Louisiana Public Service Commission	Cajun Electric Power Cooperative	Revenue requirements.
9/96	U-22092	LA	Louisiana Public Service Commission	Entergy Gulf States, Inc.	Decommissioning, weather normalization, capital structure.
2/97	R-973877	PA	Philadelphia Area Industrial Energy Users Group	PECO Energy Co.	Competitive restructuring policy issues, stranded cost, transition charges.
6/97	Civil Action No. 94-11474	US Bank-ruptcy Court Middle District of Louisiana	Louisiana Public Service Commission	Cajun Electric Power Cooperative	Confirmation of reorganization plan; analysis of rate paths produced by competing plans.
6/97	R-973953	PA	Philadelphia Area Industrial Energy Users Group	PECO Energy Co.	Retail competition issues, rate unbundling, stranded cost analysis.
6/97	8738	MD	Maryland Industrial Group	Generic	Retail competition issues

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7/97	R-973954	PA	PP&L Industrial Customer Alliance	Pennsylvania Power & Light Co.	Retail competition issues, rate unbundling, stranded cost analysis.
10/97	97-204	KY	Alcan Aluminum Corp. Southwire Co.	Big River Electric Corp.	Analysis of cost of service issues - Big Rivers Restructuring Plan
10/97	R-974008	PA	Metropolitan Edison Industrial Users	Metropolitan Edison Co.	Retail competition issues, rate unbundling, stranded cost analysis.
10/97	R-974009	PA	Pennsylvania Electric Industrial Customer	Pennsylvania Electric Co.	Retail competition issues, rate unbundling, stranded cost analysis.
11/97	U-22491	LA	Louisiana Public Service Commission	Entergy Gulf States, Inc.	Decommissioning, weather normalization, capital structure.
11/97	P-971265	PA	Philadelphia Area Industrial Energy Users Group	Enron Energy Services Power, Inc./ PECO Energy	Analysis of Retail Restructuring Proposal.
12/97	R-973981	PA	West Penn Power Industrial Intervenors	West Penn Power Co.	Retail competition issues, rate unbundling, stranded cost analysis.
12/97	R-974104	PA	Duquesne Industrial Intervenors	Duquesne Light Co.	Retail competition issues, rate unbundling, stranded cost analysis.
3/98 (Allocated Stranded Cost Issues)	U-22092	LA	Louisiana Public Service Commission	Gulf States Utilities Co.	Retail competition, stranded cost quantification.
3/98	U-22092		Louisiana Public Service Commission	Gulf States Utilities, Inc.	Stranded cost quantification, restructuring issues.
9/98	U-17735		Louisiana Public Service Commission	Cajun Electric Power Cooperative, Inc.	Revenue requirements analysis, weather normalization.
12/98	8794	MD	Maryland Industrial Group and Millennium Inorganic Chemicals Inc.	Baltimore Gas and Electric Co.	Electric utility restructuring, stranded cost recovery, rate unbundling.
12/98	U-23358	LA	Louisiana Public Service Commission	Entergy Gulf States, Inc.	Nuclear decommissioning, weather normalization, Entergy System Agreement.
5/99 (Cross- Answering Testimony)	EC-98-40-000	FERC	Louisiana Public Service Commission	American Electric Power Co. & Central South West Corp.	Merger issues related to market power mitigation proposals.

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5/99 (Response Testimony)	98-426	KY	Kentucky Industrial Utility Customers, Inc.	Louisville Gas & Electric Co.	Performance based regulation, settlement proposal issues, cross-subsidies between electric. gas services.
6/99	98-0452	WV	West Virginia Energy Users Group	Appalachian Power, Monongahela Power, & Potomac Edison Companies	Electric utility restructuring, stranded cost recovery, rate unbundling.
7/99	99-03-35	CT	Connecticut Industrial \Energy Consumers	United Illuminating Company	Electric utility restructuring, stranded cost recovery, rate unbundling.
7/99	Adversary Proceeding No. 98-1065	U.S. Bankruptcy Court	Louisiana Public Service Commission	Cajun Electric Power Cooperative	Motion to dissolve preliminary injunction.
7/99	99-03-06	CT	Connecticut Industrial Energy Consumers	Connecticut Light & Power Co.	Electric utility restructuring, stranded cost recovery, rate unbundling.
10/99	U-24182	LA	Louisiana Public Service Commission	Entergy Gulf States, Inc.	Nuclear decommissioning, weather normalization, Entergy System Agreement.
12/99	U-17735	LA	Louisiana Public Service Commission	Cajun Electric Power Cooperative, Inc.	Ananlysi of Proposed Contract Rates, Market Rates.
03/00	U-17735	LA	Louisiana Public Service Commission	Cajun Electric Power Cooperative, Inc.	Evaluation of Cooperative Power Contract Elections
03/00	99-1658-EL-ETP	OH	AK Steel Corporation	Cincinnati Gas & Electric Co.	Electric utility restructuring, stranded cost recovery, rate Unbundling.

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08/00	98-0452 E-GI	WVA	West Virginia Energy Users Group	Appalachian Power Co. American Electric Co.	Electric utility restructuring rate unbundling.
08/00	00-1050 E-T 00-1051-E-T	WVA	West Virginia Energy Users Group	Mon Power Co. Potomac Edison Co.	Electric utility restructuring rate unbundling.
10/00	SOAH 473- 00-1020 PUC 2234	TX	The Dallas-Fort Worth Hospital Council and The Coalition of Independent Colleges And Universities	TXU, Inc.	Electric utility restructuring rate unbundling.
12/00	U-24993	LA	Louisiana Public Service Commission	Entergy Gulf States, Inc.	Nuclear decommissioning, revenue requirements.
12/00	EL00-66- 000 & ER00-2854 EL95-33-002	LA	Louisiana Public Service Commission	Entergy Services Inc.	Inter-Company System Agreement: Modifications for retail competition, interruptible load.
04/01	U-21453, U-20925, U-22092 (Subdocket B) Addressing Contested Issues	LA	Louisiana Public Service Commission	Entergy Gulf States, Inc.	Jurisdictional Business Separation - Texas Restructuring Plan
10/01	14000-U	GA	Georgia Public Service Commission Adversary Staff	Georgia Power Co.	Test year revenue forecast.
11/01	U-25687	LA	Louisiana Public Service Commission	Entergy Gulf States, Inc.	Nuclear decommissioning requirements transmission revenues.
11/01	U-25965	LA	Louisiana Public Service Commission	Generic .	Independent Transmission Company ("Transco"). RTO rate design.
03/02	001148-EI	FL	South Florida Hospital and Healthcare Assoc.	Florida Power & Light Company	Retail cost of service, rate design, resource planning and demand side management.
06/02	U-25965	LA	Louisiana Public Service Commission	Entergy Gulf States Entergy Louisiana	RTO Issues
07/02	U-21453	LA	Louisiana Public Service Commission	SWEPCO, AEP	Jurisdictional Business Sep. - Texas Restructuring Plan.

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08/02	U-25888	LA	Louisiana Public Service Commission	Entergy Louisiana, Inc. Entergy Gulf States, Inc.	Modifications to the Inter-Company System Agreement, Production Cost Equalization.
08/02	EL01-88-000	FERC	Louisiana Public Service Commission	Entergy Services Inc. and the Entergy Operating Companies	Modifications to the Inter-Company System Agreement, Production Cost Equalization.
11/02	02S-315EG	CO	CF&I Steel & Climax Molybdenum Co.	Public Service Co. of Colorado	Fuel Adjustment Clause
01/03	U-17735	LA	Louisiana Public Service Commission	Louisiana Coops	Contract Issues
02/03	02S-594E	CO	Cripple Creek and Victor Gold Mining Co.	Aquila, Inc.	Revenue requirements, purchased power.
04/03	U-26527	LA	Louisiana Public Service Commission	Entergy Gulf States, Inc.	Weather normalization, power purchase expenses, System Agreement expenses.
11/03	ER03-753-000	FERC	Louisiana Public Service Commission Staff	Entergy Services, Inc. and the Entergy Operating Companies	Proposed modifications to System Agreement Tariff MSS-4.
11/03	ER03-583-000 ER03-583-001 ER03-583-002 ER03-681-000, ER03-681-001 ER03-682-000, ER03-682-001 ER03-682-002	FERC	Louisiana Public Service Commission	Entergy Services, Inc., the Entergy Operating Companies, EWO Market-Ing, L.P, and Entergy Power, Inc.	Evaluation of Wholesale Purchased Power Contracts.
12/03	U-27136	LA	Louisiana Public Service Commission	Entergy Louisiana, Inc.	Evaluation of Wholesale Purchased Power Contracts.
01/04	E-01345-03-0437	AZ	Kroger Company	Arizona Public Service Co.	Revenue allocation rate design.
02/04	00032071	PA	Duquesne Industrial Intervenors	Duquesne Light Company	Provider of last resort issues.
03/04	03A-436E	CO	CF&I Steel, LP and Climax Molybedenum	Public Service Company of Colorado	Purchased Power Adjustment Clause.

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04/04	2003-00433 2003-00434	KY	Kentucky Industrial Utility Customers, Inc.	Louisville Gas & Electric Co. Kentucky Utilities Co.	Cost of Service Rate Design
0-6/04	03S-539E	CO	Cripple Creek, Victor Gold Mining Co., Goodrich Corp., Holcim (U.S.,), Inc., and The Trane Co.	Aquila, Inc.	Cost of Service, Rate Design Interruptible Rates
06/04	R-00049255	PA	PP&L Industrial Customer Alliance PPLICA	PPL Electric Utilities Corp.	Cost of service, rate design, tariff issues and transmission service charge.
10/04	04S-164E	CO	CF&I Steel Company, Climax Mines	Public Service Company of Colorado	Cost of service, rate design, Interruptible Rates.
03/05	Case No. 2004-00426 Case No. 2004-00421	KY	Kentucky Industrial Utility Customers, Inc.	Kentucky Utilities Louisville Gas & Electric Co.	Environmental cost recovery.
06/05	050045-EI	FL	South Florida Hospital and Healthcare Assoc.	Florida Power & Light Company	Retail cost of service, rate design
07/05	U-28155	LA	Louisiana Public Service Commission Staff	Entergy Louisiana, Inc. Entergy Gulf States, Inc.	Independent Coordinator of Transmission – Cost/Benefit
09/05	Case Nos. 05-0402-E-CN 05-0750-E-PC	WVA	West Virginia Energy Users Group	Mon Power Co. Potomac Edison Co.	Environmental cost recovery, Securitization, Financing Order
01/06	2005-00341	KY	Kentucky Industrial Utility Customers, Inc.	Kentucky Power Company	Cost of service, rate design, transmission expenses. Congestion Cost Recovery Mechanism
03/06	U-22092	LA	Louisiana Public Service Commission Staff	Entergy Gulf States, Inc.	Separation of EGSI into Texas and Louisiana Companies.
04/06	U-25116	LA	Louisiana Public Service Commission Staff	Entergy Louisiana, Inc.	Transmission Prudence Investigation
06/06	R-00061346 C0001-0005	PA	Duquesne Industrial Intervenors & IECPA	Duquesne Light Co.	Cost of Service, Rate Design, Transmission Service Charge, Tariff Issues
06/06	R-00061366 R-00061367 P-00062213 P-00062214		Met-Ed Industrial Energy Users Group and Penelec Industrial Customer Alliance	Metropolitan Edison Co. Pennsylvania Electric Co.	Generation Rate Cap, Transmission Service Charge, Cost of Service, Rate Design, Tariff Issues
07/06	U-22092 Sub-J	LA	Louisiana Public Service Commission Staff	Entergy Gulf States, Inc.	Separation of EGSI into Texas and Louisiana Companies.

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07/06	Case No. 2006-00130 Case No. 2006-00129	KY	Kentucky Industrial Utility Customers, Inc.	Kentucky Utilities Louisville Gas & Electric Co.	Environmental cost recovery.
08/06	Case No. PUE-2006-00065	VA	Old Dominion Committee For Fair Utility Rates	Appalachian Power Co.	Cost Allocation, Allocation of Rev Incr, Off-System Sales margin rate treatment
09/06	E-01345A-05-0816	AZ	Kroger Company	Arizona Public Service Co.	Revenue alllocation, cost of service, rate design.
11/06	Doc. No. 97-01-15RE02	CT	Connecticut Industrial Energy Consumers	Connecticut Light & Power United Illuminating	Rate unbundling issues.
01/07	Case No. 06-0960-E-42T	WV	West Virginia Energy Users Group	Mon Power Co. Potomac Edison Co.	Retail Cost of Service Revenue apportionment
03/07	U-29764	LA	Louisiana Public Service Commission Staff	Entergy Gulf States, Inc. Entergy Louisiana, LLC	Implementation of FERC Decision Jurisdictional & Rate Class Allocation
05/07	Case No. 07-63-EL-UNC	OH	Ohio Energy Group	Ohio Power, Columbus Southern Power	Environmental Surcharge Rate Design
05/07	R-00049255 Remand	PA	PP&L Industrial Customer Alliance PPLICA	PPL Electric Utilities Corp.	Cost of service, rate design, tariff issues and transmission service charge.
06/07	R-00072155	PA	PP&L Industrial Customer Alliance PPLICA	PPL Electric Utilities Corp.	Cost of service, rate design, tariff issues.
07/07	Doc. No. 07F-037E	CO	Gateway Canyons LLC	Grand Valley Power Coop.	Distribution Line Cost Allocation
09/07	Doc. No. 05-UR-103	WI	Wisconsin Industrial Energy Group, Inc.	Wisconsin Electric Power Co.	Cost of Service, rate design, tariff Issues, Interruptible rates.
11/07	ER07-682-000	FERC	Louisiana Public Service Commission Staff	Entergy Services, Inc. and the Entergy Operating Companies	Proposed modifications to System Agreement Schedule MSS-3. Cost functionalization issues.
1/08	Doc. No. 20000-277-ER-07	WY	Cimarex Energy Company	Rocky Mountain Power (PacifiCorp)	Vintage Pricing, Marginal Cost Pricing Projected Test Year
1/08	Case No. 07-551	OH	Ohio Energy Group	Ohio Edison, Toledo Edison Cleveland Electric Illuminating	Class Cost of Service, Rate Restructuring, Apportionment of Revenue Increase to Rate Schedules
2/08	ER07-956	FERC	Louisiana Public Service Commission Staff	Entergy Services, Inc. and the Entergy Operating Companies	Entergy's Compliance Filing System Agreement Bandwidth Calculations.
2/08	Doc No. P-00072342	PA	West Penn Power Industrial Intervenors	West Penn Power Co.	Default Service Plan issues.

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3/08	Doc No. E-01933A-05-0650	AZ	Kroger Company	Tucson Electric Power Co.	Cost of Service, Rate Design
05/08	08-0278 E-GI	WV	West Virginia Energy Users Group	Appalachian Power Co. American Electric Power Co.	Expanded Net Energy Cost "ENEC" Analysis.
6/08	Case No. 08-124-EL-ATA	OH	Ohio Energy Group	Ohio Edison, Toledo Edison Cleveland Electric Illuminating	Recovery of Deferred Fuel Cost
7/08	Docket No. 07-035-93	UT	Kroger Company	Rocky Mountain Power Co.	Cost of Service, Rate Design
08/08	Doc. No. 6680-UR-116	WI	Wisconsin Industrial Energy Group, Inc.	Wisconsin Power and Light Co.	Cost of Service, rate design, tariff Issues, Interruptible rates.
09/08	Doc. No. 6690-UR-119	WI	Wisconsin Industrial Energy Group, Inc.	Wisconsin Public Service Co.	Cost of Service, rate design, tariff Issues, Interruptible rates.
09/08	Case No. 08-936-EL-SSO	OH	Ohio Energy Group	Ohio Edison, Toledo Edison Cleveland Electric Illuminating	Provider of Last Resort Competitive Solicitation
09/08	Case No. 08-935-EL-SSO	OH	Ohio Energy Group	Ohio Edison, Toledo Edison Cleveland Electric Illuminating	Provider of Last Resort Rate Plan
09/08	Case No. 08-917-EL-SSO 08-918-EL-SSO	OH	Ohio Energy Group	Ohio Power Company Columbus Southern Power Co.	Provider of Last Resort Rate Plan
10/08	2008-00251 2008-00252	KY	Kentucky Industrial Utility Customers, Inc.	Louisville Gas & Electric Co. Kentucky Utilities Co.	Cost of Service, Rate Design
11/08	08-1511 E-GI	WV	West Virginia Energy Users Group	Mon Power Co. Potomac Edison Co.	Expanded Net Energy Cost "ENEC" Analysis.
11/08	M-2008-2036188, M-2008-2036197	PA	Met-Ed Industrial Energy Users Group and Penelec Industrial Customer Alliance	Metropolitan Edison Co. Pennsylvania Electric Co.	Transmission Service Charge
01/09	ER08-1056	FERC	Louisiana Public Service Commission	Entergy Services, Inc. and the Entergy Operating Companies	Entergy's Compliance Filing System Agreement Bandwidth Calculations.
01/09	E-01345A-08-0172	AZ	Kroger Company	Arizona Public Service Co.	Cost of Service, Rate Design
02/09	2008-00409	KY	Kentucky Industrial Utility Customers, Inc.	East Kentucky Power Cooperative, Inc.	Cost of Service, Rate Design

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5/09	PUE-2009 -00018	VA	VA Committee For Fair Utility Rates	Dominion Virginia Power Company	Transmission Cost Recovery Rider
5/09	09-0177- E-GI	WV	West Virginia Energy Users Group	Appalachian Power Company	Expanded Net Energy Cost "ENEC" Analysis
6/09	PUE-2009 -00016	VA	VA Committee For Fair Utility Rates	Dominion Virginia Power Company	Fuel Cost Recovery Rider
6/09	PUE-2009 -00038	VA	Old Dominion Committee For Fair Utility Rates	Appalachian Power Company	Fuel Cost Recovery Rider
7/09	080677-EI	FL	South Florida Hospital and Healthcare Assoc.	Florida Power & Light Company	Retail cost of service, rate design
8/09	U-20925 (RRF 2004)	LA	Louisiana Public Service Commission Staff	Entergy Louisiana LLC	Interruptible Rate Refund Settlement
9/09	09AL-299E	CO	CF&I Steel Company Climax Molybdenum	Public Service Company of Colorado	Energy Cost Rate issues
9/09	Doc. No. 05-UR-104	WI	Wisconsin Industrial Energy Group, Inc.	Wisconsin Electric Power Co.	Cost of Service, rate design, tariff Issues, Interruptible rates.
9/09	Doc. No. 6680-UR-117	WI	Wisconsin Industrial Energy Group, Inc.	Wisconsin Power and Light Co.	Cost of Service, rate design, tariff Issues, Interruptible rates.
10/09	Docket No. 09-035-23	UT	Kroger Company	Rocky Mountain Power Co.	Cost of Service, Allocation of Rev Increase
10/09	09AL-299E	CO	CF&I Steel Company Climax Molybdenum	Public Service Company of Colorado	Cost of Service, Rate Design
11/09	PUE-2009 -00019	VA	VA Committee For Fair Utility Rates	Dominion Virginia Power Company	Cost of Service, Rate Design
11/09	09-1485 E-P	WV	West Virginia Energy Users Group	Mon Power Co. Potomac Edison Co.	Expanded Net Energy Cost "ENEC" Analysis.
12/09	Case No. 09-906-EL-SSO	OH	Ohio Energy Group	Ohio Edison, Toledo Edison Cleveland Electric Illuminating	Provider of Last Resort Rate Plan
12/09	ER09-1224	FERC	Louisiana Public Service Commission	Entergy Services, Inc. and the Entergy Operating Companies	Entergy's Compliance Filing System Agreement Bandwidth Calculations.
12/09	Case No. PUE-2009-00030	VA	Old Dominion Committee For Fair Utility Rates	Appalachian Power Co.	Cost Allocation, Allocation of Rev Increase, Rate Design

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2/10	Docket No. 09-035-23	UT	Kroger Company	Rocky Mountain Power Co.	Rate Design
3/10	Case No. 09-1352-E-42T	WV	West Virginia Energy Users Group	Mon Power Co. Potomac Edison Co.	Retail Cost of Service Revenue apportionment
3/10	E015/ GR-09-1151	MN	Large Power Intervenors	Minnesota Power Co.	Cost of Service, rate design
4/10	EL09-61	FERC	Louisiana Public Service Service Commission	Entergy Services, Inc. and the Entergy Operating Companies	System Agreement Issues Related to off-system sales
4/10	2009-00459	KY	Kentucky Industrial Utility Customers, Inc.	Kentucky Power Company	Cost of service, rate design, transmission expenses.
4/10	2009-00548 2009-00549	KY	Kentucky Industrial Utility Customers, Inc.	Louisville Gas & Electric Co. Kentucky Utilities Co.	Cost of Service, Rate Design
7/10	R-2010-2161575	PA	Philadelphia Area Industrial Energy Users Group	PECO Energy Company	Cost of Service, Rate Design
09/10	2010-00167	KY	Kentucky Industrial Utility Customers, Inc.	East Kentucky Power Cooperative, Inc.	Cost of Service, Rate Design
09/10	10M-245E	CO	CF&I Steel Company Climax Molybdenum	Public Service Company of Colorado	Economic Impact of Clean Air Act
11/10	10-0699-E-42T	WV	West Virginia Energy Users Group	Appalachian Power Company	Cost of Service, Rate Design, Transmission Rider
11/10	Doc. No. 4220-UR-116	WI	Wisconsin Industrial Energy Group, Inc.	Northern States Power Co. Wisconsin	Cost of Service, rate design
12/10	10A-554EG	CO	CF&I Steel Company Climax Molybdenum	Public Service Company	Demand Side Management Issues
12/10	10-2586-EL-SSO	OH	Ohio Energy Group	Duke Energy Ohio	Provider of Last Resort Rate Plan Electric Security Plan
3/11	20000-384-ER-10	WY	Wyoming Industrial Energy Consumers	Rocky Mountain Power Wyoming	Electric Cost of Service, Revenue Apportionment, Rate Design
5/11	2011-00036	KY	Kentucky Industrial Utility Customers, Inc.	Big Rivers Electric Corporation	Cost of Service, Rate Design
6/11	Docket No. 10-035-124	UT	Kroger Company	Rocky Mountain Power Co.	Class Cost of Service
6/11	PUE-2011 -00045	VA	VA Committee For Fair Utility Rates	Dominion Virginia Power Company	Fuel Cost Recovery Rider

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07/11	U-29764	LA	Louisiana Public Service Commission Staff	Entergy Gulf States, Inc. Entergy Louisiana, LLC	Entergy System Agreement - Successor Agreement, Revisions, RTO Day 2 Market Issues
07/11	Case Nos. 11-346-EL-SSO 11-348-EL-SSO	OH	Ohio Energy Group	Ohio Power Company Columbus Southern Power Co.	Electric Security Rate Plan, Provider of Last Resort Issues
08/11	PUE-2011-00034	VA	Old Dominion Committee For Fair Utility Rates	Appalachian Power Co.	Cost Allocation, Rate Recovery of RPS Costs
09/11	2011-00161 2011-00162	KY	Kentucky Industrial Utility	Louisville Gas & Electric Co. Kentucky Utilities Company	Environmental Cost Recovery
09/11	Case Nos. 11-346-EL-SSO 11-348-EL-SSO	OH	Ohio Energy Group	Ohio Power Company Columbus Southern Power Co.	Electric Security Rate Plan, Stipulation Support Testimony
10/11	11-0452 E-P-T	WV	West Virginia Energy Users Group	Mon Power Co. Potomac Edison Co.	Energy Efficiency/Demand Reduction Cost Recovery
11/11	11-1272 E-P	WV	West Virginia Energy Users Group	Mon Power Co. Potomac Edison Co.	Expanded Net Energy Cost "ENEC" Analysis
11/11	E-01345A-11-0224	AZ	Kroger Company	Arizona Public Service Co.	Decoupling
12/11	E-01345A-11-0224	AZ	Kroger Company	Arizona Public Service Co.	Cost of Service, Rate Design
3/12	Case No. 2011-00401	KY	Kentucky Industrial Utility Consumers	Kentucky Power Company	Environmental Cost Recovery
4/12	2011-00036 Rehearing Case	KY	Kentucky Industrial Utility Customers, Inc.	Big Rivers Electric Corporation	Cost of Service, Rate Design
5/12	2011-346 2011-348	OH	Ohio Energy Group	Ohio Power Company	Electric Security Rate Plan Interruptible Rate Issues
6/12	PUE-2012-00051	VA	Old Dominion Committee For Fair Utility Rates	Appalachian Power Company	Fuel Cost Recovery Rider
6/12	12-00012 12-00026	TN	Eastman Chemical Co. Air Products and Chemicals, Inc.	Kingsport Power Company	Demand Response Programs
6/12	Docket No. 11-035-200	UT	Kroger Company	Rocky Mountain Power Co.	Class Cost of Service
6/12	12-0275-E-GI-EE	WV	West Virginia Energy Users Group	Appalachian Power Company	Energy Efficiency Rider

