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**Via E-FILE**

March 3, 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:

Attached please find the affidavit of Stephen J. Baron associated with his Supplemental Testimony filed March 2, 2015. Also attached are Exhibits 2-5 to Mr. Baron's testimony with a requisite disclaimer from SNL Financial LC. We would respectfully request that parties only use the SNL Financial LC information contained in Mr. Baron's exhibits in the context of this proceeding in accordance with the disclaimer.

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

# AFFIDAVIT

STATE OF GEORGIA        )

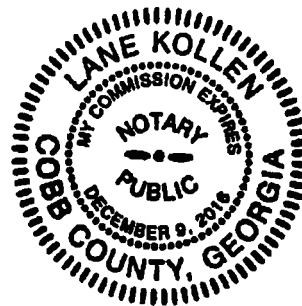
COUNTY OF FULTON        )

STEPHEN J. BARON, being duly sworn, deposes and states: that the attached is his sworn testimony and that the statements contained are true and correct to the best of his knowledge, information and belief.

Stephen J. Baron  
Stephen J. Baron

Sworn to and subscribed before me on this  
2nd day of March 2015.

Lane Kollen  
Notary Public



**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 : **Case No. 14-1297-EL-SSO**  
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. :

**EXHIBIT\_\_(SJB-2)**

**OF**

**STEPHEN J. BARON**

**ON BEHALF OF**

**THE OHIO ENERGY GROUP**

**J. KENNEDY AND ASSOCIATES, INC.  
ROSWELL, GEORGIA**

## Article

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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**

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Source: SNL Financial | Page 1 of 2

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## Article

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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.*

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## 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

Source: SNL Financial | Page 1 of 2

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## Article

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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.*

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## Article

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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.

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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 : **Case No. 14-1297-EL-SSO**  
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. :

**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)				Coal units converting to other fuel types by NERC region (MW)				
NERC region	Fuel type after conversion			NERC region	Fuel type after conversion			
	Biomass	Gas	Total		Biomass	Gas	Oil	Total
FRCC	75	-	75	MRO	26	645	-	671
MRO	-	105	105	NPCC	-	445	-	445
NPCC	60	-	60	RFC	-	4,621	335	4,956
RFC	-	324	324	SERC	-	3,819	-	3,819
SERC	204	331	535	SPP	-	1,013	-	1,013
WECC	87	-	87	WECC	33	352	-	385
<b>Total</b>	<b>427</b>	<b>760</b>	<b>1,187</b>	<b>Total</b>	<b>59</b>	<b>10,894</b>	<b>335</b>	<b>11,288</b>

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

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.

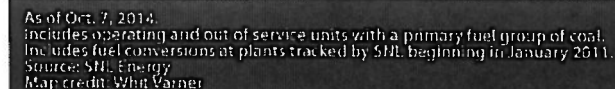
The company leading the charge on coal-to-gas conversions is NRG Energy Inc., which owns a number of older coal plants in the Northeast that can tap into the flood of gas being produced out of the Marcellus Shale. NRG has tapped approximately 4,000 MW of coal-fired capacity to be converted from coal 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.

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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
<b>Total</b>	<b>2,466</b>	<b>1,915</b>	<b>2,847</b>	<b>9,441</b>	<b>6,061</b>	<b>2,090</b>	<b>24,820</b>

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
<b>Total</b>	<b>903</b>	<b>11,925</b>	<b>4,455</b>	<b>3,316</b>	<b>1,728</b>	<b>-</b>	<b>839</b>	<b>254</b>	<b>219</b>	<b>23,639</b>

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.

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**10 largest companies with coal capacity retiring in 2014-2018**

Company	Capacity retiring (MW)					Total
	2014	2015	2016	2017	2018	
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](#).

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Article

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 TGO1	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 ST 4	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 PI ST GEN1	SERC	TN	Proposed	Gas	7	1988	2015	Vanderbilt University
Vanderbilt University Power PI 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 ST 4	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
Green County ST 2	SERC	AL	Proposed	Gas	254	1965	2016	Multi-owned

Source: SNL Financial | Page 5 of 13

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Barry ST 2	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



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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 ST 1	SERC	VA	14.30	111	1953	Dec. 2014	61	Dominion Resources Inc.
Chesapeake ST 2	SERC	VA	20.40	111	1954	Dec. 2014	60	Dominion Resources Inc.
Chesapeake ST 3	SERC	VA	51.24	162	1959	Dec. 2014	55	Dominion Resources Inc.
Chesapeake ST 4	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	1966	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.
Harliee Branch ST 3	SERC	GA	8.36	509	1968	April 2015	47	Southern Co.
Harliee 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

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John Seyler 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	1956	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 ST 1	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
Reld 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

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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 data between 2014 and 2022.

Source: SNL Energy



## Coal unit retirements 2009-2014

Unit	NERC region	State	Original Operating In- capacity service (MW) 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
Harlee 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.

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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 OSA 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 1/2/3	WECC	CO	6	1997	June 2013	15 GNE Energy SA

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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



### Coal unit retirements 2009-2014 *continued*

Unit	NERC region	State	Operating capacity (MW)	Original 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.
Phillip 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

Source: SNL Financial | Page 11 of 13

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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.
Gouday ST 7	NPCC	NY	44	1943	Dec. 2009	66 DSA Services Inc.
Greenidge ST 3	NPCC	NY	53	1950	Dec. 2009	59 Atlas Frn 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.

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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



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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