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6/12	12-0399-E-P	WV	West Virginia Energy Users Group	Appalachian Power Company	Expanded Net Energy Cost ("ENEC")
7/12	120015-EI	FL	South Florida Hospital and Healthcare Assoc.	Florida Power & Light Company	Retail cost of service, rate design
7/12	2011-00063	KY	Kentucky Industrial Utility Customers, Inc.	Big Rivers Electric Corporation	Environmental Cost Recovery
8/12	Case No. 2012-00226	KY	Kentucky Industrial Utility Consumers	Kentucky Power Company	Real Time Pricing Tariff
9/12	ER12-1384	FERC	Louisiana Public Service Commission	Entergy Services, Inc.	Entergy System Agreement, Cancelled Plant Cost Treatment
9/12	2012-00221 2012-00222	KY	Kentucky Industrial Utility Customers, Inc.	Louisville Gas & Electric Co. Kentucky Utilities Co.	Cost of Service, Rate Design
11/12	12-1238 E-GI	WV	West Virginia Energy Users Group	Mon Power Co. Potomac Edison Co.	Expanded Net Energy Cost Recovery Issues
12/12	U-29764	LA	Louisiana Public Service Commission Staff	Entergy Gulf States Louisiana	Purchased Power Contracts
12/12	EL09-61	FERC	Louisiana Public Service Service Commission	Entergy Services, Inc. and the Entergy Operating Companies	System Agreement Issues Related to off-system sales Damages Phase
12/12	E-01933A-12-0291	AZ	Kroger Company	Tucson Electric Power Co.	Decoupling
1/13	12-1188 E-PC	WV	West Virginia Energy Users Group	Appalachian Power Company	Securitization of ENEC Costs
1/13	E-01933A-12-0291	AZ	Kroger Company	Tucson Electric Power Co.	Cost of Service, Rate Design
4/13	12-1571 E-PC	WV	West Virginia Energy Users Group	Mon Power Co. Potomac Edison Co.	Generation Resource Transition Plan Issues
4/13	PUE-2012-00141	VA	Old Dominion Committee For Fair Utility Rates	Appalachian Power Company	Generation Asset Transfer Issues
6/13	12-1655 E-PC	WV	West Virginia Energy Users Group	Appalachian Power Company	Generation Asset Transfer Issues
06/13	U-32675	LA	Louisiana Public Service Commission Staff	Entergy Gulf States, Inc. Entergy Louisiana, LLC	MISO Joint Implementation Plan Issues

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7/13	130040-EI	FL	WCF Health Utility Alliance	Tampa Electric Company	Cost of Service, Rate Design
7/13	13-0467-E-P	WV	West Virginia Energy Users Group	Appalachian Power Company	Expanded Net Energy Cost ("ENEC")
7/13	13-0462-E-P	WV	West Virginia Energy Users Group	Appalachian Power Company	Energy Efficiency Issues
8/13	13-0557-E-P	WV	West Virginia Energy Users Group	Appalachian Power Company	Right-of-Way, Vegetation Control Cost Recovery Surcharge Issues
10/13	2013-00199	KY	Kentucky Industrial Utility Customers, Inc.	Big Rivers Electric Corporation	Ratemaking Policy Associated with Rural Economic Reserve Funds
10/13	13-0764-E-CN	WV	West Virginia Energy Users Group	Appalachian Power Company	Rate Recovery Issues – Clinch River Gas Conversion Project
11/13	R-2013-2372129	PA	United States Steel Corporation	Duquesne Light Company	Cost of Service, Rate Design
11/13	13A-0686EG	CO	CF&I Steel Company Climax Molybdenum	Public Service Company of Colorado	Demand Side Management Issues
11/13	13-1064-E-P	WV	West Virginia Energy Users Group	Mon Power Co. Potomac Edison Co.	Right-of-Way, Vegetation Control Cost Recovery Surcharge Issues
4/14	ER-432-002	FERC	Louisiana Public Service Service Commission	Entergy Services, Inc. and the Entergy Operating Companies	System Agreement Issues Related to Union Pacific Railroad Litigation Settlement
5/14	2013-2385 2013-2386	OH	Ohio Energy Group	Ohio Power Company	Electric Security Rate Plan Interruptible Rate Issues
5/14	14-0344-E-P	WV	West Virginia Energy Users Group	Appalachian Power Company	Expanded Net Energy Cost ("ENEC")
5/14	14-0345-E-PC	WV	West Virginia Energy Users Group	Appalachian Power Company	Energy Efficiency Issues
5/14	Docket No. 13-035-184	UT	Kroger Company	Rocky Mountain Power Co.	Class Cost of Service
7/14	PUE-2014-00007	VA	Old Dominion Committee For Fair Utility Rates	Appalachian Power Company	Renewable Portfolio Standard Rider Issues
7/14	ER13-2483	FERC	Bear Island Paper WB LLC	Old Dominion Electric Cooperative	Cost of Service, Rate Design Issues
8/14	14-0546-E-PC	WV	West Virginia Energy Users Group	Appalachian Power Company	Rate Recovery Issues – Mitchell Asset Transfer
8/14	PUE-2014-00026	VA	Old Dominion Committee	Appalachian Power Company	Biennial Review Case - Cost of Service Issues

Expert Testimony Appearances
of
Stephen J. Baron
As of February 2015

Date	Case	Jurisdict.	Party	Utility	Subject
9/14	14-841-EL-SSO	OH	Ohio Energy Group	Duke Energy Ohio	Electric Security Rate Plan Standard Service Offer
10/14	14-0702-E-42T	WV	West Virginia Energy Users Group	Mon Power Co. Potomac Edison Co.	Cost of Service, Rate Design
11/14	14-1550-E-P	WV	West Virginia Energy Users Group	Mon Power Co. Potomac Edison Co.	Expanded Net Energy Cost ("ENEC")
12/14	EL14-026	SD	Black Hills Power Industrial Intervenors	Black Hills Power, Inc.	Cost of Service Issues
12/14	14-1152-E-42T	WV	West Virginia Energy Users Group	Appalachian Power Company	Cost of Service, Rate Design transmission, lost revenues
2/15	14-1297 EI-SS0	OH	Ohio Energy Group	Ohio Edison, Toledo Edison Cleveland Electric Illuminating	Electric Security Rate Plan Standard Service Offer

BEFORE THE
PUBLIC UTILITIES COMMISSION OF OHIO

In The Matter Of The Application Of The Ohio Edison Company, The Cleveland Electric Illuminating Company, and The Toledo Edison Company For Authority To Establish A Standard Service Offer Pursuant To R.C. § 4928.143 In The Form Of An Electric Security Plan.	:	**Case No. 14-1297-EL-SSO**

EXHIBIT__(SJB-2)

OF

STEPHEN J. BARON

ON BEHALF OF

THE OHIO ENERGY GROUP

J. KENNEDY AND ASSOCIATES, INC.
ROSWELL, GEORGIA

Article

Tuesday, January 07, 2014 5:16 PM ET Exclusive

Historic cold snap sets demand records, heightens grid operator concerns across Eastern US

By Esther Whieldon and Peter Marrin

With an extreme cold snap driving record winter electricity demand and the loss of some generating units, PJM Interconnection LLC, the New York ISO and the Midcontinent Independent System Operator Inc. on Jan. 7 were implementing emergency measures to maintain system reliability.

Meanwhile, despite the Electric Reliability Council of Texas Inc. potentially hitting a new winter record for energy usage of 57,277 MW on Jan. 7, the region discontinued a conservation alert that began the prior day.

In the Northeast, which is known for its winter reliability challenges, the ISO New England Inc. system was performing as expected, spokeswoman Ellen Foley said in a Jan. 7 interview. "We are in good shape" and experiencing energy consumption of about 20,860 MW, which is less than the region used during a cold spell in mid-December 2013, she said.

Nevertheless, ISO-NE has called for all generation and transmission asset operators to halt routine maintenance outages, if possible, so more generation will be available for New England's neighbors if they need it, Foley said.

Regarding PJM, "We are currently expected to be able to serve the load with some emergency procedures," Executive Vice President of Operations Mike Kormos said during a Jan. 7 media briefing. "We are seeing a large number of generator units that have either shut down or potentially may have problems due to the cold weather or the ability to get natural gas to those units later today as the gas system is ... stressed with the extreme cold weather."

Demand early Jan. 7 reached an all-time winter high of close to 138,600 MW, surpassing a previous winter peak of about 136,000 MW recorded in 2007, Kormos said. But electricity usage was anticipated to climb even higher — perhaps above 140,000 MW — between 3 p.m. and 7 p.m. ET as subzero temperatures cover much of the PJM footprint.

Going into the evening of Jan. 7, PJM was seeing about 36,600 MW of forced generation outages, or about 20% of its installed capacity, PJM spokeswoman Paula DuPont-Kidd said Jan. 7.

Kormos would not speculate on how many of the power plant outages were related to the cold weather but said the problems ranged from "mechanical problems potentially due to the cold weather to just normal [issues]."

"Generators do fail, particularly when we push them as hard as we've been pushing them," Kormos said. "We have tube breaks, normal breakage. We have had some fuel interruption on the natural gas system where units have not been able to get fuel. We have had units trying to convert to backup fuel that were potentially not successful in getting their units restarted. I'd say we've seen everything.

"These units are being asked to run for extremely long periods of time," Kormos said. "The units are breaking and in some cases we're getting them back as fast as they can fix them."

PJM began taking emergency steps late Jan. 6 and again early Jan. 7, including issuing a maximum generation alert, which calls on all capable generating units to be on call to ramp to full power if necessary. The grid operator late Jan. 6 also issued a 5% voltage reduction across the system, which is a measure to temporarily reduce voltage on the transmission system to reduce load but does not involve blackouts. Kormos said a 5% voltage reduction was not necessary early Jan. 7.

PJM on Jan. 6 obtained an emergency waiver from FERC to share nonpublic information with interstate natural gas pipelines to keep tabs on what fuel supplies are available and which gas-fired generators might be unavailable as a result. Kormos was not immediately available to indicate whether PJM has used those measures yet.

The challenge is that many gas-fired generators in PJM and nearby regions do not have firm contracts for gas supplies because there is no guarantee the RTO will call on them on a consistent basis throughout the year and no way to recover the costs of such contracts. That caused reliability issues in previous winters when gas utilities with residential heating customers gobbled up the capacity generators typically relied on in the secondary capacity release market.

PJM has also called on demand response customers to interrupt load and called for all customers to conserve electricity both early Jan. 6 and later, between 3 p.m. and 7 p.m. Kormos said about 1,900 MW of demand response was called on at about 6 a.m. on Jan. 7 but that the number could reach 3,000 MW later in the day as a new record-high load is challenged.

PJM is not alone in its efforts, Kormos said. Cold temperatures are taxing grid systems in the Midwest and along much of the Eastern Seaboard.

PJM has bought emergency power from the NYISO area and has been supplying emergency power to areas in the Southeast such as North Carolina and South Carolina. "This particular cold is far-reaching and most of our neighbors are experiencing the extreme conditions that we are. ... Everybody is out there doing everything they can to help their neighbors, and we'll continue to do that," Kormos said.

PJM market prices highest in more than 5 years

Article

In the electricity markets, the tight conditions sent real-time locational marginal prices well above $2,000/MWh early Jan. 7, while next-day deals done for Jan. 7 flows at PJM West averaged at $236.10/MWh, up 175% on the day and at highs not seen since June 2008, according to SNL Energy data.

For its part, NYISO called for the activation of voluntary demand response programs statewide and encouraged consumers to help conserve electricity between 4 p.m. and 10 p.m. The New York grid operator anticipated that electricity demand could even exceed the record winter peak of 25,541 MW set Dec. 20, 2004.

"The Northeast, Mid-Atlantic and Midwest regions are under significant stress, and we continue to work closely with system operators in all of our neighboring control areas to coordinate resources and support system reliability throughout the region," NYISO President and CEO Stephen Whitley said in a statement. "System conditions will be tight today with some generating units either not at full capacity or unavailable as a result of the extreme cold, icing conditions and high demand for natural gas."

In the Midwest, MISO on Jan. 6 hit a new winter peak usage of 109,300 MW, it said in a Jan. 7 news release. MISO issued a cold weather alert for the North, Central and some of its South regions from 10 p.m. ET Jan. 4 through that same time on Jan. 7.

"Severe weather conditions and very low temperatures moving across the MISO footprint over the last couple of days have had a significant impact on the supply and demand of electricity," MISO said. "The combination of elevated demand levels and power plants being forced offline create tight operating conditions, the effects of which include elevated wholesale power prices."

Meanwhile, natural gas spot markets in the Northeast reversed earlier gains even as pipelines issued a number of operational restriction orders.

Transcontinental Gas Pipe Line Co. LLC issued a systemwide imbalance operational flow order that included 23 locations in Zone 6 subject to the provisions of the OFO.

In addition, Spectra Energy Corp issued a number of critical notices due to issues on its Texas Eastern Transmission LP system. An OFO was issued due to an unplanned outage at the Delmont, Pa., compressor station, where repairs were underway. An OFO was also issued on TETCO's Philadelphia Lateral, and the company has also restricted interruptible nominations on the Leidy Line.

The Tennessee Valley Authority said its power system reached a preliminary peak power demand of 32,460 MW at 9 a.m. on Jan. 7, the second highest winter peak in TVA history behind the 32,572 MW winter peak reached on Jan. 16, 2009.

Jodi Shafto contributed to this article.

Article

Thursday, January 16, 2014 5:19 PM ET Exclusive

Several surprising reliability issues emerged during recent cold snap, FERC told

By Glen Boshart

The recent extreme cold weather that hit most of the eastern half of the country for several days led to several surprising results, including a large amount of forced generating plant outages in the PJM Interconnection LLC that were caused by a lack of natural gas.

Briefing the agency during its Jan. 16 open monthly meeting on how the bulk power system performed during the recent polar vortex, FERC staff and a North American Electric Reliability Corp. official described several of those surprises. However, they warned that much of the information they have gathered thus far is preliminary and that it may take at least seven months before they reach any final conclusions.

The officials stressed that the cold weather during the event was the most severe and widespread to hit the Eastern Interconnection since the mid-1990s, which led to winter peak demand records being set in many areas. Actual system loads exceeded forecasts by approximately 7% in PJM and around 9% in Midcontinent Independent System Operator Inc.'s region.

Nevertheless, the officials said the bulk power system "remained stable and generally performed reliably" throughout the event. They praised utilities and grid operators for the actions they took to prepare for the cold weather, some of which were driven by the lessons learned from a widespread power outage that hit the Southwest in February 2011. The officials also cited PJM's efforts to obtain a waiver of certain nondisclosure provisions in its operating agreement, which it then used to help manage natural gas deliveries and supplies, as well as to confirm unit availability.

The cold weather also highlighted how dependent certain parts of the Midwest, Northeast and Southeast have become on natural gas as a generating fuel. The officials said it appears that all of those regions set record demands for natural gas, while other parts of the Eastern and Central U.S. were near their all-time peaks. While several gas pipelines curtailed interruptible or secondary firm transportation and storage services due to this record demand, staff said no firm supplies were interrupted.

The fuel restrictions stressed electric supply, but the officials said electric service remained mostly reliable, partially due to the gas-electric coordination procedures that were recently put into place and that "generally worked well" during the cold weather spell.

However, the officials said preliminary data indicates that forced power plant outages were significant in some regions, with the exact reasons why, including if they were weather-related, still uncertain.

It seems to be problematic that we had so many forced outages, Commissioner John Norris said in encouraging a thorough and accurate examination of the event.

Driving home that point, Mike Moon, senior director for reliability risk management at NERC, said at least 50 GW of forced generation outages were reported in the most severely impacted areas of the Eastern Interconnection on Jan. 6 and Jan. 7, which is higher than the historical wintertime average forced outage rate of 33 GW. Not all of the outages were due to weather either, he said, although the result and the reasons for it are still being studied.

Asked after the meeting whether she suspects that any of the outages may have been driven by attempts to manipulate markets, Acting Chairman Cheryl LaFleur said she had not heard of any reports or allegations that this may have been the case.

PJM hit hard

PJM, which was forced to direct member utilities to implement a 5% voltage reduction for about an hour and deploy demand response resources, was particularly hard hit by forced outages.

The grid operator reported in a Jan. 10 FERC filing that extreme cold weather drove demand levels to a new winter peak of around 141,000 MW. Making matters worse was that during the height of the event, on Jan. 8, roughly 40,000 MW of generating capacity was unavailable due to forced outages, more than double that experienced during each of three other cold weather events that have hit the region since January 2009.

Surprisingly, PJM also reported that a little more than 9,000 MW of the 40,000 MW of forced outages were due to gas curtailments. Moreover, during one evening peak, 33.4% of its forced outages were due to gas curtailments, meaning that 4.8% of its installed capacity was suddenly unavailable.

"As such, gas availability for power generation was tight over the entire footprint," PJM reported. However, it added that "the increased coordination and communication between the pipelines and PJM, and PJM and its generators, allowed PJM to manage the bulk power grid reliably."

Before the recent cold snap, the lack of gas supplies was of most concern to the ISO New England Inc. due to that region's heavy reliance on the fuel to generate power. However, adequate fuel supplies turned out not to be an issue in New England during the recent cold snap, perhaps because it did not come anywhere near record winter peak power demand levels, but appeared to have been one for PJM.

"I think it's fair to say that there may have been a few in PJM that didn't think this issue would affect them, but I think there's universal recognition now that this may be an issue for them as well," Commissioner Philip Moeller observed.

Asked after the meeting by a reporter whether she agreed that PJM may have been caught "somewhat off guard" that the lack of gas supplies was a problem for some of its generators, LaFleur recalled that just before the event PJM obtained a waiver to share info with pipelines, "so they clearly thought

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the cold snap would affect them." She also insisted that the grid was "bent [by] but did not break" because of the polar vortex.

Moeller suggested that one reason why that system performed well was that a joint report produced by FERC and NERC after the February 2011 Southwest outage "was not put on the shelf" and forgotten like previous reports that examined power outages. Instead, he insisted that the report's findings and recommendations were acted upon by many of the nation's utilities.

Moon was a little more cautious in his appraisal. "It is too soon to draw detailed comparisons of performance in 2011 versus last week or assess the extent to which entities avoided the particular mistakes of 2011, but in broad scope certainly the overall outcome was better, which suggests that the efforts made since 2011 have yielded a change for the better," he said.

Turning to the polar vortex's impact on energy prices, staff said on-peak average real-time power prices soared to as high as $765 per MWh in PJM and $510 per MWh in the New York ISO as natural gas prices and demand spiked upward. Prices in PJM rose to as high as $1,200 per MWh during one evening peak and reached an administratively set price of $1,800 per MWh for approximately 4 hours during one cold morning as emergency demand response was called on to perform.

Staff added that fuel oil had a $37 per MMBtu advantage over natural gas in New York and a $13 per MMBtu advantage in New England, allowing oil-fired and dual fuel units to run economically during the event.

Finally, while gas storage levels are down compared to those seen in recent years during mid-January, LaFleur said they are still more than twice as high as all-time lows for this time of the year and should be adequate until the gas storage refill season begins in April.

Article amended at 12:30 p.m. ET on Jan. 17, 2014, to clarify some of the commissioners' comments.

Article

Friday, January 24, 2014 3:48 PM ET Extra

Outages highlight power grid pitfalls amid epic cold snap

By Peter Marrin

A high number of forced outages on power grids across the U.S. through January highlight the need for added measures to ensure reliability, including better weatherization of power plants and more economic incentives to run plants during times of extreme supply scarcity, according to a recent report from ICF International.

After skating "so close to the edge" during an outbreak of extreme cold in early January, the consultants emphasized that grid reliability "is closely related to generation profitability, and hence, commercial endeavors need to be properly structured based on anticipation of the market implications of reliability trends."

During the extreme "polar vortex" cold snap in early January, forced outages in PJM approached 40,000 MW, or 20% of PJM's total generating capacity. MISO lost 28,736 MW, or 22% of its total generation. But other ISOs saw much lower reported forced outage rates during the polar vortex. NYISO lost 4,135 MW of capacity, or around 10% of its installed capacity, close to its average outage rate. ISO-NE and ERCOT lost only around 5% of their total generation capacities due to forced outages during this period.

"A key driver for determination of the planning reserve margin target is the assumed forced outage rate by plant," ICF said. "Current planning assumes individual power plant outage rates are independent of one another. However, the evidence is clear that during extreme winter events, forced outages are not independent (i.e., individual plant outages are highly correlated in that they occur simultaneously), and to the extent PJM and other grid planners continue to make the standard assumption that outages are independent during extreme winter events (i.e., regardless of whether plant X is out, the probability plant Y is also out is unchanged), they are greatly understating the need for resources during the winter."

Weatherization, fuel procurement and the importance of price spikes

According to ICF, the failure of nearly 40 GW of PJM generation capacity on Jan. 8 highlights the need to provide more incentives for performance generally and especially during the winter.

"Up to 88 percent of forced outage capacity is from oil- and gas-fired generation — e.g., diesels, combustion turbines, steam/fossil (which can be coal or oil and natural gas), and combined cycles. This highlights the need for weatherization and other steps to provide for generation availability and appropriate fuel supply during extreme cold events," the report said.

Incentives such as high hourly energy prices and other market rules should be re-evaluated to ensure they are appropriate to meet the needs of the grid during times of high demand and forced outages, ICF said.

"U.S. policy on price spikes is very diverse and it is very unlikely that all of the prevailing approaches are appropriate. Rather, it is indicative of the need for greater attention to this critical tool for providing incentives for actual operation during critical periods."

During shortage events, ERCOT sets a $5,000/MWh level, PJM sets a $2,200/MWh level and ISO-NE sets a $1,000/MWh level.

"Price spikes allow the market to efficiently send signals that resources are needed," ICF noted. "Price caps are being raised in some markets, but in light of the critical need to ensure public health and safety, more attention is required on the impacts of energy market price caps on reliability. Thus, while some steps will alleviate the price increases (e.g., firm fuel supply and changes in the resource mix that favor availability year round as opposed to summer only), others may raise prices (e.g. raising the price cap during shortage events to ensure that power plants have the appropriate incentive to be available when needed, regardless of season and hour of the day). However, these changes are needed to prevent worse reliability problems during the next cold snap."

In addition, interruptible gas contracts need to be better accounted for or other measures need to be taken to account for fuel disruptions. While the natural gas pipelines were able to meet all their obligations to firm transportation customers during the cold snap in early January, no interruptible capacity was available due to the high level of firm demand, with up to one-third of the outages in PJM due to lack of gas delivery capability to generators that rely on interruptible capacity.

By comparison, ISO-NE experienced fewer than 1,500 MW of forced outages on Jan. 7 due to a lack of gas supplies. As a short-term solution to New England generators' lack of firm fuel supplies, ISO-NE in September 2013 procured nearly 2 million MWh for this winter from a combination of oil- and dual-fuel generators. In exchange for their commitment to maintain oil inventories needed to provide power when called upon, the selected oil- and dual-fuel generators receive monthly payments regardless of whether they are actually dispatched.

"This policy worked well for ISO-NE during the cold snap," the analysts said.

According to the ICF report, oil provided 25% of total generation across the entire ISO during the afternoon of Jan. 7, as units typically running on natural gas switched over to oil for a short period of time. By comparison, through the month of January so far, oil has provided only 7% of total generation in New England.

BEFORE THE
PUBLIC UTILITIES COMMISSION OF OHIO

In The Matter Of The Application Of The Ohio Edison Company, The Cleveland Electric Illuminating Company, and The Toledo Edison Company For Authority To Establish A Standard Service Offer Pursuant To R.C. § 4928.143 In The Form Of An Electric Security Plan.	:	**Case No. 14-1297-EL-SSO**

EXHIBIT__(SJB-3)

OF

STEPHEN J. BARON

ON BEHALF OF

THE OHIO ENERGY GROUP

J. KENNEDY AND ASSOCIATES, INC.
ROSWELL, GEORGIA

Tuesday, October 14, 2014 9:01 AM ET Exclusive

Coal unit retirements, conversions continue to sweep through power sector

By Michael Niven and Neil Powell

With clean air regulations mounting and shale gas production booming, more than 12,000 MW of coal-fired capacity in the U.S. has converted or is slated to convert to alternative fuel sources between 2011 and 2023, according to SNL Energy data, which now tracks unit fuel conversions.

Natural gas, which has quickly leapt to the front of the line of desired power generation fuels, dominates the list of unit conversions. Of the approximately 11,288 MW of coal capacity planned to be converted, 10,894 MW is being shut down in favor of gas-fired generation, according to SNL Energy data.

The number of coal-to-gas conversions is expected to increase going forward as generators retrofit older coal units or build new gas generation on sites where coal units have been dismantled.

The latest generator to propose a sizable coal conversion is Ameren Corp. unit Ameren Missouri, which on Oct. 1 unveiled a new 20-year Integrated Resource Plan that calls for two units at its 873-MW Meramec Energy Center to be converted from coal to gas. The proposed Meramec conversion is part of Ameren Missouri's larger plan retire a third of its coal power capacity, install 478 MW of renewable generation and 600 MW of new gas generation. Ameren Missouri is legally known as Union Electric Co.

Converted coal units to other fuel types by NERC region (MW)

	Fuel type after conversion		
NERC region	Biomass	Gas	Total
FRCC	75	-	75
MRO	-	105	105
NPCC	60	-	60
RFC	-	324	324
SERC	204	331	535
WECC	87	-	87
Total	427	760	1,187

As of Oct. 1, 2014.
A hyphen indicates a zero value.
Includes fuel conversions at plants tracked by SNL beginning in January 2011.
Source: SNL Energy

Coal units converting to other fuel types by NERC region (MW)

	Fuel type after conversion			
NERC region	Biomass	Gas	Oil	Total
MRO	26	645	-	671
NPCC	-	445	-	445
RFC	-	4,621	335	4,956
SERC	-	3,819	-	3,819
SPP	-	1,013	-	1,013
WECC	33	352	-	385
Total	59	10,894	335	11,288

As of Oct. 1, 2014.
A hyphen indicates a zero value.
Includes fuel conversions at plants tracked by SNL beginning in January 2011.
Source: SNL Energy

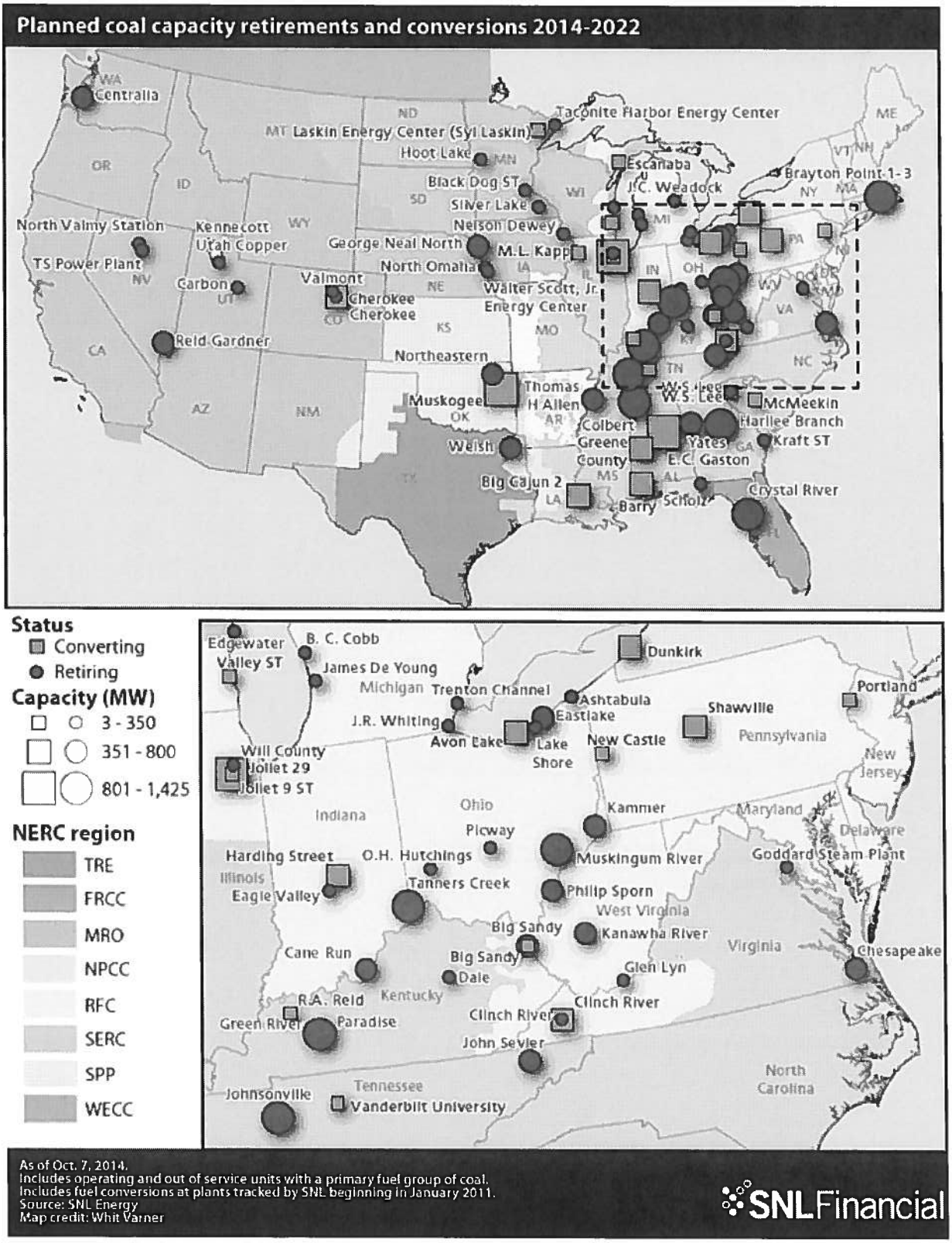
NERC regions seeing the most activity on the coal conversion front are ReliabilityFirst and SERC Reliability Corp., both of which are within close reach of major shale gas plays, enabling them to capitalize on increased U.S. gas supply. ReliabilityFirst tops the list with more than 4,600 MW of coal capacity slated for conversion, followed by SERC, where more than 3,800 MW of coal capacity has been proposed to be converted to gas, based on SNL Energy estimates.

The company leading the charge on coal-to-gas conversions is NRG Energy Inc., which owns a number of older coal plants in the Northeast that can tap into the flood of gas being produced out of the Marcellus Shale. NRG has tapped approximately 4,000 MW of coal-fired capacity to be converted from coal to gas, including several larger units. NRG's Avon Lake unit 9, Big Cajun unit 2, and Joliet units 7 and 8, all of which are more than 500 MW in size, are among the largest single coal units in the conversion pipeline.

While coal-to-gas conversions are typically touted by generators as a shift to a cleaner fuel alternative, some environmental groups are opposing conversion projects, arguing the fossil plants should be shut down entirely.

The Sierra Club, for example, recently challenged a plan to convert the jointly owned B.L. England plant in New Jersey from coal to gas. Pointing to a PJM Interconnection LLC report, the Sierra Club claimed that operating the plant as a gas-fired facility could actually cause transmission overloads and power outages.

The Sierra Club is also fighting a coal-to-gas conversion project at NRG Energy Inc.'s Dunkirk power plant in western New York. The group has filed a lawsuit against state regulators, claiming that ratepayers are being forced to subsidize a project that leaves a door open for future coal use at Dunkirk. NRG has said that while natural gas will be the primary fuel at Dunkirk, the plant will still have the flexibility to operate on coal at times in order to promote fuel diversity.



The influx of coal unit conversions in the U.S. power sector heaps more pressure on coal producers already facing a dwindling customer base caused by the permanent retirement of a large number of coal-fired units. Since 2009, nearly 25,000 MW of U.S. coal capacity has permanently retired, according to SNL Energy, and plans have been formalized to shut nearly that much between now and 2022.

According to SNL's latest review, 23,639 MW of coal generation has been scheduled to retire between Oct. 1 and the end of 2022.

The biggest year for coal retirements to date was 2012 when an estimated 9,441 MW of coal capacity was permanently shuttered. That total is expected to be eclipsed in 2015, when the U.S. EPA's Mercury and Air Toxics Standards, or MATS, takes effect. Currently, generators have announced plans to retire nearly 12,000 MW of coal capacity in 2015 compared to just 3,000 MW in 2014 if all scheduled retirements occur.

Planned coal unit retirements, as defined by SNL Energy for this analysis, include those with a firm retirement year that was either publicly disclosed by the company or confirmed by SNL. Units listed as retired are permanently retired and do not include coal units designated by the operating company as mothballed or deactivated.

Coal capacity retirements 2009-2014 by ISO/RTO (MW)

ISO/RTO	2009	2010	2011	2012	2013	2014	Total
California Independent System Operator	1,580	-	-	119	-	-	1,699
ISO New England	-	-	450	-	-	150	600
Midcontinent Independent System Operator	777	853	933	419	203	27	3,212
New York Independent System Operator	96	-	-	84	74	-	254
PJM Interconnection	11	981	618	6,155	2,707	1,391	11,864
Southwest Power Pool	-	-	-	2	15	-	17
Outside of ISO/RTO	2	81	846	2,661	3,063	523	7,175
Total	2,466	1,915	2,847	9,441	6,061	2,090	24,820

As of Oct. 1, 2014.
A hyphen indicates a zero value.
Source: SNL Energy

Scheduled coal capacity retirements through 2022 by NERC region (MW)

NERC region	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total
ASCC	-	-	-	-	3	-	-	-	-	3
FRCC	-	-	-	-	875	-	-	-	-	875
MRO	-	800	702	-	-	-	138	-	-	1,640
NPCC	-	-	-	1,133	-	-	-	-	-	1,133
RFC	-	6,974	1,355	-	-	-	31	-	-	8,360
SERC	605	3,827	1,410	1,744	750	-	-	-	-	8,336
SPP	-	-	988	-	-	-	-	-	-	988
WECC	298	324	-	439	100	-	670	254	219	2,304
Total	903	11,925	4,455	3,316	1,728	-	839	254	219	23,639

As of Oct. 1, 2014.
A hyphen indicates a zero value.
Includes only coal units for which there has been a firm retirement date reported between 2014 and 2022.
Source: SNL Energy

Fossil fuel interests continue to blame EPA for the growing number of coal retirements, pointing to MATS as well as the Cross-State Air Pollution Rule and the agency's more recent proposal to regulate CO2 from power plants.

In a new analysis released Oct. 10, the Institute for Energy Research, a pro-fossil fuel group, estimated that 72 GW of U.S. generating capacity have already retired or are set to retire "because of EPA regulations."

"Combining actual announcements with EPA's modeling shows that EPA's modeling grossly underestimates the actual number of closures," IER said in its report. "Originally, EPA calculated that only 9.5 GW of electrical generating capacity would close as a result of its [MATS] and CSAPR rules. Before President Obama's newly proposed regulations on existing power plants even begin [to] take effect, however, it is clear that actual number will now be much higher.

"We predict that over 72 GW of power generating capacity will likely close—over seven times the amount originally predicted by EPA modeling. Worse, as utilities continue to assess how to comply with EPA's finalized rules, there will again likely be further plant closure announcements in the future."

The group added that planned conversions of some units to alternative fuels will likely lead to higher utility bills and increased reliability problems.

Murray Energy Corp., the largest privately held coal producer in the U.S., has filed a lawsuit challenging the EPA's "destructive" CO2 rule, but the agency has remained steadfast in its defense of the rule, saying coal will remain a vital part of the national energy mix even after clean air regulations are implemented.

The EPA has also been quick to note that coal retirements are occurring for market and economic reasons, including the influx of cheap natural gas that has made coal-fired baseload generation less competitive and continued advances in renewable generation.

Other observers contend that many units in the retirement pipeline would be on the chopping block regardless of regulatory pressures due to their age. According to SNL Energy data, coal units scheduled to retirement between now and 2022 have a capacity-weighted average age of 54 years.

10 largest companies with coal capacity retiring in 2014-2018

	Capacity retiring (MW)					
Company	2014	2015	2016	2017	2018	Total
American Electric Power Co. Inc.	-	5,520	988	-	-	6,508
Tennessee Valley Authority	-	1,158	1,209	1,744	750	4,861
Southern Co.	-	1,687	201	-	-	1,888
Energy Capital Partners LLC	-	-	-	1,133	-	1,133
Berkshire Hathaway Inc.	268	261	375	229	-	1,133
Duke Energy Corp.	-	202	-	-	875	1,077
CMS Energy Corp.	-	-	958	-	-	958
FirstEnergy Corp.	-	885	-	-	-	885
PPL Corp.	-	734	-	-	-	734
Dominion Resources Inc.	605	-	-	-	-	605

As of Oct. 1, 2014.
A hyphen indicates a zero value.
Includes only coal units for which the company has reported a firm retirement date between 2014 and 2018.
Source: SNL Energy

NERC regions with the most coal capacity planned to come offline between now and 2022 include ReliabilityFirst and SERC, both of which have roughly 8,300 MW of retirements scheduled during that period.

At the ISO/RTO level, the PJM Interconnection LLC, where gas supply is plentiful, continues to be hit hardest by coal retirements. Nearly 12,000 MW of coal-fired capacity has already retired in PJM and an additional 7,635 MW is planned to close between Oct. 1 and the end of 2022.

Companies with the most planned coal unit closures between 2014 and 2018 include American Electric Power Co. Inc., which has been among the loudest critics of the EPA's CO2 rule, and Tennessee Valley Authority, which has said it will have trouble meeting EPA's carbon regulation, even with more than 5,500 MW of its coal capacity due to retire.

To view SNL Energy's previous analyses on U.S. coal unit retirements, click here.

To view an updatable SNL template of coal unit retirement data, click here.

To find more details about U.S. power plants, go to SNL Energy's Power Plant Briefing Book Search.

Coal unit fuel type conversions

Unit	NERC region	State	Conversion status	Conversion fuel type	Operating capacity (MW)	Original in-service year	Conversion year	Ultimate owner
Dubuque ST 4	MRO	IA	Completed	Gas	37	1959	2011	Alliant Energy Corp.
Dubuque ST 3	MRO	IA	Completed	Gas	32	1952	2011	Alliant Energy Corp.
Urquhart ST 3	SERC	SC	Completed	Gas	96	1955	2012	SCANA Corp.
Mt Poso Cogeneration CFB TG01	WECC	CA	Completed	Biomass	42	1989	2012	Multi-owned
University of Missouri - Colum ST GEN3	SERC	MO	Completed	Biomass	19	1986	2012	University of Missouri
University of Missouri - Colum ST GEN4	SERC	MO	Completed	Biomass	13	1988	2012	University of Missouri
University of Missouri - Colum ST GEN2	SERC	MO	Completed	Biomass	12	1974	2012	University of Missouri
University of Missouri - Colum ST GEN1	SERC	MO	Completed	Biomass	6	1961	2012	University of Missouri
ReEnergy Black River CFB GEN1	NPCC	NY	Completed	Biomass	60	1989	2013	Multi-owned
Altavista ST 1	SERC	VA	Completed	Biomass	51	1992	2013	Dominion Resources Inc.
City of Hamilton ST 9	RFC	OH	Completed	Gas	51	1975	2013	City of Hamilton (OH)
Hopewell ST 1	SERC	VA	Completed	Biomass	51	1992	2013	Dominion Resources Inc.
Southampton (VA) ST 1	SERC	VA	Completed	Biomass	51	1992	2013	Dominion Resources Inc.
City of Hamilton ST 7	RFC	OH	Completed	Gas	25	1960	2013	City of Hamilton (OH)
City of Hamilton ST 8	RFC	OH	Completed	Gas	25	1965	2013	City of Hamilton (OH)
City of Hamilton ST 5	RFC	OH	Completed	Gas	10	1954	2013	City of Hamilton (OH)
Bremo Bluff ST 4	SERC	VA	Completed	Gas	161	1958	2014	Dominion Resources Inc.
Central Power & Lime ST GEN1	FRCC	FL	Completed	Biomass	75	1988	2014	JPMorgan Chase & Co.
Bremo Bluff ST 3	SERC	VA	Completed	Gas	74	1950	2014	Dominion Resources Inc.
Stockton Biomass CFB STG	WECC	CA	Completed	Biomass	45	1987	2014	Multi-owned
BHP Copper White Pine Refinery ST GEN1	MRO	MI	Completed	Gas	18	1954	2014	Prairie Plant Systems Inc.
BHP Copper White Pine Refinery ST GEN2	MRO	MI	Completed	Gas	18	1954	2014	Prairie Plant Systems Inc.
Perry K ST 4	RFC	IN	Completed	Gas	10	1925	2014	Citizens Energy Group
Perry K ST 6	RFC	IN	Completed	Gas	5	1938	2014	Citizens Energy Group
Perry K ST 7	RFC	IN	Completed	Gas	2	2009	2014	Citizens Energy Group
Perry K ST 8	RFC	IN	Completed	Gas	2	2009	2014	Citizens Energy Group
B C Cobb ST 2	RFC	MI	Completed	Gas	68	1999	NA	CMS Energy Corp.
B C Cobb ST 3	RFC	MI	Completed	Gas	68	2000	NA	CMS Energy Corp.
B C Cobb ST 1	RFC	MI	Completed	Gas	59	1999	NA	CMS Energy Corp.
Big Cajun 2 ST 2	SERC	LA	Proposed	Gas	575	1982	2014	NRG Energy Inc.
Valley (WI) ST 1	RFC	WI	Proposed	Gas	134	1968	2014	Wisconsin Energy Corp.
R A Reid ST 1	SERC	KY	Proposed	Gas	65	1966	2014	Big Rivers Electric Corp.
Escanaba ST 1	MRO	MI	Proposed	Biomass	13	1958	2014	City of Escanaba
Escanaba ST 2	MRO	MI	Proposed	Biomass	13	1958	2014	City of Escanaba
M L Kapp ST 2	MRO	IA	Proposed	Gas	205	1967	2015	Alliant Energy Corp.
Dunkirk ST 3	NPCC	NY	Proposed	Gas	185	1959	2015	NRG Energy Inc.
Dunkirk ST4	NPCC	NY	Proposed	Gas	185	1960	2015	NRG Energy Inc.
W S Lee ST 3	SERC	SC	Proposed	Gas	170	1958	2015	Duke Energy Corp.
Valley (WI) ST 2	RFC	WI	Proposed	Gas	128	1969	2015	Wisconsin Energy Corp.
Dunkirk ST 2	NPCC	NY	Proposed	Gas	75	1950	2015	NRG Energy Inc.
Laskin Energy Center ST 2	MRO	MN	Proposed	Gas	50	1953	2015	ALLETE Inc.
Laskin Energy Center ST 1	MRO	MN	Proposed	Gas	47	1953	2015	ALLETE Inc.
Vanderbilt University Power Pl ST GEN1	SERC	TN	Proposed	Gas	7	1988	2015	Vanderbilt University
Vanderbilt University Power Pl ST GEN2	SERC	TN	Proposed	Gas	5	1989	2015	Vanderbilt University
Avon Lake ST 9	RFC	OH	Proposed	Gas	640	1970	2016	NRG Energy Inc.
Joliet 29 ST 7	RFC	IL	Proposed	Gas	522	1965	2016	NRG Energy Inc.
Joliet 29 ST 8	RFC	IL	Proposed	Gas	522	1966	2016	NRG Energy Inc.
Harding Street ST 7	RFC	IN	Proposed	Gas	435	1973	2016	AES Corp.
Joliet ST 6	RFC	IL	Proposed	Gas	314	1959	2016	NRG Energy Inc.
Big Sandy ST 1	RFC	KY	Proposed	Gas	260	1963	2016	American Electric Power Co Inc
E C Gaston ST 2	SERC	AL	Proposed	Gas	256	1960	2016	Multi-owned
E C Gaston ST4	SERC	AL	Proposed	Gas	256	1962	2016	Multi-owned
E C Gaston ST 1	SERC	AL	Proposed	Gas	254	1960	2016	Multi-owned
E C Gaston ST 3	SERC	AL	Proposed	Gas	254	1961	2016	Multi-owned
Green County ST 1	SERC	AL	Proposed	Gas	254	1965	2016	Multi-owned
Barry ST 3	SERC	AL	Proposed	Gas	249	1959	2016	Southern Co

Barry ST 3	SERC	AL	Proposed	Gas	249 1959	2016	Southern Co.
Green County ST 2	SERC	AL	Proposed	Gas	243 1966	2016	Multi-owned
Clinch River ST 1	RFC	VA	Proposed	Gas	235 1958	2016	American Electric Power Co. Inc.
Clinch River ST 2	RFC	VA	Proposed	Gas	235 1958	2016	American Electric Power Co. Inc.
Portland (PA) ST 2	RFC	PA	Proposed	Oil	194 1962	2016	NRG Energy Inc.
Shawville ST 3	RFC	PA	Proposed	Gas	169 1959	2016	NRG Energy Inc.
Shawville ST 4	RFC	PA	Proposed	Gas	169 1960	2016	NRG Energy Inc.
Portland (PA) ST 1	RFC	PA	Proposed	Oil	141 1958	2016	NRG Energy Inc.
Barry ST 1	SERC	AL	Proposed	Gas	138 1954	2016	Southern Co.
Barry ST 2	SERC	AL	Proposed	Gas	137 1954	2016	Southern Co.
New Castle ST 5	RFC	PA	Proposed	Gas	135 1964	2016	NRG Energy Inc.
Shawville ST 2	RFC	PA	Proposed	Gas	126 1954	2016	NRG Energy Inc.
McMeekin ST 1	SERC	SC	Proposed	Gas	125 1958	2016	SCANA Corp.
McMeekin ST 2	SERC	SC	Proposed	Gas	125 1958	2016	SCANA Corp.
Shawville ST 1	RFC	PA	Proposed	Gas	124 1954	2016	NRG Energy Inc.
Harding Street ST 5	RFC	IN	Proposed	Gas	109 1958	2016	AES Corp.
Harding Street ST 6	RFC	IN	Proposed	Gas	109 1961	2016	AES Corp.
New Castle ST 3	RFC	PA	Proposed	Gas	93 1952	2016	NRG Energy Inc.
New Castle ST 4	RFC	PA	Proposed	Gas	92 1958	2016	NRG Energy Inc.
Avon Lake ST 7	RFC	OH	Proposed	Gas	70 1949	2016	NRG Energy Inc.
Cherokee (CO) ST 4	WECC	CO	Proposed	Gas	352 1968	2017	Xcel Energy Inc.
Muskogee ST 5	SPP	OK	Proposed	Gas	509 1978	2019	OGE Energy Corp.
Muskogee ST 4	SPP	OK	Proposed	Gas	504 1977	2019	OGE Energy Corp.
North Omaha ST 5	MRO	NE	Proposed	Gas	204 1968	2023	Omaha Public Power District
North Omaha ST 4	MRO	NE	Proposed	Gas	138 1963	2023	Omaha Public Power District
Yates ST 7	SERC	GA	Proposed	Gas	355 1974	NA	Southern Co.
Yates ST 6	SERC	GA	Proposed	Gas	352 1974	NA	Southern Co.
Rio Bravo Poso ST UP8	WECC	CA	Proposed	Biomass	33 1989	NA	Multi-owned

As of Oct. 1, 2014.
NA = not available
Includes fuel conversions at plants tracked by SNL beginning in January 2011.
Source: SNL Energy

Article

Planned coal unit retirements 2014-2022

Unit	NERC region	State	2012 capacity factor (%)	Operating capacity (MW)	Original in-service year	Date to be retired	Age at retirement	Ultimate owner
Chesapeake ST1	SERC	VA	14.30	111	1953	Dec. 2014	61	Dominion Resources Inc.
Chesapeake ST2	SERC	VA	20.40	111	1954	Dec. 2014	60	Dominion Resources Inc.
Chesapeake ST3	SERC	VA	51.24	162	1959	Dec. 2014	55	Dominion Resources Inc.
Chesapeake ST4	SERC	VA	16.43	221	1962	Dec. 2014	52	Dominion Resources Inc.
Reid Gardner ST 1	WECC	NV	13.73	100	1965	Dec. 2014	49	Multi-owned
Reid Gardner ST 2	WECC	NV	6.26	100	1968	Dec. 2014	46	Multi-owned
Reid Gardner ST 3	WECC	NV	10.74	98	1976	Dec. 2014	38	Multi-owned
Walter Scott ST 1	MRO	IA	44.55	37	1954	March 2015	61	Multi-owned
Walter Scott ST 2	MRO	IA	57.24	81	1958	March 2015	57	Multi-owned
Ashtabula ST 5	RFC	OH	11.58	244	1958	April 2015	57	FirstEnergy Corp.
Carbon ST 1	WECC	UT	87.90	67	1954	April 2015	61	Multi-owned
Carbon ST 2	WECC	UT	83.48	105	1957	April 2015	58	Multi-owned
Dale ST 1	SERC	KY	3.04	23	1954	April 2015	61	East Kentucky Power Cooperative Inc.
Dale ST 2	SERC	KY	2.93	23	1954	April 2015	61	East Kentucky Power Cooperative Inc.
Eastlake ST 1	RFC	OH	41.99	132	1953	April 2015	62	FirstEnergy Corp.
Eastlake ST 2	RFC	OH	35.55	132	1953	April 2015	62	FirstEnergy Corp.
Eastlake ST 3	RFC	OH	39.50	132	1954	April 2015	61	FirstEnergy Corp.
Green River ST 3	SERC	KY	43.42	71	1954	April 2015	61	PPL Corp.
Green River ST 4	SERC	KY	72.35	100	1959	April 2015	56	PPL Corp.
Harllee Branch ST 3	SERC	GA	8.36	509	1968	April 2015	47	Southern Co.
Harllee Branch ST 4	SERC	GA	12.73	507	1969	April 2015	46	Southern Co.
Lake Shore ST 18	RFC	OH	8.65	245	1962	April 2015	53	FirstEnergy Corp.
Scholz ST 1	SERC	FL	0.12	46	1953	April 2015	62	Southern Co.
Scholz ST 2	SERC	FL	0.25	46	1953	April 2015	62	Southern Co.
W S Lee ST 1	SERC	SC	2.18	100	1951	April 2015	64	Duke Energy Corp.
W S Lee ST 2	SERC	SC	3.28	102	1951	April 2015	64	Duke Energy Corp.
Will County ST 3	RFC	IL	43.80	262	1957	April 2015	58	NRG Energy Inc.
Yates ST 1	SERC	GA	1.91	97	1950	April 2015	65	Southern Co.
Yates ST 2	SERC	GA	29.80	103	1950	April 2015	65	Southern Co.
Yates ST 3	SERC	GA	36.35	111	1952	April 2015	63	Southern Co.
Yates ST 4	SERC	GA	4.25	133	1957	April 2015	58	Southern Co.
Yates ST 5	SERC	GA	0.72	135	1958	April 2015	57	Southern Co.
Cane Run ST 4	SERC	KY	47.97	155	1962	May 2015	53	PPL Corp.
Cane Run ST 5	SERC	KY	62.92	168	1966	May 2015	49	PPL Corp.
Cane Run ST 6	SERC	KY	51.45	240	1969	May 2015	46	PPL Corp.
Taconite Harbor ST GEN3	MRO	MN	53.60	84	1967	May 2015	48	ALLETE Inc.
Big Sandy ST 2	RFC	KY	27.35	800	1969	June 2015	46	American Electric Power Co. Inc.
Clinch River ST 3	RFC	VA	7.37	235	1961	June 2015	54	American Electric Power Co. Inc.
Glen Lyn ST 5	RFC	VA	1.13	95	1944	June 2015	71	American Electric Power Co. Inc.
Glen Lyn ST 6	RFC	VA	3.33	240	1957	June 2015	58	American Electric Power Co. Inc.
Kanawha River ST 1	RFC	WV	24.59	200	1953	June 2015	62	American Electric Power Co. Inc.
Kanawha River ST 2	RFC	WV	32.29	200	1953	June 2015	62	American Electric Power Co. Inc.
Muskingum River ST 1	RFC	OH	4.78	205	1953	June 2015	62	American Electric Power Co. Inc.
Muskingum River ST 2	RFC	OH	5.04	205	1954	June 2015	61	American Electric Power Co. Inc.
Muskingum River ST 3	RFC	OH	23.61	215	1957	June 2015	58	American Electric Power Co. Inc.
Muskingum River ST 4	RFC	OH	16.22	215	1958	June 2015	57	American Electric Power Co. Inc.
Muskingum River ST 5	RFC	OH	16.75	585	1968	June 2015	47	American Electric Power Co. Inc.
O H Hutchings ST 1	RFC	OH	NM	59	1948	June 2015	67	AES Corp.
O H Hutchings ST 2	RFC	OH	0.23	56	1949	June 2015	66	AES Corp.
O H Hutchings ST 3	RFC	OH	2.99	64	1950	June 2015	65	AES Corp.
O H Hutchings ST 5	RFC	OH	3.30	64	1952	June 2015	63	AES Corp.
O H Hutchings ST 6	RFC	OH	1.89	64	1953	June 2015	62	AES Corp.
Philip Sporn ST 1	RFC	WV	14.32	150	1950	June 2015	65	American Electric Power Co. Inc.
Philip Sporn ST 2	RFC	WV	36.87	150	1950	June 2015	65	American Electric Power Co. Inc.
Philip Sporn ST 3	RFC	WV	16.22	150	1951	June 2015	64	American Electric Power Co. Inc.
Philip Sporn ST 4	RFC	WV	7.53	150	1952	June 2015	63	American Electric Power Co. Inc.
Picway ST 5	RFC	OH	0.45	100	1955	June 2015	60	American Electric Power Co. Inc.
Tanners Creek ST 1	RFC	IN	8.23	145	1951	June 2015	64	American Electric Power Co. Inc.
Tanners Creek ST 2	RFC	IN	12.42	145	1952	June 2015	63	American Electric Power Co. Inc.
Tanners Creek ST 3	RFC	IN	32.16	205	1954	June 2015	61	American Electric Power Co. Inc.
Tanners Creek ST 4	RFC	IN	44.97	500	1964	June 2015	51	American Electric Power Co. Inc.
Black Dog ST 3	MRO	MN	63.35	79	1955	Dec. 2015	60	Xcel Energy Inc.
Black Dog ST 4	MRO	MN	58.73	153	1960	Dec. 2015	55	Xcel Energy Inc.
Cherokee (CO) ST 3	WECC	CO	61.65	152	1962	Dec. 2015	53	Xcel Energy Inc.
Edgewater (WI) ST 3	MRO	WI	3.45	71	1951	Dec. 2015	64	Alliant Energy Corp.
John Sevier ST 3	SERC	TN	9.82	178	1956	Dec. 2015	59	Tennessee Valley Authority

John Sevier ST 4	SERC	TN	0.60	178	1957	Dec. 2015	58	Tennessee Valley Authority
Johnsonville (TN) ST 10	SERC	TN	12.00	144	1959	Dec. 2015	56	Tennessee Valley Authority
Johnsonville (TN) ST 5	SERC	TN	32.61	113	1952	Dec. 2015	63	Tennessee Valley Authority
Johnsonville (TN) ST 6	SERC	TN	26.58	113	1953	Dec. 2015	62	Tennessee Valley Authority
Johnsonville (TN) ST 7	SERC	TN	3.35	144	1958	Dec. 2015	57	Tennessee Valley Authority
Johnsonville (TN) ST 8	SERC	TN	4.03	144	1959	Dec. 2015	56	Tennessee Valley Authority
Johnsonville (TN) ST 9	SERC	TN	18.40	144	1959	Dec. 2015	56	Tennessee Valley Authority
Kammer ST 1	RFC	WV	29.34	210	1958	Dec. 2015	57	American Electric Power Co. Inc.
Kammer ST 2	RFC	WV	26.33	210	1958	Dec. 2015	57	American Electric Power Co. Inc.
Kammer ST 3	RFC	WV	41.09	210	1959	Dec. 2015	56	American Electric Power Co. Inc.
Nelson Dewey ST 1	MRO	WI	47.48	108	1959	Dec. 2015	56	Alliant Energy Corp.
Nelson Dewey ST 2	MRO	WI	44.34	107	1962	Dec. 2015	53	Alliant Energy Corp.
Silver Lake (MN) ST 1	MRO	MN	0.19	7	1948	Dec. 2015	67	Rochester Public Utilities
Silver Lake (MN) ST 2	MRO	MN	0.74	7	1953	Dec. 2015	62	Rochester Public Utilities
Silver Lake (MN) ST 3	MRO	MN	NM	20	1962	Dec. 2015	53	Rochester Public Utilities
Silver Lake (MN) ST 4	MRO	MN	1.23	46	1969	Dec. 2015	46	Rochester Public Utilities
James De Young ST 5	RFC	MI	4.48	27	1969	Jan. 2016	47	City of Holland
B C Cobb ST 4	RFC	MI	51.14	160	1956	April 2016	60	CMS Energy Corp.
B C Cobb ST 5	RFC	MI	60.16	160	1957	April 2016	59	CMS Energy Corp.
Eagle Valley ST 3	RFC	IN	2.10	40	1951	April 2016	65	AES Corp.
Eagle Valley ST 4	RFC	IN	8.36	57	1953	April 2016	63	AES Corp.
Eagle Valley ST 5	RFC	IN	17.27	63	1953	April 2016	63	AES Corp.
Eagle Valley ST 6	RFC	IN	19.62	100	1956	April 2016	60	AES Corp.
George Neal North ST 1	MRO	IA	33.47	134	1964	April 2016	52	Multi-owned
George Neal North ST 2	MRO	IA	46.04	284	1972	April 2016	44	Multi-owned
J C Weadock ST 7	RFC	MI	56.37	155	1955	April 2016	61	CMS Energy Corp.
J C Weadock ST 8	RFC	MI	58.63	155	1958	April 2016	58	CMS Energy Corp.
J R Whiting ST 1	RFC	MI	53.24	102	1952	April 2016	64	CMS Energy Corp.
J R Whiting ST 2	RFC	MI	44.23	102	1952	April 2016	64	CMS Energy Corp.
J R Whiting ST 3	RFC	MI	44.47	124	1953	April 2016	63	CMS Energy Corp.
Kraft ST 2	SERC	GA	39.17	52	1961	April 2016	55	Southern Co.
Kraft ST 3	SERC	GA	30.31	101	1965	April 2016	51	Southern Co.
Kraft ST1	SERC	GA	42.16	48	1958	April 2016	58	Southern Co.
Northeastern ST 4	SPP	OK	75.95	460	1980	April 2016	36	American Electric Power Co. Inc.
Colbert ST 1	SERC	AL	45.39	182	1955	June 2016	61	Tennessee Valley Authority
Colbert ST 2	SERC	AL	61.16	182	1955	June 2016	61	Tennessee Valley Authority
Colbert ST 3	SERC	AL	46.60	182	1955	June 2016	61	Tennessee Valley Authority
Colbert ST 4	SERC	AL	32.67	182	1955	June 2016	61	Tennessee Valley Authority
Colbert ST 5	SERC	AL	9.33	481	1965	June 2016	51	Tennessee Valley Authority
Welsh ST 2	SPP	TX	71.50	528	1980	Dec. 2016	36	American Electric Power Co. Inc.
Goddard Steam Plant ST 1	RFC	MD	35.21	5	1957	2016	59	Naval Facilities Engineering Command
Goddard Steam Plant ST 2	RFC	MD	23.07	5	1957	2016	59	Naval Facilities Engineering Command
North Omaha ST 1	MRO	NE	48.60	79	1954	2016	62	Omaha Public Power District
North Omaha ST 2	MRO	NE	59.66	96	1957	2016	59	Omaha Public Power District
North Omaha ST 3	MRO	NE	56.38	108	1959	2016	57	Omaha Public Power District
Trenton Channel ST 8	RFC	MI	3.36	100	1950	2016	66	DTE Energy Co.
Paradise ST 1	SERC	KY	80.50	659	1963	Jan. 2017	54	Tennessee Valley Authority
Paradise ST 2	SERC	KY	74.65	633	1963	Jan. 2017	54	Tennessee Valley Authority
Brayton Point ST 1	NPCC	MA	28.48	247	1963	June 2017	54	Energy Capital Partners LLC
Brayton Point ST 2	NPCC	MA	17.35	249	1964	June 2017	53	Energy Capital Partners LLC
Brayton Point ST 3	NPCC	MA	17.07	637	1969	June 2017	48	Energy Capital Partners LLC
Johnsonville (TN) ST 1	SERC	TN	35.77	113	1951	Dec. 2017	66	Tennessee Valley Authority
Johnsonville (TN) ST 2	SERC	TN	44.26	113	1951	Dec. 2017	66	Tennessee Valley Authority
Johnsonville (TN) ST 3	SERC	TN	48.73	113	1952	Dec. 2017	65	Tennessee Valley Authority
Johnsonville (TN) ST 4	SERC	TN	53.72	113	1952	Dec. 2017	65	Tennessee Valley Authority
Reid Gardner ST 4	WECC	NV	49.84	255	1983	Dec. 2017	34	Multi-owned
Valmont ST 5	WECC	CO	62.45	184	1964	Dec. 2017	53	Xcel Energy Inc.
Kennecott Utah Copper ST 1	WECC	UT	12.11	50	1943	Jan. 2018	75	Rio Tinto
Kennecott Utah Copper ST 2	WECC	UT	14.43	25	1943	Jan. 2018	75	Rio Tinto
Kennecott Utah Copper ST 3	WECC	UT	12.60	25	1946	Jan. 2018	72	Rio Tinto
University of Alaska ST GEN1	ASCC	AK	12.29	1	1964	Nov. 2018	54	University of Alaska
University of Alaska ST GEN2	ASCC	AK	21.83	1	1964	Nov. 2018	54	University of Alaska
Thomas H Allen ST 1	SERC	TN	59.65	250	1959	Dec. 2018	59	Tennessee Valley Authority
Thomas H Allen ST 2	SERC	TN	71.15	250	1959	Dec. 2018	59	Tennessee Valley Authority
Thomas H Allen ST 3	SERC	TN	55.86	250	1959	Dec. 2018	59	Tennessee Valley Authority

Crystal River ST 1	FRCC	FL	32.87	372	1966	2018	52	Duke Energy Corp.
Crystal River ST 2	FRCC	FL	32.41	503	1969	2018	49	Duke Energy Corp.
Centralia ST 1	WECC	WA	33.44	670	1971	Dec. 2020	49	TransAlta Corp.
Hoot Lake ST 2	MRO	MN	54.35	58	1959	2020	61	Otter Tail Corp.
Hoot Lake ST 3	MRO	MN	53.98	80	1964	2020	56	Otter Tail Corp.
James De Young ST 3	RFC	MI	27.96	11	1951	2020	69	City of Holland
James De Young ST 4	RFC	MI	11.83	21	1962	2020	58	City of Holland
North Valmy ST 1	WECC	NV	37.35	254	1981	Dec. 2021	40	Multi-owned
TS Power Plant ST 001	WECC	NV	56.08	219	2008	2022	14	Newmont Mining Corp.

As of Oct. 1, 2014.
NM = not meaningful
Includes only coal units for which the company has reported a firm retirement date between 2014 and 2022.
Source: SNL Energy

Coal unit retirements 2009-2014

Unit	NERC region	State	Operating capacity (MW)	Original in-service year	Date retired	Age at retirement	Ultimate owner
Walter C Beckjord ST 5	RFC	OH	238	1962	Sept. 2014	52	Duke Energy Corp.
Walter C Beckjord ST 6	RFC	OH	420	1969	Sept. 2014	45	Multi-owned
Widows Creek ST 1	SERC	AL	113	1952	July 2014	62	Tennessee Valley Authority
Widows Creek ST 2	SERC	AL	113	1952	July 2014	62	Tennessee Valley Authority
Widows Creek ST 4	SERC	AL	113	1953	July 2014	61	Tennessee Valley Authority
Widows Creek ST 6	SERC	AL	113	1954	July 2014	60	Tennessee Valley Authority
Menasha ST 3	RFC	WI	8	1954	June 2014	60	City of Menasha
Menasha ST 4	RFC	WI	13	1964	June 2014	50	City of Menasha
Menasha ST 5	RFC	WI	7	2006	June 2014	8	City of Menasha
Salem Harbor ST 3	NPCC	MA	150	1958	June 2014	56	Footprint Power LLC
B. L. England ST 1	RFC	NJ	113	1962	May 2014	52	Multi-owned
Deepwater (NJ) ST 6	RFC	NJ	82	1954	May 2014	60	Calpine Corp.
Sunbury ST 1	RFC	PA	80	1949	May 2014	65	Corona Power LLC
Sunbury ST 2	RFC	PA	80	1949	May 2014	65	Corona Power LLC
Sunbury ST 3	RFC	PA	94	1951	May 2014	63	Corona Power LLC
Sunbury ST 4	RFC	PA	134	1953	May 2014	61	Corona Power LLC
Ben French ST1	WECC	SD	22	1961	March 2014	53	Black Hills Corp.
Neil Simpson ST 5	WECC	WY	19	1969	March 2014	45	Black Hills Corp.
Osage (WY) ST 1	WECC	WY	10	1948	March 2014	66	Black Hills Corp.
Osage (WY) ST 2	WECC	WY	10	1949	March 2014	65	Black Hills Corp.
Osage (WY) ST 3	WECC	WY	10	1952	March 2014	62	Black Hills Corp.
Walter C Beckjord ST 4	RFC	OH	150	1958	Jan. 2014	56	Duke Energy Corp.
Arapahoe ST 4	WECC	CO	109	1955	2013	58	Xcel Energy Inc.
Piney Creek Project CFB GEN1	RFC	PA	33	1992	2013	21	ACI Energy Inc.
Arapahoe ST 3	WECC	CO	44	1951	Dec. 2013	62	Xcel Energy Inc.
Asbury ST 2	SPP	MO	15	1986	Dec. 2013	27	Empire District Electric Co.
Four Corners ST 1	WECC	NM	170	1963	Dec. 2013	50	Pinnacle West Capital Corp.
Four Corners ST 2	WECC	NM	170	1963	Dec. 2013	50	Pinnacle West Capital Corp.
Four Corners ST 3	WECC	NM	220	1964	Dec. 2013	49	Pinnacle West Capital Corp.
Indian River (DE) ST 3	RFC	DE	153	1970	Dec. 2013	43	NRG Energy Inc.
W N Clark ST 1	WECC	CO	18	1955	Dec. 2013	58	Black Hills Corp.
W N Clark ST 2	WECC	CO	25	1959	Dec. 2013	54	Black Hills Corp.
Canadys ST 2	SERC	SC	115	1964	Nov. 2013	49	SCANA Corp.
Canadys ST 3	SERC	SC	180	1967	Nov. 2013	46	SCANA Corp.
Fair Station ST 1	MRO	IA	24	1960	Nov. 2013	53	Central Iowa Power Cooperative
Fair Station ST 2	MRO	IA	42	1967	Nov. 2013	46	Central Iowa Power Cooperative
L V Sutton ST 1	SERC	NC	98	1954	Nov. 2013	59	Duke Energy Corp.
L V Sutton ST 2	SERC	NC	105	1955	Nov. 2013	58	Duke Energy Corp.
L V Sutton ST 3	SERC	NC	389	1972	Nov. 2013	41	Duke Energy Corp.
Harbor Beach ST 1	RFC	MI	103	1968	Oct. 2013	45	DTE Energy Co.
Hatfield's Ferry ST 1	RFC	PA	570	1969	Oct. 2013	44	FirstEnergy Corp.
Hatfield's Ferry ST 2	RFC	PA	570	1970	Oct. 2013	43	FirstEnergy Corp.
Hatfield's Ferry ST 3	RFC	PA	570	1971	Oct. 2013	42	FirstEnergy Corp.
Mitchell (PA) ST 3	RFC	PA	288	1963	Oct. 2013	50	FirstEnergy Corp.
Walter C Beckjord ST 2	RFC	OH	94	1953	Oct. 2013	60	Duke Energy Corp.
Walter C Beckjord ST 3	RFC	OH	128	1954	Oct. 2013	59	Duke Energy Corp.
Chamois ST 1	SERC	MO	17	1953	Sept. 2013	60	Central Electric Power Cooperative - MO
Chamois ST 2	SERC	MO	50	1960	Sept. 2013	53	Central Electric Power Cooperative - MO
Harllee Branch ST 2	SERC	GA	325	1967	Sept. 2013	46	Southern Co.
Park 500 Philip Morris USA ST TG2	SERC	VA	6	1984	Sept. 2013	29	Park 500 Philip Morris USA
Syracuse Energy ST GEN1	NPCC	NY	63	1991	Sept. 2013	22	GDF Suez SA
Syracuse Energy ST GEN2	NPCC	NY	11	2002	Sept. 2013	11	GDF Suez SA
Titus ST 1	RFC	PA	72	1951	Sept. 2013	62	NRG Energy Inc.

Titus ST 2	RFC	PA	72	1951	Sept. 2013	62	NRG Energy Inc.
Titus ST 3	RFC	PA	72	1953	Sept. 2013	60	NRG Energy Inc.
Widows Creek ST 3	SERC	AL	113	1952	July 2013	61	Tennessee Valley Authority
Widows Creek ST 5	SERC	AL	113	1954	July 2013	59	Tennessee Valley Authority
Lansing ST 3	MRO	IA	34	1957	June 2013	56	Alliant Energy Corp.
NRG Energy Center Dover ST COG1	RFC	DE	16	1985	June 2013	28	Multi-owned
O H Hutchings ST 4	RFC	OH	64	1951	June 2013	62	AES Corp.
Buck (NC) ST 5	SERC	NC	131	1953	May 2013	60	Duke Energy Corp.
Buck (NC) ST 6	SERC	NC	131	1953	May 2013	60	Duke Energy Corp.
Riverbend ST 4	SERC	NC	96	1952	April 2013	61	Duke Energy Corp.
Riverbend ST 5	SERC	NC	96	1952	April 2013	61	Duke Energy Corp.
Riverbend ST 6	SERC	NC	136	1954	April 2013	59	Duke Energy Corp.
Riverbend ST 7	SERC	NC	136	1954	April 2013	59	Duke Energy Corp.
Jacksonville Developmental ST 1	SERC	IL	1	1945	March 2013	68	State of Illinois
Jacksonville Developmental ST 2	SERC	IL	1	1945	March 2013	68	State of Illinois
Jacksonville Developmental ST 3	SERC	IL	2	1945	March 2013	68	State of Illinois
Tyrone ST 3	SERC	KY	73	1953	Feb. 2013	60	PPL Corp.
Canadys ST 1	SERC	SC	105	1962	Dec. 2012	50	SCANA Corp.
Conesville ST 3	RFC	OH	165	1962	Dec. 2012	50	American Electric Power Co. Inc.
Dolphus M Grainger ST 1	SERC	SC	85	1966	Dec. 2012	46	South Carolina Public Service Authority
Dolphus M Grainger ST 2	SERC	SC	85	1966	Dec. 2012	46	South Carolina Public Service Authority
Jefferies ST 3	SERC	SC	152	1970	Dec. 2012	42	South Carolina Public Service Authority
Jefferies ST 4	SERC	SC	155	1970	Dec. 2012	42	South Carolina Public Service Authority
North Branch (WV) CFB 1	SERC	WV	77	1992	Dec. 2012	20	Dominion Resources Inc.
Cape Fear ST 5	SERC	NC	148	1956	Oct. 2012	56	Duke Energy Corp.
Cape Fear ST 6	SERC	NC	175	1958	Oct. 2012	54	Duke Energy Corp.
Elrama ST 4	RFC	PA	171	1960	Oct. 2012	52	NRG Energy Inc.
H B Robinson ST 1	SERC	SC	179	1960	Oct. 2012	52	Duke Energy Corp.
John Sevier ST 1	SERC	TN	178	1955	Oct. 2012	57	Tennessee Valley Authority
John Sevier ST 2	SERC	TN	178	1955	Oct. 2012	57	Tennessee Valley Authority
Niles ST 1	RFC	OH	108	1954	Oct. 2012	58	NRG Energy Inc.
Potomac River ST 1	RFC	VA	88	1949	Oct. 2012	63	NRG Energy Inc.
Potomac River ST 2	RFC	VA	88	1950	Oct. 2012	62	NRG Energy Inc.
Potomac River ST 3	RFC	VA	102	1954	Oct. 2012	58	NRG Energy Inc.
Potomac River ST 4	RFC	VA	102	1956	Oct. 2012	56	NRG Energy Inc.
Potomac River ST 5	RFC	VA	102	1957	Oct. 2012	55	NRG Energy Inc.
Albright ST 1	RFC	WV	76	1952	Sept. 2012	60	FirstEnergy Corp.
Albright ST 2	RFC	WV	76	1952	Sept. 2012	60	FirstEnergy Corp.
Albright ST 3	RFC	WV	140	1954	Sept. 2012	58	FirstEnergy Corp.
Armstrong ST 1	RFC	PA	180	1958	Sept. 2012	54	FirstEnergy Corp.
Armstrong ST 2	RFC	PA	176	1959	Sept. 2012	53	FirstEnergy Corp.
Bay Shore ST 2	RFC	OH	138	1959	Sept. 2012	53	FirstEnergy Corp.
Bay Shore ST 3	RFC	OH	142	1963	Sept. 2012	49	FirstEnergy Corp.
Bay Shore ST 4	RFC	OH	215	1968	Sept. 2012	44	FirstEnergy Corp.
Eastlake ST 4	RFC	OH	240	1956	Sept. 2012	56	FirstEnergy Corp.
Eastlake ST 5	RFC	OH	597	1972	Sept. 2012	40	FirstEnergy Corp.
Goudey ST 8	NPCC	NY	84	1951	Sept. 2012	61	DSA Services Inc.
H.F. Lee Energy ST 1	SERC	NC	80	1952	Sept. 2012	60	Duke Energy Corp.
H.F. Lee Energy ST 2	SERC	NC	80	1951	Sept. 2012	61	Duke Energy Corp.
H.F. Lee Energy ST 3	SERC	NC	252	1962	Sept. 2012	50	Duke Energy Corp.
R P Smith ST 11	RFC	MD	88	1958	Sept. 2012	54	FirstEnergy Corp.
R P Smith ST 9	RFC	MD	28	1947	Sept. 2012	65	FirstEnergy Corp.
Rivesville ST 5	RFC	WV	39	1943	Sept. 2012	69	FirstEnergy Corp.
Rivesville ST 6	RFC	WV	91	1951	Sept. 2012	61	FirstEnergy Corp.
Snowflake Mill ST GEN1	WECC	AZ	27	1961	Sept. 2012	51	Catalyst Paper Corp.
Snowflake Mill ST GEN2	WECC	AZ	46	1974	Sept. 2012	38	Catalyst Paper Corp.
Willow Island ST 1	RFC	WV	55	1949	Sept. 2012	63	FirstEnergy Corp.
Willow Island ST 2	RFC	WV	186	1960	Sept. 2012	52	FirstEnergy Corp.
Crawford ST 7	RFC	IL	216	1958	Aug. 2012	54	NRG Energy Inc.
Crawford ST 8	RFC	IL	326	1961	Aug. 2012	51	NRG Energy Inc.
Fisk Street ST 19	RFC	IL	326	1968	Aug. 2012	44	NRG Energy Inc.
Smart Papers ST 1	RFC	OH	1	2009	Aug. 2012	3	Smart Papers LLC
Smart Papers ST 2	RFC	OH	2	2009	Aug. 2012	3	Smart Papers LLC
Smart Papers ST 7	RFC	OH	9	2009	Aug. 2012	3	Smart Papers LLC
Smart Papers ST 8	RFC	OH	9	2009	Aug. 2012	3	Smart Papers LLC
Smart Papers ST GEN3	RFC	OH	6	1924	Aug. 2012	88	Smart Papers LLC
Smart Papers ST GEN5	RFC	OH	8	1930	Aug. 2012	82	Smart Papers LLC
Smart Papers ST GEN6	RFC	OH	11	1930	Aug. 2012	82	Smart Papers LLC
Alma ST 1	MRO	WI	21	1947	June 2012	65	Dairyland Power Co-op
Alma ST 2	MRO	WI	20	1947	June 2012	65	Dairyland Power Co-op
Alma ST 3	MRO	WI	21	1951	June 2012	61	Dairyland Power Co-op
Colorado Energy Nations ST VRRT	WECC	CO	9	1997	June 2012	15	GDF Suez SA

Colorado Energy Nations ST VBP1	WECC	CO	0	1997	June 2012	15	GDF Suez SA
Elrama ST 1	RFC	PA	93	1952	June 2012	60	NRG Energy Inc.
Elrama ST 2	RFC	PA	93	1953	June 2012	59	NRG Energy Inc.
Elrama ST 3	RFC	PA	103	1954	June 2012	58	NRG Energy Inc.
Niles ST 2	RFC	OH	108	1954	June 2012	58	NRG Energy Inc.
Pearl Station ST 1	SERC	IL	22	1967	June 2012	45	Prairie Power Inc.
Pella ST 5	MRO	IA	11	1964	Jun 2012	48	City of Pella

As of Oct. 1, 2014.
Source: SNL Energy

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Coal unit retirements 2009-2014 *continued*

Unit	NERC region	State	Operating capacity (MW)	Original in-service year	Date retired	Age at retirement	Ultimate owner
Pella ST 6	MRO	IA	22	1972	June 2012	40	City of Pella
Cherokee (CO) ST 1	WECC	CO	107	1957	May 2012	55	Xcel Energy Inc.
Eddystone ST 2	RFC	PA	311	1960	May 2012	52	Exelon Corp.
Gulf States Paper Corp. ST 3TG	SERC	AL	17	2003	May 2012	9	Rock-Tenn Co.
Sartell Mill ST ABB2	MRO	MN	20	1982	May 2012	30	Verso Paper Holdings LLC
Walter C Beckjord ST 1	RFC	OH	94	1952	May 2012	60	Duke Energy Corp.
Dan River ST 1	SERC	NC	69	1949	Apr 2012	63	Duke Energy Corp.
Dan River ST 2	SERC	NC	69	1950	April 2012	62	Duke Energy Corp.
Dan River ST 3	SERC	NC	145	1955	April 2012	57	Duke Energy Corp.
Shelby Municipal ST 3	RFC	OH	5	1948	April 2012	64	Shelby City of OH
US DOE Savannah River ST HP-1	SERC	SC	9	1952	April 2012	60	U.S. Department of Energy
US DOE Savannah River ST HP-2	SERC	SC	9	1952	April 2012	60	U.S. Department of Energy
US DOE Savannah River ST HP-3	SERC	SC	9	1952	April 2012	60	U.S. Department of Energy
US DOE Savannah River ST LP-1	SERC	SC	13	1952	April 2012	60	U.S. Department of Energy
US DOE Savannah River ST LP-2	SERC	SC	13	1952	April 2012	60	U.S. Department of Energy
US DOE Savannah River ST LP-3	SERC	SC	13	1952	April 2012	60	U.S. Department of Energy
US DOE Savannah River ST LP-4	SERC	SC	13	1952	April 2012	60	U.S. Department of Energy
Walhalla ST GEN1	MRO	ND	2	2000	April 2012	12	Archer-Daniels-Midland Co.
East Third Street Power Plant CFB GEN1	WECC	CA	21	1990	March 2012	22	Multi-owned
Hanford LP CFB GEN1	WECC	CA	25	1990	March 2012	22	Multi-owned
Loveridge Road Power Plant CFB GEN1	WECC	CA	18	1989	March 2012	23	Multi-owned
Nichols Road Power Plant CFB GEN1	WECC	CA	18	1990	March 2012	22	Multi-owned
State Line ST 3	RFC	IN	197	1955	March 2012	57	BTU Solutions LLC
State Line ST 4	RFC	IN	318	1962	March 2012	50	BTU Solutions LLC
Wilbur East Power Plant CFB GEN1	WECC	CA	18	1989	March 2012	23	Multi-owned
Wilbur West Power Plant CFB GEN1	WECC	CA	18	1990	March 2012	22	Multi-owned
Jack McDonough ST 1	SERC	GA	251	1963	Feb. 2012	49	Southern Co.
Marshall Plant ST 8512	SPP	TX	2	2011	Feb. 2012	1	Norit Americas Inc.
Philip Sporn ST 5	RFC	WV	450	1960	Feb. 2012	52	American Electric Power Co. Inc.
R Gallagher ST 1	RFC	IN	140	1959	Feb. 2012	53	Duke Energy Corp.
R Gallagher ST 3	RFC	IN	140	1960	Feb. 2012	52	Duke Energy Corp.
Blount Street ST 3	MRO	WI	39	1953	Dec. 2011	58	MGE Energy Inc.
Blount Street ST 4	MRO	WI	21	1938	Dec. 2011	73	MGE Energy Inc.
Blount Street ST 5	MRO	WI	27	1948	Dec. 2011	63	MGE Energy Inc.
FutureGen 2.0 ST 3	SERC	IL	215	1960	Dec. 2011	51	Ameren Corp.
Hutsonville ST 3	SERC	IL	76	1953	Dec. 2011	58	Ameren Corp.
Hutsonville ST 4	SERC	IL	78	1954	Dec. 2011	57	Ameren Corp.
Marysville ST 7	RFC	MI	83	1943	Dec. 2011	68	Commercial Development Co. Inc.
Marysville ST 8	RFC	MI	83	1947	Dec. 2011	64	Commercial Development Co. Inc.
Salem Harbor ST 1	NPCC	MA	81	1952	Dec. 2011	59	Footprint Power LLC
Salem Harbor ST 2	NPCC	MA	79	1952	Dec. 2011	59	Footprint Power LLC
Thames CFB GEN1	NPCC	CT	181	1989	Dec. 2011	22	S & S Deconstruction
Vermilion ST 2	SERC	IL	99	1956	Nov. 2011	55	Dynegy Inc.
Vermilion ST1	SERC	IL	63	1955	Nov. 2011	56	Dynegy Inc.
Cherokee (CO) ST 2	WECC	CO	106	1959	Oct. 2011	52	Xcel Energy Inc.
James E. Rogers ST 1	SERC	NC	38	1940	Oct. 2011	71	Duke Energy Corp.
James E. Rogers ST 2	SERC	NC	38	1940	Oct. 2011	71	Duke Energy Corp.
James E. Rogers ST 3	SERC	NC	61	1948	Oct. 2011	63	Duke Energy Corp.
James E. Rogers ST 4	SERC	NC	61	1948	Oct. 2011	63	Duke Energy Corp.
W H Weatherspoon ST 1	SERC	NC	49	1949	Oct. 2011	62	Duke Energy Corp.
W H Weatherspoon ST 2	SERC	NC	49	1950	Oct. 2011	61	Duke Energy Corp.
W H Weatherspoon ST 3	SERC	NC	79	1952	Oct. 2011	59	Duke Energy Corp.
Jack McDonough ST 2	SERC	GA	252	1964	Sept. 2011	47	Southern Co.
Manitowoc ST 4	MRO	WI	10	1950	Sept. 2011	61	Manitowoc Public Utilities
R E Burger ST 3	RFC	OH	94	1950	Sept. 2011	61	FirstEnergy Corp.
Capitol Heat and Power Plant ST 1	MRO	WI	1	1963	June 2011	48	State of Wisconsin

Capitol Heat and Power Plant ST 2	MRO	WI	1	1964	June 2011	47	State of Wisconsin
Buck (NC) ST 3	SERC	NC	75	1941	May 2011	70	Duke Energy Corp.
Buck (NC) ST 4	SERC	NC	38	1942	May 2011	69	Duke Energy Corp.
Cromby ST 1	RFC	PA	147	1954	May 2011	57	Exelon Corp.
Eddystone ST 1	RFC	PA	288	1960	May 2011	51	Exelon Corp.
Hercules Inc. Missouri Chemical ST GEN1	SERC	MO	9	1943	May 2011	68	Ashland Inc.
Hercules Inc. Missouri Chemical ST GEN2	SERC	MO	9	1943	May 2011	68	Ashland Inc.
Indian River (DE) ST 1	RFC	DE	89	1957	May 2011	54	NRG Energy Inc.
Edwardsport ST 7	RFC	IN	45	1949	March 2011	62	Duke Energy Corp.
Edwardsport ST 8	RFC	IN	75	1951	March 2011	60	Duke Energy Corp.
Somerset ST 6	NPCC	MA	109	1959	Feb. 2011	52	Asset Recovery Group Inc.
Lansing ST 2	MRO	IA	12	1949	2010	61	Alliant Energy Corp.
Prairie Creek ST 2	MRO	IA	23	1951	2010	59	Alliant Energy Corp.
Cameo ST 1	WECC	CO	24	1957	Dec. 2010	53	Xcel Energy Inc.
Cameo ST 2	WECC	CO	49	1960	Dec. 2010	50	Xcel Energy Inc.
R E Burger ST 4	RFC	OH	156	1955	Dec .2010	55	FirstEnergy Corp.
R E Burger ST 5	RFC	OH	156	1955	Dec. 2010	55	FirstEnergy Corp.
Waynesboro, Virginia Plant ST GEN1	SERC	VA	3	1929	Dec. 2010	81	Koch Industries Inc.
Waynesboro, Virginia Plant ST GEN2	SERC	VA	3	1929	Dec. 2010	81	Koch Industries Inc.
Waynesboro, Virginia Plant ST GEN4	SERC	VA	3	1947	Dec. 2010	63	Koch Industries Inc.
Will County ST 1	RFC	IL	156	1955	Dec. 2010	55	NRG Energy Inc.
Will County ST 2	RFC	IL	154	1955	Dec. 2010	55	NRG Energy Inc.
Dubuque ST2	MRO	IA	13	1929	Nov. 2010	81	Alliant Energy Corp.
John Deere Dubuque Works ST GEN2	MRO	IA	4	1949	Nov. 2010	61	Deere & Co.
John Deere Dubuque Works ST GEN4	MRO	IA	8	1964	Nov. 2010	46	Deere & Co.
Richard Gorsuch ST 1	RFC	OH	50	1988	Nov. 2010	22	American Municipal Power Inc.
Richard Gorsuch ST 2	RFC	OH	50	1988	Nov. 2010	22	American Municipal Power Inc.
Richard Gorsuch ST 3	RFC	OH	50	1988	Nov. 2010	22	American Municipal Power Inc.
Richard Gorsuch ST 4	RFC	OH	50	1988	Nov. 2010	22	American Municipal Power Inc.
Sixth Street Station ST 1	MRO	IA	9	1921	Nov. 2010	89	Alliant Energy Corp.
Sixth Street Station ST 2	MRO	IA	4	1930	Nov. 2010	80	Alliant Energy Corp.
Sixth Street Station ST 4	MRO	IA	13	1942	Nov. 2010	68	Alliant Energy Corp.
Sixth Street Station ST 6	MRO	IA	8	1925	Nov. 2010	85	Alliant Energy Corp.
Sixth Street Station ST 7	MRO	IA	15	1945	Nov. 2010	65	Alliant Energy Corp.
Sixth Street Station ST 8	MRO	IA	29	1950	Nov. 2010	60	Alliant Energy Corp.
Sutherland (IA) ST 2	MRO	IA	30	1955	Nov. 2010	55	Alliant Energy Corp.
DTE Stoneman (E J Stoneman) ST 1A	MRO	WI	15	1952	Oct. 2010	58	DTE Energy Co.
DTE Stoneman (E J Stoneman) ST 2A	MRO	WI	35	1952	Oct. 2010	58	DTE Energy Co.
Old Hickory Plant ST IG	SERC	TN	1	1993	Oct. 2010	17	E I Dupont De Nemours & Co.
Dean H. Mitchell ST 11	RFC	IN	110	1970	Sept. 2010	40	NiSource Inc.
Dean H. Mitchell ST 4	RFC	IN	125	1956	Sept. 2010	54	NiSource Inc.
Dean H. Mitchell ST 5	RFC	IN	125	1959	Sept. 2010	51	NiSource Inc.
Dean H. Mitchell ST 6	RFC	IN	125	1959	Sept. 2010	51	NiSource Inc.
Hunlock ST A	RFC	PA	43	1959	May 2010	51	UGI Corp.
Indian River (DE) ST 2	RFC	DE	89	1959	May 2010	51	NRG Energy Inc.
Rock River ST 1	MRO	WI	75	1954	April 2010	56	Alliant Energy Corp.
Rock River ST 2	MRO	WI	77	1955	April 2010	55	Alliant Energy Corp.
Raton ST 5	WECC	NM	7	1961	Jan. 2010	49	Raton Public Service Co.
Seaford, Delaware Plant ST GEN1	RFC	DE	9	1939	Jan. 2010	71	Koch Industries Inc.
Seaford, Delaware Plant ST GEN3	RFC	DE	9	1939	Jan. 2010	71	Koch Industries Inc.
Goudey ST 7	NPCC	NY	44	1943	Dec. 2009	66	DSA Services Inc.
Greenidge ST 3	NPCC	NY	53	1950	Dec. 2009	59	Atlas Frm LLC
FutureGen 2.0 ST 1	SERC	IL	64	1948	Nov. 2009	61	Ameren Corp.
FutureGen 2.0 ST 2	SERC	IL	64	1949	Nov. 2009	60	Ameren Corp.
John Deere Dubuque Works ST GEN3	MRO	IA	2	1989	Oct. 2009	20	Deere & Co.
Lakeside ST 6	SERC	IL	39	1961	Oct. 2009	48	City of Springfield (IL)
Lakeside ST 7	SERC	IL	39	1965	Oct. 2009	44	City of Springfield (IL)
Presque Isle ST 3	RFC	MI	58	1964	Oct. 2009	45	Wisconsin Energy Corp.
Presque Isle ST 4	RFC	MI	58	1966	Oct. 2009	43	Wisconsin Energy Corp.
Chena Power ST 3	ASCC	AK	2	1952	Aug. 2009	57	Usibelli Coal Mine Inc.
Mohave ST 1	WECC	NV	790	1971	June 2009	38	Multi-owned
Mohave ST 2	WECC	NV	790	1971	June 2009	38	Multi-owned
Riverside (MN) ST 7	MRO	MN	160	1987	May 2009	22	Xcel Energy Inc.
Riverside (MN) ST 8	MRO	MN	227	1964	May 2009	45	Xcel Energy Inc.
Seaford, Delaware Plant ST GEN2	RFC	DE	9	1939	May 2009	70	Koch Industries Inc.
Smart Papers ST GEN4	RFC	OH	2	1927	May 2009	82	Smart Papers LLC
Ohio University ST OUG1	RFC	OH	1	1994	March 2009	15	Ohio University
Clinton (IA) ST GEN1	MRO	IA	8	1954	Jan. 2009	55	Archer-Daniels-Midland Co.
Clinton (IA) ST GEN2	MRO	IA	4	1940	Jan. 2009	69	Archer-Daniels-Midland Co.
Clinton (IA) ST GEN3	MRO	IA	9	1965	Jan. 2009	44	Archer-Daniels-Midland Co.
Clinton (IA) ST GEN4	MRO	IA	4	1974	Jan. 2009	35	Archer-Daniels-Midland Co.
Clinton (IA) ST GEN5	MRO	IA	7	1991	Jan. 2009	18	Archer-Daniels-Midland Co.

Kimberly Mill ST 3TB	RFC	WI	16	1980	Jan. 2009	29 NewPage Holdings Inc.
Kimberly Mill ST 4TB	RFC	WI	19	1968	Jan. 2009	41 NewPage Holdings Inc.

As of Oct. 1, 2014.
Source: SNL Energy

Tuesday, March 25, 2014 10:15 AM ET Exclusive

Upcoming, recent coal-fired power unit retirements

By Michael Niven and Neil Powell

Nearly 23,000 MW of coal-fired generating capacity was retired in the United States from 2009 to March 2014 and that number is already on track to more than double between the remainder of 2014 and 2022, according to an updated SNL Energy analysis of coal retirements.

After hitting a peak of more than 9,000 MW in 2012, retirements of U.S. coal units slowed a bit in 2013, with SNL Energy data showing that about 6,300 MW was shuttered in 2013. The PJM Interconnection again took the brunt of the retirements, seeing roughly 2,707 MW of coal capacity retire in 2013. Of the 22,778 MW of coal capacity that retired from 2009 to 2013, nearly 10,200 MW was located in PJM.

Coal capacity retirements 2009-2014 (MW) by ISO/RTO

ISO/RTO	2009	2010	2011	2012	2013	2014	Total
California Independent System Operator	1,580	-	-	119	-	-	1,699
ISO New England Inc.	-	-	450	-	-	-	450
Midcontinent Independent System Operator Inc.	777	853	933	419	203	-	3,185
New York Independent System Operator	96	-	-	192	448	-	736
PJM Interconnection LLC	11	981	618	5,695	2,707	150	10,163
Southwest Power Pool Inc.	-	-	-	2	-	-	2
Outside ISO/RTO	2	81	846	2,661	2,954	-	6,543
Total	2,466	1,915	2,847	9,088	6,312	150	22,778

- indicates a zero value.
As of March 5, 2014.
Source: SNL Energy

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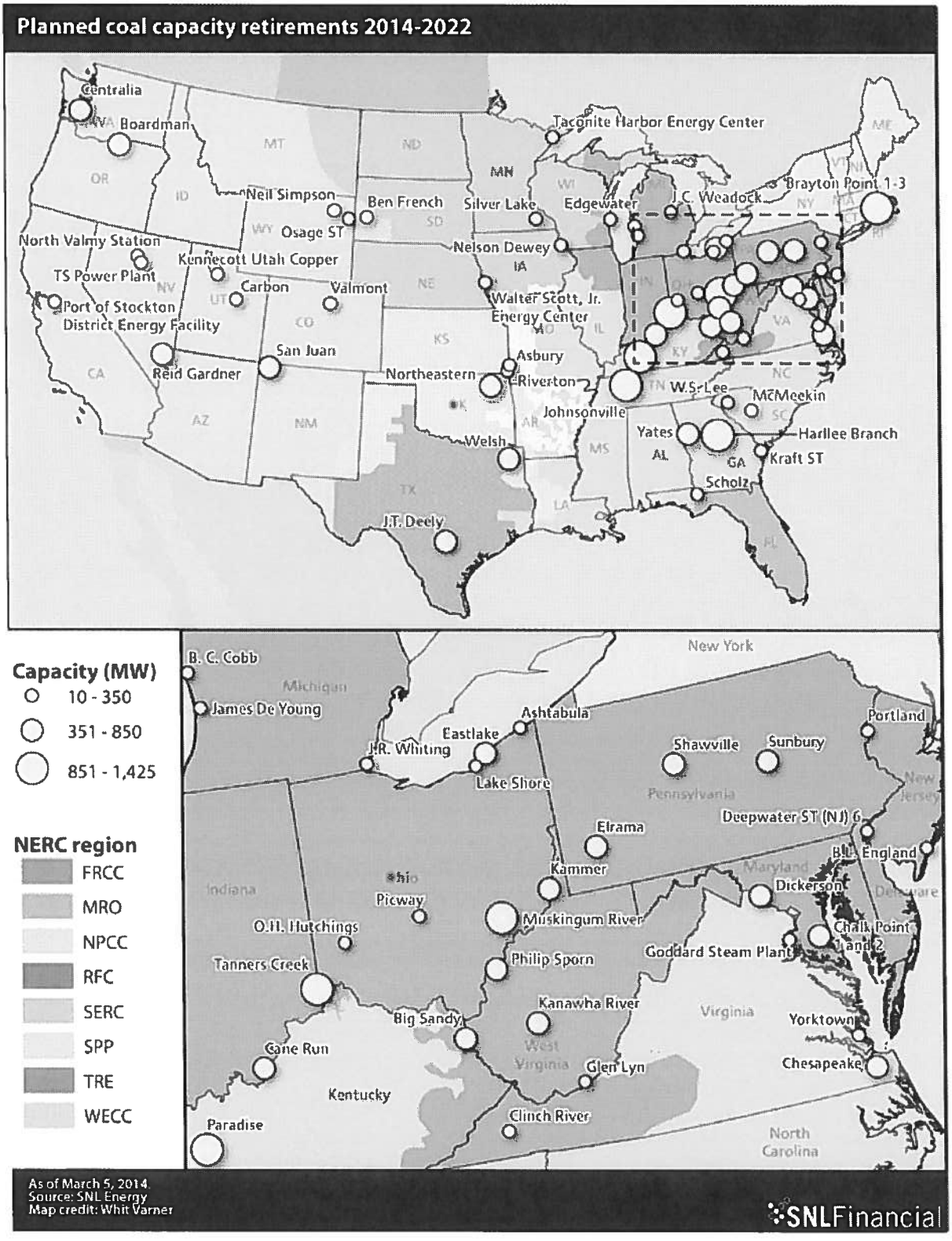
Looking forward, U.S. power producers currently plan to shutter 27,143 MW of coal capacity between 2014 and 2022, according to SNL Energy data. The majority of those planned retirements — 13,550 MW — will occur in 2015 when the U.S. EPA's Mercury and Air Toxics Standards, or MATS, takes effect. By contrast, generators have announced only 2,854 MW of coal retirements in 2014, as they continue to sort out their MATS compliance plans.

Planned coal unit retirements, as defined by SNL Energy for this analysis, include those with a firm retirement year that was either publicly disclosed by the company or confirmed by SNL. Units listed as retired are permanently retired and do not include coal units designated by the operating company as mothballed or deactivated.



While generators have already committed to closing a large number of coal units in the years leading up to and following MATS, most experts agree there is still a significant amount of unit retirements yet to be announced.

Analysts with Sanford C. Bernstein & Co. LLC, for example, recently published new research projecting that roughly 36,600 MW of coal capacity could retire in 2014 and 2015 alone. The additional retirements will likely include those units burning bituminous coal that have yet to be equipped with SO2 scrubbing equipment and would not have time to be retrofitted before the MATS deadline. Bernstein estimates that such plants account for an additional 11,000 MW of

coal-fired capacity.

TVA seeks diversification through retirements

The most significant new retirements since SNL Energy last published this analysis in September 2013 came from Tennessee Valley Authority, which in November 2013 committed to retire eight coal units with more than 3,000 MW of total capacity.

TVA said the retirements at its Colbert, Widows Creek and Paradise plants will help diversify its generation portfolio in the face of lower power sales and stringent environmental regulations. The utility estimated that shuttering the units would avoid capital costs of $1.01 billion at Colbert and $163 million at Widows Creek for emissions controls.

TVA's latest round of retirements represents a blow to the Illinois Basin coal market, which provides the three plants with the vast majority of their coal supply.

Coal unit conversions

In addition to coal units slated for outright retirement, generators are also planning to convert a significant number of coal units to burn another fuel, primarily natural gas. While some of these conversion projects are hard to pin down because of companies' constantly evolving plans, an SNL Energy review finds that approximately 11,200 MW of coal capacity is being targeted for conversion to other fuels. Of that total, an estimated 7,600 MW is planned conversions and the remaining 3,600 MW consist of units that are being targeted for either conversion or retirement.

The vast majority of proposed coal conversions are being mulled for the 2014 to 2016 time frame to help generators comply with EPA rules.

Major coal conversions that are still in the works include NRG Energy Inc.'s commitment to switch the 575-MW unit 2 at the Big Cajun II plant to gas and Southern Co.'s plan to convert two units totaling 707 MW from coal to gas at its Yates station. PacifiCorp has said in the past it might convert the 330-MW unit 3 at the Naughton plant in Wyoming from subbituminous coal to gas, but it is revisiting that proposal and could end up retiring the unit.

Since SNL Energy's last coal unit retirement analysis, several coal-to-gas conversion projects have been taken off the table in favor of retirement. American Electric Power Co. Inc., for example, now plans to retire the 500-MW unit 4 at its Tanners Creek plant in Dearborn County, Ind., rather than refuel it with natural gas. AEP said the cost of refueling Tanners Creek was not the right capital investment for the company in light of relatively flat electricity demand from customers of its Indiana Michigan Power Co. unit.

More recently, Integrys Energy Group Inc. subsidiary Wisconsin Public Service Corp. submitted a request in March to the Midcontinent Independent System Operator Inc. for permission to retire coal-fired units 5 and 6 at its J.P. Pulliam power plant in Brown County, Wis. Under a settlement agreement with the U.S. EPA, WPS could have refueled or repowered the Pulliam units with natural gas or another fuel.

Scheduled coal capacity retirements through 2022 (MW) by NERC region

NERC region	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total
MRO	-	800	-	-	-	-	-	-	-	800
NPCC	150	-	-	1,133	-	-	-	-	-	1,283
RFC	2,179	7,320	1,181	1,205	-	-	-	-	-	11,885
SERC	113	5,092	201	1,744	250	-	-	-	-	7,400
SPP	-	15	1,080	-	-	-	-	-	-	1,095
TRE	-	-	-	-	840	-	-	-	-	840
WECC	413	324	-	1,276	100	-	1,255	254	219	3,841
Total	**2,854**	**13,550**	**2,462**	**5,358**	**1,190**	**-**	**1,255**	**254**	**219**	**27,143**

- indicates a zero value
Includes only coal units for which there has been a firm retirement date reported between 2013 and 2022.
As of March 5, 2014
Source: SNL Energy

Of the 27,143 MW of formalized coal unit retirements in the U.S. between March 2014 and the end of 2022, the majority is slated to occur in the Mid-Atlantic and parts of the Midwest and South.

Breaking them out by North American Electricity Reliability Corp. region, ReliabilityFirst Corp. will be the most affected by a wide margin, with 11,885 MW of coal capacity scheduled to be retired during the period. RFC is followed by the SERC region, where generators have announced plans to shutter approximately 7,400 MW of coal capacity. Other NERC regions to be affected during the 2014-2022 period include the Western Electricity Coordinating Council, with 3,841 MW of planned retirements; the Northeast Power Coordinating Council, with 1,283 MW; the Southwest Power Pool, with 1,095 MW; the Texas Reliability Entity, with 840 MW slated for retirement; and the Midwest Reliability Organization, with 800 MW.

Scheduled coal capacity retirements through 2022 (MW) by ISO/RTO

ISO/RTO	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total
California Independent System Operator	342	-	-	255	-	-	585	-	-	1,182
Electric Reliability Council of Texas Inc.	-	-	-	-	840	-	-	-	-	840
ISO New England Inc.	150	-	-	1,133	-	-	-	-	-	1,283
Midcontinent Independent System Operator Inc.	-	800	1,016	-	-	-	-	-	-	1,816
PJM Interconnection LLC	2,179	8,252	165	1,205	-	-	-	-	-	11,801
Southwest Power Pool Inc	-	15	1,080	-	-	-	-	-	-	1,095
Outside of ISO/RTO	184	4,484	201	2,765	350	-	670	254	219	9,127
Total	**2,854**	**13,550**	**2,462**	**5,358**	**1,190**	**-**	**1,255**	**254**	**219**	**27,143**

- indicates a zero value
Includes only coal units for which there has been a firm retirement date reported between 2013 and 2022.
As of March 5, 2014.
Source: SNL Energy

Assessing the impact of announced retirements on ISOs and RTOs, the PJM Interconnection continues to be the operator that would be most affected, with 11,801 MW of coal capacity planned to be closed between March 2014 and 2022. PJM saw more than 2,700 MW of coal capacity retire in 2013, including FirstEnergy Corp.'s Hatfield's Ferry station, a 1,710-MW, supercritical coal plant in Greene County, Pa.

Other grid operators to be affected by retirements include MISO and ISO New England where 1,816 MW and 1,283 MW, respectively, of coal retirements have been announced between 2014 and 2022. CAISO and the Southwest Power Pool will also be impacted, with 1,182 MW and 1,095 MW, respectively, slated to be retired during the period. Approximately 9,127 MW of announced retirements during the period would occur outside an ISO.

10 largest companies with coal capacity retiring in 2014-2018

	Capacity retiring (MW)					
Company	2014	2015	2016	2017	2018	Total
American Electric Power Co. Inc.	630	4,943	988	-	-	6,561
Tennessee Valley Authority	113	1,271	-	1,744	-	3,128
NRG Energy Inc.	795	588	-	1,205	-	2,588
Southern Co.	-	1,953	201	-	-	2,154
Energy Capital Partners LLC	-	-	-	1,133	-	1,133
CMS Energy Corp.	-	-	958	-	-	958
Dominion Resources Inc.	-	932	-	-	-	932
FirstEnergy Corp.	641	244	-	-	-	885
CPS Energy	-	-	-	-	840	840
Duke Energy Corp.	-	761	-	-	-	761

- indicates a zero value
Includes only coal units for which the company has reported a firm retirement date between 2014 and 2018.
As of March 5, 2014.
Source: SNL Energy

On a company-specific level, AEP, the nation's largest coal burner, continues to have more coal unit retirements scheduled than any other generator by a significant margin. AEP has 6,561 MW of coal capacity scheduled to shut down between March 2014 and the end of 2018.

Other generators with a significant amount of retiring capacity during the 2014-2018 period include Tennessee Valley Authority, with 3,128 MW; NRG Energy, with 2,588 MW; Southern Co., with 2,154 MW; and Energy Capital Partners LLC, with 1,133 MW.

To view an updatable SNL template of coal unit retirement data, click here.

To find more details about U.S. power plants, go to SNL Energy's Power Plant Briefing Book Search.

Planned coal unit retirements 2014-2018

Unit	NERC region	State	2012 capacity factor (%)	Operating capacity (MW)	Original in-service year	Date to be retired	Age at retirement	Ultimate parent
Ben French ST1	WECC	SD	48.91	21.6	1961	Mar 2014	53	Black Hills Corp.
Elrama ST 1	RFC	PA	NM	93	1952	Mar 2014	62	NRG Energy Inc.
Elrama ST 2	RFC	PA	0.82	93	1953	Mar 2014	61	NRG Energy Inc.
Elrama ST 3	RFC	PA	0.64	103	1954	Mar 2014	60	NRG Energy Inc.
Elrama ST 4	RFC	PA	4.14	171	1960	Mar 2014	54	NRG Energy Inc.
Neil Simpson ST 5	WECC	WY	94.02	18.6	1969	Mar 2014	45	Black Hills Corp.
Osage (WY) ST 1	WECC	WY	NM	10.1	1948	Mar 2014	66	Black Hills Corp.
Osage (WY) ST 2	WECC	WY	0.00	10.1	1949	Mar 2014	65	Black Hills Corp.
Osage (WY) ST 3	WECC	WY	0.00	10.1	1952	Mar 2014	62	Black Hills Corp.
B. L. England ST 1	RFC	NJ	6.59	113	1962	May 2014	52	Multi-owned
Portland (PA) ST 1	RFC	PA	3.17	141	1958	Jun 2014	56	NRG Energy Inc.
Portland (PA) ST 2	RFC	PA	4.79	194	1962	Jun 2014	52	NRG Energy Inc.
Salem Harbor ST 3	NPCC	MA	16.79	149.9	1958	Jun 2014	56	Footprint Power LLC
Eastlake ST 1	RFC	OH	41.99	132	1953	Sep 2014	61	FirstEnergy Corp.
Eastlake ST 2	RFC	OH	35.55	132	1953	Sep 2014	61	FirstEnergy Corp.
Eastlake ST 3	RFC	OH	39.50	132	1954	Sep 2014	60	FirstEnergy Corp.
Lake Shore ST 18	RFC	OH	8.65	245	1962	Sep 2014	52	FirstEnergy Corp.
Kammer ST 1	RFC	WV	29.34	210	1958	Dec 2014	56	American Electric Power Co. Inc.
Kammer ST 2	RFC	WV	26.33	210	1958	Dec 2014	56	American Electric Power Co. Inc.
Kammer ST 3	RFC	WV	41.09	210	1959	Dec 2014	55	American Electric Power Co. Inc.
Reid Gardner ST 1	WECC	NV	13.73	100	1965	Dec 2014	49	Multi-owned
Reid Gardner ST 2	WECC	NV	6.26	100	1968	Dec 2014	46	Multi-owned
Reid Gardner ST 3	WECC	NV	10.74	98	1976	Dec 2014	38	Multi-owned
Port of Stockton District Ener CFB STG	WECC	CA	NA	44	1987	2014	27	DTE Energy Co.
Widows Creek ST 4	SERC	AL	NM	113	1953	2014	61	Tennessee Valley Authority
Chesapeake ST 3	SERC	VA	51.24	162	1959	Jan 2015	56	Dominion Resources Inc.
Chesapeake ST1	SERC	VA	14.30	111	1953	Jan 2015	62	Dominion Resources Inc.
Chesapeake ST2	SERC	VA	20.40	111	1954	Jan 2015	61	Dominion Resources Inc.
Chesapeake ST4	SERC	VA	16.43	221	1962	Jan 2015	53	Dominion Resources Inc.
Miami Fort ST 6	RFC	OH	62.45	163	1960	Jan 2015	55	Duke Energy Corp.
Asbury ST 2	SPP	MO	0.00	14.5	1986	Feb 2015	29	Empire District Electric Co.
Walter Scott ST 1	MRO	IA	44.55	37.4	1954	Mar 2015	61	Multi-owned
Walter Scott ST 2	MRO	IA	57.24	80.8	1958	Mar 2015	57	Multi-owned
Carbon ST 1	WECC	UT	87.90	67	1954	Apr 2015	61	Multi-owned
Carbon ST 2	WECC	UT	83.48	105	1957	Apr 2015	58	Multi-owned
Green River ST 3	SERC	KY	43.42	71	1954	Apr 2015	61	PPL Corp.
Green River ST 4	SERC	KY	72.35	100	1959	Apr 2015	56	PPL Corp.
Harllee Branch ST 1	SERC	GA	35.24	266	1965	Apr 2015	50	Southern Co.
Harllee Branch ST 3	SERC	GA	8.36	509	1968	Apr 2015	47	Southern Co.
Harllee Branch ST 4	SERC	GA	12.73	507	1969	Apr 2015	46	Southern Co.
Scholz ST 1	SERC	FL	0.12	46	1953	Apr 2015	62	Southern Co.
Scholz ST 2	SERC	FL	0.25	46	1953	Apr 2015	62	Southern Co.
Shawville ST 1	RFC	PA	20.38	124	1954	Apr 2015	61	NRG Energy Inc.
Shawville ST 2	RFC	PA	24.50	126	1954	Apr 2015	61	NRG Energy Inc.
Shawville ST 3	RFC	PA	30.12	169	1959	Apr 2015	56	NRG Energy Inc.
Shawville ST 4	RFC	PA	28.36	169	1960	Apr 2015	55	NRG Energy Inc.
Taconite Harbor ST GEN3	MRO	MN	53.60	83.6	1967	Apr 2015	48	ALLETE Inc.
W S Lee ST 1	SERC	SC	2.18	100	1951	Apr 2015	64	Duke Energy Corp.
W S Lee ST 2	SERC	SC	3.28	102	1951	Apr 2015	64	Duke Energy Corp.
Walter C Beckjord ST 5	RFC	OH	42.85	238	1962	Apr 2015	53	Duke Energy Corp.
Walter C Beckjord ST 6	RFC	OH	51.31	420	1969	Apr 2015	46	Multi-owned
Yates ST 1	SERC	GA	1.91	97	1950	Apr 2015	65	Southern Co.
Yates ST 2	SERC	GA	29.80	103	1950	Apr 2015	65	Southern Co.
Yates ST 3	SERC	GA	36.35	111	1952	Apr 2015	63	Southern Co.
Yates ST 4	SERC	GA	4.25	133	1957	Apr 2015	58	Southern Co.
Yates ST 5	SERC	GA	0.72	135	1958	Apr 2015	57	Southern Co.
Yorktown ST 1	SERC	VA	17.28	162	1957	Apr 2015	58	Dominion Resources Inc.
Yorktown ST 2	SERC	VA	28.36	165	1959	Apr 2015	56	Dominion Resources Inc.
Cane Run ST 4	SERC	KY	47.97	155	1962	May 2015	53	PPL Corp.
Cane Run ST 5	SERC	KY	62.92	168	1966	May 2015	49	PPL Corp.
Cane Run ST 6	SERC	KY	51.45	240	1969	May 2015	46	PPL Corp.
Deepwater (NJ) ST 6	RFC	NJ	3.77	82	1954	May 2015	61	Calpine Corp.
Ashtabula ST 5	RFC	OH	11.58	244	1958	Jun 2015	57	FirstEnergy Corp.
Big Sandy ST 2	RFC	KY	27.35	800	1969	Jun 2015	46	American Electric Power Co. Inc.
Clinch River ST 3	RFC	VA	7.37	235	1961	Jun 2015	54	American Electric Power Co. Inc.
Glen Lyn ST 5	RFC	VA	1.13	95	1944	Jun 2015	71	American Electric Power Co. Inc.
Glen Lyn ST 6	RFC	VA	3.33	240	1957	Jun 2015	58	American Electric Power Co. Inc.
Kanawha River ST 1	RFC	WV	24.59	200	1953	Jun 2015	62	American Electric Power Co. Inc.

Kanawha River ST 2	RFC	WV	32.29	200	1953	Jun 2015	62	American Electric Power Co. Inc.
Muskingum River ST 1	RFC	OH	4.78	205	1953	Jun 2015	62	American Electric Power Co. Inc.
Muskingum River ST 2	RFC	OH	5.04	205	1954	Jun 2015	61	American Electric Power Co. Inc.
Muskingum River ST 3	RFC	OH	23.61	215	1957	Jun 2015	58	American Electric Power Co. Inc.
Muskingum River ST 4	RFC	OH	16.22	215	1958	Jun 2015	57	American Electric Power Co. Inc.
Muskingum River ST 5	RFC	OH	16.75	585	1968	Jun 2015	47	American Electric Power Co. Inc.
O H Hutchings ST 1	RFC	OH	NM	59	1948	Jun 2015	67	AES Corp.
O H Hutchings ST 2	RFC	OH	0.23	56	1949	Jun 2015	66	AES Corp.
O H Hutchings ST 3	RFC	OH	2.99	64	1950	Jun 2015	65	AES Corp.
O H Hutchings ST 5	RFC	OH	3.30	64	1952	Jun 2015	63	AES Corp.
O H Hutchings ST 6	RFC	OH	1.89	64	1953	Jun 2015	62	AES Corp.
Philip Sporn ST 1	RFC	WV	14.32	150	1950	Jun 2015	65	American Electric Power Co. Inc.
Philip Sporn ST 2	RFC	WV	36.87	150	1950	Jun 2015	65	American Electric Power Co. Inc.
Philip Sporn ST 3	RFC	WV	16.22	150	1951	Jun 2015	64	American Electric Power Co. Inc.
Philip Sporn ST 4	RFC	WV	7.53	150	1952	Jun 2015	63	American Electric Power Co. Inc.
Picway ST 5	RFC	OH	0.45	100	1955	Jun 2015	60	American Electric Power Co. Inc.
Sunbury ST 1	RFC	PA	8.84	80	1949	Jun 2015	66	Corona Power LLC
Sunbury ST 2	RFC	PA	3.00	80	1949	Jun 2015	66	Corona Power LLC
Sunbury ST 3	RFC	PA	7.09	94	1951	Jun 2015	64	Corona Power LLC
Sunbury ST 4	RFC	PA	1.84	134	1953	Jun 2015	62	Corona Power LLC
Tanners Creek ST 1	RFC	IN	8.23	145	1951	Jun 2015	64	American Electric Power Co. Inc.
Tanners Creek ST 2	RFC	IN	12.42	145	1952	Jun 2015	63	American Electric Power Co. Inc.
Tanners Creek ST 3	RFC	IN	32.16	205	1954	Jun 2015	61	American Electric Power Co. Inc.
Tanners Creek ST 4	RFC	IN	44.97	500	1964	Jun 2015	51	American Electric Power Co. Inc.
Widows Creek ST 6	SERC	AL	0.00	113	1954	July 2015	61	Tennessee Valley Authority
Black Dog ST 3	MRO	MN	63.35	79	1955	Dec 2015	60	Xcel Energy Inc.
Black Dog ST 4	MRO	MN	58.73	153	1960	Dec 2015	55	Xcel Energy Inc.
Cherokee (CO) ST 3	WECC	CO	61.65	152	1962	Dec 2015	53	Xcel Energy Inc.
Edgewater (WI) ST 3	MRO	WI	3.45	71	1951	Dec 2015	64	Alliant Energy Corp.
John Sevier ST 3	SERC	TN	9.82	178	1956	Dec 2015	59	Tennessee Valley Authority
John Sevier ST 4	SERC	TN	0.60	178	1957	Dec 2015	58	Tennessee Valley Authority
Johnsonville (TN) ST 10	SERC	TN	12.00	144	1959	Dec 2015	56	Tennessee Valley Authority
Johnsonville (TN) ST 5	SERC	TN	32.61	113	1952	Dec 2015	63	Tennessee Valley Authority
Johnsonville (TN) ST 6	SERC	TN	26.58	113	1953	Dec 2015	62	Tennessee Valley Authority
Johnsonville (TN) ST 7	SERC	TN	3.35	144	1958	Dec 2015	57	Tennessee Valley Authority
Johnsonville (TN) ST 8	SERC	TN	4.03	144	1959	Dec 2015	56	Tennessee Valley Authority
Johnsonville (TN) ST 9	SERC	TN	18.40	144	1959	Dec 2015	56	Tennessee Valley Authority
Nelson Dewey ST 1	MRO	WI	47.48	107.9	1959	Dec 2015	56	Alliant Energy Corp.
Nelson Dewey ST 2	MRO	WI	44.34	107.1	1962	Dec 2015	53	Alliant Energy Corp.
Silver Lake (MN) ST 1	MRO	MN	0.19	6.6	1948	Dec 2015	67	Rochester Public Utilities
Silver Lake (MN) ST 2	MRO	MN	0.74	7	1953	Dec 2015	62	Rochester Public Utilities
Silver Lake (MN) ST 3	MRO	MN	NM	20	1962	Dec 2015	53	Rochester Public Utilities
Silver Lake (MN) ST 4	MRO	MN	1.23	46.4	1969	Dec 2015	46	Rochester Public Utilities
B C Cobb ST 4	RFC	MI	51.14	160	1956	Apr 2016	60	CMS Energy Corp.
B C Cobb ST 5	RFC	MI	60.16	160	1957	Apr 2016	59	CMS Energy Corp.
J C Weadock ST 7	RFC	MI	56.37	155	1955	Apr 2016	61	CMS Energy Corp.
J C Weadock ST 8	RFC	MI	58.63	155	1958	Apr 2016	58	CMS Energy Corp.
J R Whiting ST 1	RFC	MI	53.24	102	1952	Apr 2016	64	CMS Energy Corp.
J R Whiting ST 2	RFC	MI	44.23	102	1952	Apr 2016	64	CMS Energy Corp.
J R Whiting ST 3	RFC	MI	44.47	124	1953	Apr 2016	63	CMS Energy Corp.
Kraft ST 2	SERC	GA	39.17	52	1961	Apr 2016	55	Southern Co.
Kraft ST 3	SERC	GA	30.31	101	1965	Apr 2016	51	Southern Co.
Kraft ST1	SERC	GA	42.16	48	1958	Apr 2016	58	Southern Co.
Northeastern ST 4	SPP	OK	75.95	460	1980	Apr 2016	36	American Electric Power Co. Inc.
B. L. England ST 2	RFC	NJ	7.40	155	1964	May 2016	52	Multi-owned
Riverton ST 7	SPP	KS	NM	38	1950	Jun 2016	66	Empire District Electric Co.
Riverton ST 8	SPP	KS	22.12	54	1954	Jun 2016	62	Empire District Electric Co.
Welsh ST 2	SPP	TX	71.50	528	1980	Dec 2016	36	American Electric Power Co. Inc.
Goddard Steam Plant ST 1	RFC	MD	35.21	5	1957	2016	59	Naval Facilities Engineering Command
Goddard Steam Plant ST 2	RFC	MD	23.07	5	1957	2016	59	Naval Facilities Engineering Command
James De Young ST 3	RFC	MI	27.96	10.5	1951	2016	65	Holland City of
James De Young ST 4	RFC	MI	11.83	20.5	1962	2016	54	Holland City of
James De Young ST 5	RFC	MI	4.48	27	1969	2016	47	Holland City of
Chalk Point ST1	RFC	MD	33.17	331	1964	May 2017	53	NRG Energy Inc.
Chalk Point ST2	RFC	MD	28.84	337	1965	May 2017	52	NRG Energy Inc.
Dickerson ST 2	RFC	MD	22.48	179	1960	May 2017	57	NRG Energy Inc.
Dickerson ST 3	RFC	MD	24.49	179	1962	May 2017	55	NRG Energy Inc.
Dickerson ST1	RFC	MD	22.83	179	1959	May 2017	58	NRG Energy Inc.
Brayton Point ST 1	NPCC	MA	28.48	246.7	1963	Jun 2017	54	Energy Capital Partners LLC
Brayton Point ST 2	NPCC	MA	17.35	249.3	1964	Jun 2017	53	Energy Capital Partners LLC
Brayton Point ST 3	NPCC	MA	17.07	637.1	1969	Jun 2017	48	Energy Capital Partners LLC
Paradise ST 1	SERC	KY	80.50	659	1963	Jun 2017	54	Tennessee Valley Authority

Paradise ST 1	SERC	KY	66.50	659	1963	Jun 2017	54	Tennessee Valley Authority
Paradise ST 2	SERC	KY	74.65	633	1963	Jun 2017	54	Tennessee Valley Authority
Johnsonville (TN) ST 1	SERC	TN	35.77	113	1951	Dec 2017	66	Tennessee Valley Authority
Johnsonville (TN) ST 2	SERC	TN	44.26	113	1951	Dec 2017	66	Tennessee Valley Authority
Johnsonville (TN) ST 3	SERC	TN	48.73	113	1952	Dec 2017	65	Tennessee Valley Authority
Johnsonville (TN) ST 4	SERC	TN	53.72	113	1952	Dec 2017	65	Tennessee Valley Authority
Reid Gardner ST 4	WECC	NV	49.84	255	1983	Dec 2017	34	Multi-owned
San Juan ST 2	WECC	NM	70.10	340	1973	Dec 2017	44	Multi-owned
San Juan ST 3	WECC	NM	63.39	497	1979	Dec 2017	38	Multi-owned
Valmont ST 5	WECC	CO	62.45	184	1964	Dec 2017	53	Xcel Energy Inc.
Kennecott Utah Copper ST 1	WECC	UT	12.11	50	1943	Jan 2018	75	Rio Tinto
Kennecott Utah Copper ST 2	WECC	UT	14.43	25	1943	Jan 2018	75	Rio Tinto
Kennecott Utah Copper ST 3	WECC	UT	12.60	25	1946	Jan 2018	72	Rio Tinto
J T Deely ST 1	TRE	TX	36.19	420	1977	Dec 2018	41	CPS Energy
J T Deely ST 2	TRE	TX	62.21	420	1978	Dec 2018	40	CPS Energy
McMeekin ST 1	SERC	SC	20.13	125	1958	Dec 2018	60	SCANA Corp.
McMeekin ST 2	SERC	SC	32.99	125	1958	Dec 2018	60	SCANA Corp.

NM = not meaningful
Includes only coal units for which the company has reported a firm retirement date between 2014 and 2018.
As of March 5, 2014.
Source: SNL Energy

Coal unit retirements 2009-2014

Unit	NERC region	State	Operating capacity (MW)	Original in-service year	Date retired	Age at retirement	Ultimate parent
Walter C Beckjord ST 4	RFC	OH	150	1958	Jan 2014	56	Duke Energy Corp.
Piney Creek Project CFB GEN1	RFC	PA	33	1992	2013	21	ACI Energy Inc.
Arapahoe ST 3	WECC	CO	44	1951	Dec 2013	62	Xcel Energy Inc.
Four Corners ST 1	WECC	NM	170	1963	Dec 2013	50	Pinnacle West Capital Corp.
Four Corners ST 2	WECC	NM	170	1963	Dec 2013	50	Pinnacle West Capital Corp.
Four Corners ST 3	WECC	NM	220	1964	Dec 2013	49	Pinnacle West Capital Corp.
Indian River (DE) ST 3	RFC	DE	153	1970	Dec 2013	43	NRG Energy Inc.
W N Clark ST 1	WECC	CO	18	1955	Dec 2013	58	Black Hills Corp.
W N Clark ST 2	WECC	CO	25	1959	Dec 2013	54	Black Hills Corp.
Canadys ST 2	SERC	SC	115	1964	Nov 2013	49	SCANA Corp.
Canadys ST 3	SERC	SC	180	1967	Nov 2013	46	SCANA Corp.
Fair Station ST 1	MRO	IA	24	1960	Nov 2013	53	Central Iowa Power Cooperative
Fair Station ST 2	MRO	IA	42	1967	Nov 2013	46	Central Iowa Power Cooperative
L V Sutton ST 1	SERC	NC	98	1954	Nov 2013	59	Duke Energy Corp.
L V Sutton ST 2	SERC	NC	105	1955	Nov 2013	58	Duke Energy Corp.
L V Sutton ST 3	SERC	NC	389	1972	Nov 2013	41	Duke Energy Corp.
Harbor Beach ST 1	RFC	MI	103	1968	Oct 2013	45	DTE Energy Co.
Hatfield's Ferry ST 1	RFC	PA	570	1969	Oct 2013	44	FirstEnergy Corp.
Hatfield's Ferry ST 2	RFC	PA	570	1970	Oct 2013	43	FirstEnergy Corp.
Hatfield's Ferry ST 3	RFC	PA	570	1971	Oct 2013	42	FirstEnergy Corp.
Mitchell (PA) ST 3	RFC	PA	288	1963	Oct 2013	50	FirstEnergy Corp.
Walter C Beckjord ST 2	RFC	OH	94	1953	Oct 2013	60	Duke Energy Corp.
Walter C Beckjord ST 3	RFC	OH	128	1954	Oct 2013	59	Duke Energy Corp.
Chamois ST 1	SERC	MO	17	1953	Sep 2013	60	Central Electric Power Cooperative - MO
Chamois ST 2	SERC	MO	50	1960	Sep 2013	53	Central Electric Power Cooperative - MO
Harllee Branch ST 2	SERC	GA	325	1967	Sep 2013	46	Southern Co.
Park 500 Philip Morris USA ST TG2	SERC	VA	6	1984	Sep 2013	29	Park 500 Philip Morris USA
Syracuse Energy ST GEN1	NPCC	NY	63	1991	Sep 2013	22	GDF Suez SA
Syracuse Energy ST GEN2	NPCC	NY	11	2002	Sep 2013	11	GDF Suez SA
Titus ST 1	RFC	PA	72	1951	Sep 2013	62	NRG Energy Inc.
Titus ST 2	RFC	PA	72	1951	Sep 2013	62	NRG Energy Inc.
Titus ST 3	RFC	PA	72	1953	Sep 2013	60	NRG Energy Inc.
Widows Creek ST 3	SERC	AL	113	1952	July 2013	61	Tennessee Valley Authority
Widows Creek ST 5	SERC	AL	113	1954	July 2013	59	Tennessee Valley Authority
Lansing ST 3	MRO	IA	34	1957	Jun 2013	56	Alliant Energy Corp.
NRG Energy Center Dover ST COG1	RFC	DE	16	1985	Jun 2013	28	Multi-owned
O H Hutchings ST 4	RFC	OH	64	1951	Jun 2013	62	AES Corp.
Buck (NC) ST 5	SERC	NC	131	1953	May 2013	60	Duke Energy Corp.
Buck (NC) ST 6	SERC	NC	131	1953	May 2013	60	Duke Energy Corp.
Danskammer ST 3	NPCC	NY	138	1959	Apr 2013	54	Helios Power Capital LLC
Danskammer ST 4	NPCC	NY	237	1967	Apr 2013	46	Helios Power Capital LLC
Riverbend ST 4	SERC	NC	96	1952	Apr 2013	61	Duke Energy Corp.
Riverbend ST 5	SERC	NC	96	1952	Apr 2013	61	Duke Energy Corp.
Riverbend ST 6	SERC	NC	136	1954	Apr 2013	59	Duke Energy Corp.
Riverbend ST 7	SERC	NC	136	1954	Apr 2013	59	Duke Energy Corp.
Jacksonville Developmental ST 1	SERC	IL	1	1945	Mar 2013	68	State of Illinois
Jacksonville Developmental ST 2	SERC	IL	1	1945	Mar 2013	68	State of Illinois
Jacksonville Developmental ST 3	SERC	IL	2	1945	Mar 2013	68	State of Illinois
Tyrone ST 3	SERC	KY	73	1953	Feb 2013	60	PPL Corp.
Canadys ST 1	SERC	SC	105	1962	Dec 2012	50	SCANA Corp.
Conesville ST 3	RFC	OH	165	1962	Dec 2012	50	American Electric Power Co. Inc.
Dolphus M Grainger ST 1	SERC	SC	85	1966	Dec 2012	46	South Carolina Public Service Authority
Dolphus M Grainger ST 2	SERC	SC	85	1966	Dec 2012	46	South Carolina Public Service Authority
Jefferies ST 3	SERC	SC	152	1970	Dec 2012	42	South Carolina Public Service Authority
Jefferies ST 4	SERC	SC	155	1970	Dec 2012	42	South Carolina Public Service Authority
North Branch (WV) CFB 1	SERC	WV	77	1992	Dec 2012	20	Dominion Resources Inc.
Cape Fear ST 5	SERC	NC	148	1956	Oct 2012	56	Duke Energy Corp.
Cape Fear ST 6	SERC	NC	175	1958	Oct 2012	54	Duke Energy Corp.
H B Robinson ST 1	SERC	SC	179	1960	Oct 2012	52	Duke Energy Corp.
John Sevier ST 1	SERC	TN	178	1955	Oct 2012	57	Tennessee Valley Authority
John Sevier ST 2	SERC	TN	178	1955	Oct 2012	57	Tennessee Valley Authority
Niles ST 1	RFC	OH	108	1954	Oct 2012	58	NRG Energy Inc.
Potomac River ST 1	RFC	VA	88	1949	Oct 2012	63	NRG Energy Inc.

Potomac River ST 2	RFC	VA	88	1950	Oct 2012	62	NRG Energy Inc.
Potomac River ST 3	RFC	VA	102	1954	Oct 2012	58	NRG Energy Inc.
Potomac River ST 4	RFC	VA	102	1956	Oct 2012	56	NRG Energy Inc.
Potomac River ST 5	RFC	VA	102	1957	Oct 2012	55	NRG Energy Inc.
Albright ST 1	RFC	WV	76	1952	Sep 2012	60	FirstEnergy Corp.
Albright ST 2	RFC	WV	76	1952	Sep 2012	60	FirstEnergy Corp.
Albright ST 3	RFC	WV	140	1954	Sep 2012	58	FirstEnergy Corp.
Armstrong ST 1	RFC	PA	180	1958	Sep 2012	54	FirstEnergy Corp.
Armstrong ST 2	RFC	PA	176	1959	Sep 2012	53	FirstEnergy Corp.
Bay Shore ST 2	RFC	OH	138	1959	Sep 2012	53	FirstEnergy Corp.
Bay Shore ST 3	RFC	OH	142	1963	Sep 2012	49	FirstEnergy Corp.
Bay Shore ST 4	RFC	OH	215	1968	Sep 2012	44	FirstEnergy Corp.
Eastlake ST 4	RFC	OH	240	1956	Sep 2012	56	FirstEnergy Corp.
Eastlake ST 5	RFC	OH	597	1972	Sep 2012	40	FirstEnergy Corp.
Goudey ST 8	NPCC	NY	84	1951	Sep 2012	61	AES Corp.
Greenidge ST 4	NPCC	NY	108	1953	Sep 2012	59	AES Corp.
H.F. Lee Energy ST 1	SERC	NC	80	1952	Sep 2012	60	Duke Energy Corp.
H.F. Lee Energy ST 2	SERC	NC	80	1951	Sep 2012	61	Duke Energy Corp.
H.F. Lee Energy ST 3	SERC	NC	252	1962	Sep 2012	50	Duke Energy Corp.
R P Smith ST 11	RFC	MD	88	1958	Sep 2012	54	FirstEnergy Corp.
R P Smith ST 9	RFC	MD	28	1947	Sep 2012	65	FirstEnergy Corp.
Rivesville ST 5	RFC	WV	39	1943	Sep 2012	69	FirstEnergy Corp.
Rivesville ST 6	RFC	WV	91	1951	Sep 2012	61	FirstEnergy Corp.
Snowflake Mill ST GEN1	WECC	AZ	27	1961	Sep 2012	51	Catalyst Paper Corp.
Snowflake Mill ST GEN2	WECC	AZ	46	1974	Sep 2012	38	Catalyst Paper Corp.
Willow Island ST 1	RFC	WV	55	1949	Sep 2012	63	FirstEnergy Corp.
Willow Island ST 2	RFC	WV	186	1960	Sep 2012	52	FirstEnergy Corp.
Crawford ST 7	RFC	IL	216	1958	Aug 2012	54	Edison International
Crawford ST 8	RFC	IL	326	1961	Aug 2012	51	Edison International
Fisk Street ST 19	RFC	IL	326	1968	Aug 2012	44	Edison International
Smart Papers ST 1	RFC	OH	1	2009	Aug 2012	3	Smart Papers LLC
Smart Papers ST 2	RFC	OH	2	2009	Aug 2012	3	Smart Papers LLC
Smart Papers ST 7	RFC	OH	9	2009	Aug 2012	3	Smart Papers LLC
Smart Papers ST 8	RFC	OH	9	2009	Aug 2012	3	Smart Papers LLC
Smart Papers ST GEN3	RFC	OH	6	1924	Aug 2012	88	Smart Papers LLC
Smart Papers ST GEN5	RFC	OH	8	1930	Aug 2012	82	Smart Papers LLC
Smart Papers ST GEN6	RFC	OH	11	1930	Aug 2012	82	Smart Papers LLC
Alma ST 1	MRO	WI	21	1947	Jun 2012	65	Dairyland Power Co-op
Alma ST 2	MRO	WI	20	1947	Jun 2012	65	Dairyland Power Co-op
Alma ST 3	MRO	WI	21	1951	Jun 2012	61	Dairyland Power Co-op
Colorado Energy Nations ST VBPT	WECC	CO	0	1997	Jun 2012	15	GDF Suez SA
Niles ST 2	RFC	OH	108	1954	Jun 2012	58	NRG Energy Inc.
Pearl Station ST 1	SERC	IL	22	1967	Jun 2012	45	Prairie Power Inc.
Pella ST 5	MRO	IA	11	1964	Jun 2012	48	City of Pella
Pella ST 6	MRO	IA	22	1972	Jun 2012	40	City of Pella
Cherokee (CO) ST 1	WECC	CO	107	1957	May 2012	55	Xcel Energy Inc.
Eddystone ST 2	RFC	PA	311	1960	May 2012	52	Exelon Corp.
Gulf States Paper Corp. ST 3TG	SERC	AL	17	2003	May 2012	9	Rock-Tenn Co.
Sartell Mill ST ABB2	MRO	MN	20	1982	May 2012	30	Verso Paper Holdings LLC
Walter C Beckjord ST 1	RFC	OH	94	1952	May 2012	60	Duke Energy Corp.
Dan River ST 1	SERC	NC	69	1949	Apr 2012	63	Duke Energy Corp.
Dan River ST 2	SERC	NC	69	1950	Apr 2012	62	Duke Energy Corp.
Dan River ST 3	SERC	NC	145	1955	Apr 2012	57	Duke Energy Corp.
Shelby Municipal ST 3	RFC	OH	5	1948	Apr 2012	64	City of Shelby, OH
US DOE Savannah River ST HP-1	SERC	SC	9	1952	Apr 2012	60	U.S. Department of Energy
US DOE Savannah River ST HP-2	SERC	SC	9	1952	Apr 2012	60	U.S. Department of Energy
US DOE Savannah River ST HP-3	SERC	SC	9	1952	Apr 2012	60	U.S. Department of Energy
US DOE Savannah River ST LP-1	SERC	SC	13	1952	Apr 2012	60	U.S. Department of Energy
US DOE Savannah River ST LP-2	SERC	SC	13	1952	Apr 2012	60	U.S. Department of Energy
US DOE Savannah River ST LP-3	SERC	SC	13	1952	Apr 2012	60	U.S. Department of Energy
US DOE Savannah River ST LP-4	SERC	SC	13	1952	Apr 2012	60	U.S. Department of Energy
Walhalla ST GEN1	MRO	ND	2	2000	Apr 2012	12	Archer-Daniels-Midland Co.
East Third Street Power Plant CFB GEN1	WECC	CA	21	1990	Mar 2012	22	Multi-owned
Hanford LP CFB GEN1	WECC	CA	25	1990	Mar 2012	22	Multi-owned
Loveridge Road Power Plant CFB GEN1	WECC	CA	18	1989	Mar 2012	23	Multi-owned
Nichols Road Power Plant CFB GEN1	WECC	CA	18	1990	Mar 2012	22	Multi-owned
State Line ST 3	RFC	IN	197	1955	Mar 2012	57	BTU Solutions LLC
State Line ST 4	RFC	IN	318	1962	Mar 2012	50	BTU Solutions LLC
Wilbur East Power Plant CFB GEN1	WECC	CA	18	1989	Mar 2012	23	Multi-owned
Wilbur West Power Plant CFB GEN1	WECC	CA	18	1990	Mar 2012	22	Multi-owned
Jack McDonough ST 1	SERC	GA	251	1963	Feb 2012	49	Southern Co.
Marshall Plant ST 8512	SPP	TX	2	2011	Feb 2012	1	Norit Americas Inc.
Philip Sporn ST 5	RFC	WV	450	1960	Feb 2012	52	American Electric Power Co. Inc.
R Gallagher ST 1	RFC	IN	140	1959	Feb 2012	53	Duke Energy Corp.

R Gallagher ST 3	RFC	IN	140	1960	Feb 2012	52	Duke Energy Corp.
Blount Street ST 3	MRO	WI	39	1953	Dec 2011	58	MGE Energy Inc.
Blount Street ST 4	MRO	WI	21	1938	Dec 2011	73	MGE Energy Inc.
Blount Street ST 5	MRO	WI	27	1948	Dec 2011	63	MGE Energy Inc.
FutureGen 2.0 ST 3	SERC	IL	215	1960	Dec 2011	51	Ameren Corp.
Hutsonville ST 3	SERC	IL	76	1953	Dec 2011	58	Ameren Corp.
Hutsonville ST 4	SERC	IL	78	1954	Dec 2011	57	Ameren Corp.
Marysville ST 7	RFC	MI	83	1943	Dec 2011	68	DTE Energy Co.
Marysville ST 8	RFC	MI	83	1947	Dec 2011	64	DTE Energy Co.
Salem Harbor ST 1	NPCC	MA	81	1952	Dec 2011	59	Footprint Power LLC
Salem Harbor ST 2	NPCC	MA	79	1952	Dec 2011	59	Footprint Power LLC
Thames CFB GEN1	NPCC	CT	181	1989	Dec 2011	22	S & S Deconstruction
Vermilion ST 2	SERC	IL	99	1956	Nov 2011	55	Dynegy Inc.
Vermilion ST1	SERC	IL	63	1955	Nov 2011	56	Dynegy Inc.
Cherokee (CO) ST 2	WECC	CO	106	1959	Oct 2011	52	Xcel Energy Inc.
James E. Rogers ST 1	SERC	NC	38	1940	Oct 2011	71	Duke Energy Corp.
James E. Rogers ST 2	SERC	NC	38	1940	Oct 2011	71	Duke Energy Corp.
James E. Rogers ST 3	SERC	NC	61	1948	Oct 2011	63	Duke Energy Corp.
James E. Rogers ST 4	SERC	NC	61	1948	Oct 2011	63	Duke Energy Corp.
W H Weatherspoon ST 1	SERC	NC	49	1949	Oct 2011	62	Duke Energy Corp.
W H Weatherspoon ST 2	SERC	NC	49	1950	Oct 2011	61	Duke Energy Corp.
W H Weatherspoon ST 3	SERC	NC	79	1952	Oct 2011	59	Duke Energy Corp.
Jack McDonough ST 2	SERC	GA	252	1964	Sep 2011	47	Southern Co.
Manitowoc ST 4	MRO	WI	10	1950	Sep 2011	61	Manitowoc Public Utilities
R E Burger ST 3	RFC	OH	94	1950	Sep 2011	61	FirstEnergy Corp.
Capitol Heat and Power Plant ST 1	MRO	WI	1	1963	Jun 2011	48	State of Wisconsin
Capitol Heat and Power Plant ST 2	MRO	WI	1	1964	Jun 2011	47	State of Wisconsin
Buck (NC) ST 3	SERC	NC	75	1941	May 2011	70	Duke Energy Corp.
Buck (NC) ST 4	SERC	NC	38	1942	May 2011	69	Duke Energy Corp.
Cromby ST 1	RFC	PA	147	1954	May 2011	57	Exelon Corp.
Eddystone ST 1	RFC	PA	288	1960	May 2011	51	Exelon Corp.
Hercules Inc. Missouri Chemical ST GEN1	SERC	MO	9	1943	May 2011	68	Ashland Inc.
Hercules Inc. Missouri Chemical ST GEN2	SERC	MO	9	1943	May 2011	68	Ashland Inc.
Indian River (DE) ST 1	RFC	DE	89	1957	May 2011	54	NRG Energy Inc.
Edwardsport ST 7	RFC	IN	45	1949	Mar 2011	62	Duke Energy Corp.
Edwardsport ST 8	RFC	IN	75	1951	Mar 2011	60	Duke Energy Corp.
Somerset ST 6	NPCC	MA	109	1959	Feb 2011	52	Asset Recovery Group
Lansing ST 2	MRO	IA	12	1949	2010	61	Alliant Energy Corp.
Prairie Creek ST 2	MRO	IA	23	1951	2010	59	Alliant Energy Corp.
Cameo ST 1	WECC	CO	24	1957	Dec 2010	53	Xcel Energy Inc.
Cameo ST 2	WECC	CO	49	1960	Dec 2010	50	Xcel Energy Inc.
R E Burger ST 4	RFC	OH	156	1955	Dec 2010	55	FirstEnergy Corp.
R E Burger ST 5	RFC	OH	156	1955	Dec 2010	55	FirstEnergy Corp.
Waynesboro, Virginia Plant ST GEN1	SERC	VA	3	1929	Dec 2010	81	Koch Industries Inc.
Waynesboro, Virginia Plant ST GEN2	SERC	VA	3	1929	Dec 2010	81	Koch Industries Inc.
Waynesboro, Virginia Plant ST GEN4	SERC	VA	3	1947	Dec 2010	63	Koch Industries Inc.
Will County ST 1	RFC	IL	156	1955	Dec 2010	55	Edison International
Will County ST 2	RFC	IL	154	1955	Dec 2010	55	Edison International
Dubuque ST2	MRO	IA	13	1929	Nov 2010	81	Alliant Energy Corp.
John Deere Dubuque Works ST GEN2	MRO	IA	4	1949	Nov 2010	61	Deere & Co.
John Deere Dubuque Works ST GEN4	MRO	IA	8	1964	Nov 2010	46	Deere & Co.
Richard Gorsuch ST 1	RFC	OH	50	1988	Nov 2010	22	American Municipal Power Inc.
Richard Gorsuch ST 2	RFC	OH	50	1988	Nov 2010	22	American Municipal Power Inc.
Richard Gorsuch ST 3	RFC	OH	50	1988	Nov 2010	22	American Municipal Power Inc.
Richard Gorsuch ST 4	RFC	OH	50	1988	Nov 2010	22	American Municipal Power Inc.
Sixth Street Station ST 1	MRO	IA	9	1921	Nov 2010	89	Alliant Energy Corp.
Sixth Street Station ST 2	MRO	IA	4	1930	Nov 2010	80	Alliant Energy Corp.
Sixth Street Station ST 4	MRO	IA	13	1942	Nov 2010	68	Alliant Energy Corp.
Sixth Street Station ST 6	MRO	IA	8	1925	Nov 2010	85	Alliant Energy Corp.
Sixth Street Station ST 7	MRO	IA	15	1945	Nov 2010	65	Alliant Energy Corp.
Sixth Street Station ST 8	MRO	IA	29	1950	Nov 2010	60	Alliant Energy Corp.
Sutherland (IA) ST 2	MRO	IA	30	1955	Nov 2010	55	Alliant Energy Corp.
DTE Stoneman (E J Stoneman) ST 1A	MRO	WI	15	1952	Oct 2010	58	DTE Energy Co.
DTE Stoneman (E J Stoneman) ST 2A	MRO	WI	35	1952	Oct 2010	58	DTE Energy Co.
Old Hickory Plant ST IG	SERC	TN	1	1993	Oct 2010	17	E I Dupont De Nemours & Co.
Dean H. Mitchell ST 11	RFC	IN	110	1970	Sep 2010	40	NiSource Inc.
Dean H. Mitchell ST 4	RFC	IN	125	1956	Sep 2010	54	NiSource Inc.
Dean H. Mitchell ST 5	RFC	IN	125	1959	Sep 2010	51	NiSource Inc.
Dean H. Mitchell ST 6	RFC	IN	125	1959	Sep 2010	51	NiSource Inc.
Hunlock ST A	RFC	PA	43	1959	May 2010	51	UGI Corp.
Indian River (DE) ST 2	RFC	DE	89	1959	May 2010	51	NRG Energy Inc.
Rock River ST 1	MRO	WI	75	1954	Apr 2010	56	Alliant Energy Corp.
Rock River ST 2	MRO	WI	77	1955	Apr 2010	55	Alliant Energy Corp.

Raton ST 5	WECC	NM	7	1961	Jan 2010	49	Raton Public Service Co.
Seaford, Delaware Plant ST GEN1	RFC	DE	9	1939	Jan 2010	71	Koch Industries Inc.
Seaford, Delaware Plant ST GEN3	RFC	DE	9	1939	Jan 2010	71	Koch Industries Inc.
Goudey ST 7	NPCC	NY	44	1943	Dec 2009	66	AES Corp.
Greenidge ST 3	NPCC	NY	53	1950	Dec 2009	59	AES Corp.
FutureGen 2.0 ST 1	SERC	IL	64	1948	Nov 2009	61	Ameren Corp.
FutureGen 2.0 ST 2	SERC	IL	64	1949	Nov 2009	60	Ameren Corp.
John Deere Dubuque Works ST GEN3	MRO	IA	2	1989	Oct 2009	20	Deere & Co.
Lakeside ST 6	SERC	IL	39	1961	Oct 2009	48	City of Springfield, IL
Lakeside ST 7	SERC	IL	39	1965	Oct 2009	44	City of Springfield, IL
Presque Isle ST 3	RFC	MI	58	1964	Oct 2009	45	Wisconsin Energy Corp.
Presque Isle ST 4	RFC	MI	58	1966	Oct 2009	43	Wisconsin Energy Corp.
Chena Power ST 3	ASCC	AK	2	1952	Aug 2009	57	Usibelli Coal Mine Inc.
Mohave ST 1	WECC	NV	790	1971	Jun 2009	38	Multi-owned
Mohave ST 2	WECC	NV	790	1971	Jun 2009	38	Multi-owned
Riverside (MN) ST 7	MRO	MN	160	1987	May 2009	22	Xcel Energy Inc.
Riverside (MN) ST 8	MRO	MN	227	1964	May 2009	45	Xcel Energy Inc.
Seaford, Delaware Plant ST GEN2	RFC	DE	9	1939	May 2009	70	Koch Industries Inc.
Smart Papers ST GEN4	RFC	OH	2	1927	May 2009	82	Smart Papers LLC
Ohio University ST OUG1	RFC	OH	1	1994	Mar 2009	15	Ohio University
Clinton (IA) ST GEN1	MRO	IA	8	1954	Jan 2009	55	Archer-Daniels-Midland Co.
Clinton (IA) ST GEN2	MRO	IA	4	1940	Jan 2009	69	Archer-Daniels-Midland Co.
Clinton (IA) ST GEN3	MRO	IA	9	1965	Jan 2009	44	Archer-Daniels-Midland Co.
Clinton (IA) ST GEN4	MRO	IA	4	1974	Jan 2009	35	Archer-Daniels-Midland Co.
Clinton (IA) ST GEN5	MRO	IA	7	1991	Jan 2009	18	Archer-Daniels-Midland Co.
Kimberly Mill ST 3TB	RFC	WI	16	1980	Jan 2009	29	NewPage Holdings Inc.
Kimberly Mill ST 4TB	RFC	WI	19	1968	Jan 2009	41	NewPage Holdings Inc.

As of March 5, 2014.
Source: SNL Energy

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SNL DATA DISPATCH

Monday, December 22, 2014 8:00 AM ET Exclusive

Aging gas-fired generation leads total operating capacity of non-coal unit retirements

By Garrett Devine

A total of 16,472 MW of non-coal operating capacity is scheduled to retire by 2025, with gas-fired units accounting for 12,682 MW, or 77%, of the total. The large amount of gas capacity retiring can be explained in part by companies retiring, older, less-efficient gas units, and replacing, or repowering them with newer, more efficient combined-cycle plants.

In addition to efficiency and age playing a leading factor, environmental legislation focused on fossil fuel plant emissions, such as the proposed EPA CO2 rule, could affect non-coal fossil fuel retirements.

US non-coal power plant unit retirements by fuel group

	Operating capacity (MW)												
Primary fuel group	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
Gas	184	1,930	1,223	2,101	3,606	1,373	1,249	-	667	-	-	350	12,682
Oil	15	1,200	296	666	-	38	0.3	-	-	-	-	-	2,216
Water	54	7	5	95	98	95	95	95	96	95	95	98	928
Nuclear	604	-	-	-	-	-	-	-	-	-	-	-	604
Wind	-	22	-	-	-	-	-	-	-	-	-	-	22
Geothermal	20	-	-	-	-	-	-	-	-	-	-	-	20
Total	878	3,159	1,524	2,862	3,704	1,507	1,344	95	763	95	95	448	16,472

As of Dec. 9, 2014.
Source: SNL Energy

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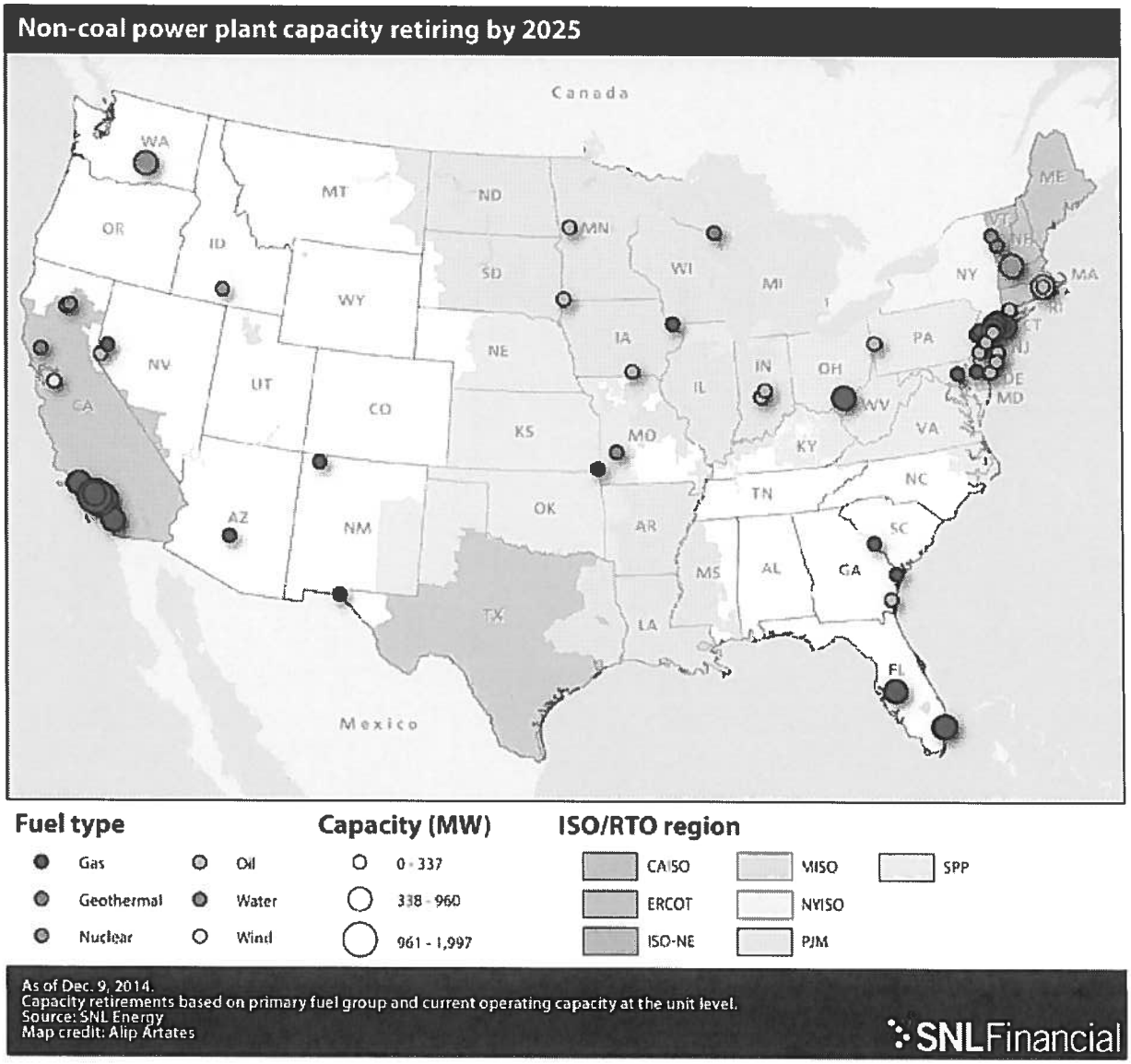
In comparison, a recent SNL Energy analysis of coal unit retirements showed 23,639 MW of coal operating capacity was scheduled for retirement through 2022.

While gas-fired generation accounts for the majority of the operating capacity of non-coal units slated for retirement by 2025, two regions account for over half of the total operating capacity of gas-fired retirements. The California ISO and PJM Interconnection LLC regions account for 59% of the total gas -fired capacity scheduled to retire by 2025. In CAISO, gas-fired generation accounts for nearly 99%, or 5,236 MW, of non-coal retirements, while gas-fired capacity accounts for 67% of the total capacity of non-coal retirements in PJM, with more than 2,228 MW slated to retire.



Two other regions in the U.S. have more than 1,000 MW of gas-fired capacity slated to retire before 2025: Florida Reliability Coordinating Council, and New York ISO. All 2,172 MW of operating capacity scheduled for retirement in the FRCC NERC subregion is gas-fired, while New York ISO has 1,246 MW of gas fired units retiring, 90% of the total 1,381 MW of capacity retiring in the region. Given the amount of capacity slated to retire by 2025 and the EPA CO2 rule that could lead to more retirements, affordable electric prices and reliability is concern in various parts of the United States. Some ISO/RTO's believe that the EPA CO2 rule should have a 'reliability safety valve' to allow for better grid reliability in the face of the rule.

US non-coal power plant unit retirements by region

Region	Operating capacity (MW)												
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
Within ISO/RTO													
California Independent System Operator	20	27	73	950	1,334	980	882	-	667	-	-	350	5,283
PJM Interconnection	-	2,552	720	34	-	-	-	-	-	-	-	-	3,306
New York Independent System Operator	-	-	135	337	516	393	-	-	-	-	-	-	1,381
ISO New England	604	2	2	602	-	-	-	-	-	-	-	-	1,210
Southwest Power Pool	54	-	246	-	-	-	-	-	-	-	-	-	300
Midcontinent Independent System Operator	-	-	233	64	-	-	0.3	-	-	-	-	-	297
Outside of ISO													
FRCC	-	-	-	732	1,440	-	-	-	-	-	-	-	2,172
NWPP	136	-	-	95	98	101	95	95	96	95	95	98	1,004
CAMX	-	450	-	-	-	-	367	-	-	-	-	-	817
AZNMSN	48	6	-	48	220	-	-	-	-	-	-	-	322
SOU	-	122	115	-	-	-	-	-	-	-	-	-	237
VACAR	-	-	-	-	96	-	-	-	-	-	-	-	96
HI	15	-	-	-	-	32	-	-	-	-	-	-	47
Total	**878**	**3,159**	**1,524**	**2,862**	**3,704**	**1,507**	**1,344**	**95**	**763**	**95**	**95**	**448**	**16,472**

Power plant units belonging to an ISO are assigned to that region while units outside of an ISO are grouped by legacy NERC subregion.
As of Dec. 9, 2014
Source: SNL Energy

Eight of the 10 largest non-coal unit retirements by operating capacity are gas-fired. The largest scheduled for retirement before 2025 is AES Corp.'s Alamitos ST 6, at 495 MW. This unit is closely followed by Redondo Beach ST 7, at 493 MW, and the 487-MW ST 8. The fourth-largest gas-fired unit by capacity that is set to retire by 2025 is Alamitos ST 5, at 485 MW.

All six units of the Alamitos plant in Los Angeles County, Calif., are scheduled to retire by 2025, in three phases, with units 5 and 6 retiring by April 2019. AES is planning to replace these units with Alamitos Repowering, at the same location totaling 1,972 MW, with sixteen turbines in a three-on-one combined-cycle configuration, which is set to come online in three phases by October 2025.

All four units of the Redondo Beach plant in Los Angeles County are also scheduled to retire by July 2018, for a combined total of 1,334 MW. Similarly to Alamitos, AES plans to replace these units with four turbines in a three-on-one combined-cycle configuration at the Redondo Beach site by July 2019 for a total of 508 MW in operating capacity. However, another proposal — a mixed-use development project on the site — has caused AES Southland LLC to look to suspend review of its proposed repowering project.

Largest US non-coal power plant unit retirements

Unit	Ultimate parent owner	Operating capacity (MW)	Fuel group	Region*	State	Year unit in service	Retirement year	Age at retirement (years)
Vermont Yankee BWR 1	Entergy Corp.	604	Nuclear	ISO New England Inc.	VT	1972	2014	42
Alamitos ST 6	AES Corp.	495	Gas	California Independent System Operator	CA	1966	2019	53
Redondo Beach ST 7	AES Corp.	493	Gas	California Independent System Operator	CA	1967	2018	51
Redondo Beach ST 8	AES Corp.	487	Gas	California Independent System Operator	CA	1967	2018	51
Alamitos ST 5	AES Corp.	485	Gas	California Independent System Operator	CA	1964	2019	55
Scattergood ST 3	Los Angeles Department of Water and Power	450	Gas	CAMX	CA	1974	2015	41
Brayton Point ST 4	Energy Capital Partners LLC	446	Oil	ISO New England Inc.	MA	1974	2017	43
Alamitos ST 4	AES Corp.	335	Gas	California Independent System Operator	CA	1962	2022	60
Alamitos ST 3	AES Corp.	332	Gas	California Independent System Operator	CA	1961	2022	61
Encina ST 5	NRG Energy Inc.	330	Gas	California Independent System Operator	CA	1978	2017	39

* Power plant units belonging to an ISO are assigned to that region while units outside of an ISO are grouped by legacy NERC subregion.
As of Dec. 9, 2014.
Source: SNL Energy

To view the most recent power plant unit retirements select SNL Energy's prebuilt Regional Unit Retirement Summary.

BEFORE THE
PUBLIC UTILITIES COMMISSION OF OHIO

In The Matter Of The Application Of The Ohio Edison Company, The Cleveland Electric Illuminating Company, and The Toledo Edison Company For Authority To Establish A Standard Service Offer Pursuant To R.C. § 4928.143 In The Form Of An Electric Security Plan.	:	**Case No. 14-1297-EL-SSO**

EXHIBIT__(SJB-4)

OF

STEPHEN J. BARON

ON BEHALF OF

THE OHIO ENERGY GROUP

J. KENNEDY AND ASSOCIATES, INC.
ROSWELL, GEORGIA

Thursday, August 21, 2014 4:07 PM ET Extra

PJM proposes new capacity performance product in wake of polar vortex

By Peter Marrin

In an effort to strengthen the definition of capacity resources to avoid a "potentially significant reliability issue," PJM Interconnection LLC has proposed a new product known as "capacity performance" for its Reliability Pricing Model forward capacity market, the grid operator announced in an Aug. 20 white paper.

Under the "PJM Capacity Performance Proposal," there would be four products: capacity performance; annual capacity, which will be renamed to base capacity; extended summer and limited demand response.

"The overall design objectives for the Capacity Performance product are to address the concerns highlighted in the [Aug. 1] PJM whitepaper including the observed generation performance issues, winter peak operations issues and the operational characteristics of resources that are needed to ensure that system reliability will be maintained throughout the current industry transformation and beyond," the Aug. 20 white paper states.

PJM said the new product would provide the grid with fuel security through a dependable fuel source, enhanced operational performance during peak periods, high availability of generation resources, flexible unit operational parameters and general operational diversity.

PJM said its capacity market has been "highly successful" in attracting more than 35,000 MW of new physical generation to the system since its inception in 2007. However, impacts from the major fuel switch that is occurring as coal generators retire and new natural gas generators replace them are "contributing to concerns about the performance of the generation fleet — particularly during extremely cold weather, like last January's."

At one point in early January 2014, up to 22% of PJM capacity was unavailable due to cold weather-related problems, which "highlighted a potentially significant reliability issue." According to its own estimates, PJM could fail to meet its peak load requirements in the winter of 2015/2016 if faced with a similar rate of generator outages, extreme cold and expected coal retirements.

Under the proposal, eligible resources for capacity performance will be generators capable of sustained, predictable operation for 16 hours per day for three consecutive days; annual demand response capable of sustained curtailment for 72 hours; and energy efficiency.

In its proposed structure, PJM also seeks to reinforce the existing definition of the annual capacity product "to ensure that the reliability of the grid will be maintained through the current industry fuel transition and beyond." Proposed changes to the requirements for the annual capacity product, which would rename the product to "base capacity," would eliminate many current restrictions on offers, define performance standards for peak periods and set penalties for not meeting them.

The proposal includes two cost-allocation options, including an extension of the existing method and a winter peak allocation option. Under the existing method, load-serving entries would continue to absorb the capacity costs in the form of locational reliability charges. Under the winter peak allocation method, the additional cost of the capacity performance product would be allocated based on zonal winter peak load forecasts.

PJM said the changes would have no immediate impact on the RTO's installed reserve margin, or IRM, calculation because "existing IRM calculations already assume higher capacity performance than is occurring, meaning that the new product should produce performance that already is factored in to the IRM calculation."

PJM hopes to make the changes in time for the May 2015 Base Residual Auction, with a transitional mechanism to address reliability requirements for delivery years 2015/16, 2016/17 and 2017/18.

A meeting to discuss the proposal is scheduled for Aug. 22, and stakeholder written comments are due Sept. 17. The "Enhanced Liaison Committee" process will begin in early October when PJM issues its final white paper with hopes to have the matter before the PJM board by early November.

This article was amended at 12:30 p.m. ET on Aug. 22, 2014, to clarify proposed changes to the "annual capacity," or "base capacity," product.
This article was amended at 5 p.m. ET on Aug. 22, 2014, to indicate stakeholder written comments are due Sept. 17.

BEFORE THE
PUBLIC UTILITIES COMMISSION OF OHIO

In The Matter Of The Application Of The Ohio Edison Company, The Cleveland Electric Illuminating Company, and The Toledo Edison Company For Authority To Establish A Standard Service Offer Pursuant To R.C. § 4928.143 In The Form Of An Electric Security Plan.	:	**Case No. 14-1297-EL-SSO**

EXHIBIT__(SJB-5)

OF

STEPHEN J. BARON

ON BEHALF OF

THE OHIO ENERGY GROUP

J. KENNEDY AND ASSOCIATES, INC.
ROSWELL, GEORGIA

Friday, January 16, 2015 6:02 PM ET Exclusive

FERC seeks Supreme Court review of opinion vacating signature demand response rule

By Marcy Crane

As promised, the U.S. Department of Justice has asked the Supreme Court to review a decision by the U.S. Court of Appeals for the District of Columbia Circuit to vacate FERC's signature rules aimed at promoting the use of demand response.

"Demand-response commitments are critical to ensuring the efficiency and reliability of the nation's electricity markets," the Jan. 15 petition for writ of certiorari, filed on FERC's behalf by the U.S. Solicitor General, said. "The court's decision appears to bar FERC from regulating any aspect of demand-response participation in the wholesale markets within the commission's jurisdiction — a practice that all commissioners agreed in the rulemaking plays a significant role in those markets."

FERC asserted that the D.C. Circuit, which ruled in May 2014 that the commission encroached on states' exclusive jurisdiction over retail markets when it ordered that demand response providers be paid the market price for energy under certain circumstances, "seriously misinterpreted" the Federal Power Act, or FPA, and "misapplied basic principles of deference to agency interpretations of statutes."

For instance, the petition noted that the court took issue with FERC's assertion of jurisdiction based on demand response's direct impact on wholesale rates, insisting that such a position "has no limiting principle" and therefore could ostensibly extend the commission's authority to activities in the steel, fuel, labor and other markets. But such concerns are unfounded, FERC said, since "demand-response providers are actual and integral participants in wholesale markets themselves and the effect of their participation on the wholesale rate is far more immediate and direct than the effect exerted by retail consumption generally or the markets in generation inputs."

According to the petition, the D.C. Circuit erred in holding that the agency lacked statutory authority to promulgate the final rule at issue, Order 745, because, "simply put, FERC has plenary authority over the rules of the game in modern wholesale-electricity markets." FERC said its conclusion that it has the authority (and the responsibility) to regulate the compensation paid by wholesale-market operators for demand-response commitments, and recouped in the wholesale rate set in the auction markets run by those operators, "is the best and indeed only sensible reading of the statutory text."

The FPA's grant to FERC of jurisdiction over the sale of electric energy to any person for resale is undisputed, and the agency therefore must ensure that wholesale rates for electricity are just and reasonable, the petition said. "It follows that the rules that wholesale-market operators employ in their auction markets fall squarely within FERC's statutory authority to regulate any 'rule, regulation, practice, or contract affecting [a wholesale] rate.'"

"[T]he methodology for compensating demand-response commitments bid into the wholesale market is a key determinant of the wholesale rate," FERC continued. "The level of compensation controls which demand-response commitments the system will accept to balance supply and demand, which in turn determines the market-clearing price of wholesale electricity in the real-time and day-ahead markets."

To illustrate its point, FERC cited a hypothetical situation in which a wholesale-market operator has vastly overpaid for demand-response commitments, choosing to utilize demand resources even when paying for additional generation would have been a far more efficient option.

Given that the FPA requires FERC to ensure that wholesale rates are just and reasonable, the petition called it "inconceivable" that the commission would lack authority to act to address the "higher-than-optimal wholesale rate" that would be the inevitable result. "And if that is so, no convincing basis exists to distinguish the commission's decision here to set the compensation level for demand-response commitments prospectively to ensure that demand response is neither overused nor underused — and neither overpaid nor underpaid — in light of its important role in securing system reliability and efficient pricing," FERC argued.

The petition also addressed the D.C. Circuit's apparent belief that because the Energy Policy Act of 2005 urged that demand response be "'encouraged' and 'facilitated,' not directly regulated," Congress "envisioned only a limited advisory role for FERC."

"The statutory text does not support that view," FERC said. "Rather, it states in unequivocal terms that 'unnecessary barriers to demand response participation in energy, capacity and ancillary service markets shall be eliminated. No justification exists to ignore wholesale energy, capacity, and ancillary-services markets in implementing that provision."

FERC argued that the court's ruling actually "creates the sort of regulatory gap that Congress sought to close when it enacted the FPA" because states are pre-empted from regulating the wholesale market rules addressed in Order 745. Moreover, FERC noted that the D.C. Circuit's ruling is being interpreted by many to extend far beyond the issue of demand response compensation in wholesale energy markets, thereby calling into question the commission's ability to regulate any aspect of demand response in any market.

"In addition, because the analogous provisions of the Natural Gas Act have been interpreted similarly with the FPA provisions at issue here … the court's decision injects substantial uncertainty into the future of natural-gas regulation as well," FERC said.

The petition accordingly asked the Supreme Court to rule on the question of whether FERC has the statutory authority to set rates for demand response in wholesale markets, or to potentially expand its review to also incorporate the question of whether Order 745 was arbitrary and capricious because it failed to address a dissenting commissioner's argument about the appropriate compensation method.

FERC said resolving these questions at this time "is imperative," especially given that the holding of the appeals court "is unlikely to be revised by another

circuit." FERC v. Electric Power Supply Association et al.

Summary: Testimony Ohio Energy Group's (OEG) Supplemental Testimony of Stephen J. Baron electronically filed by Mr. Michael L. Kurtz on behalf of Ohio Energy Group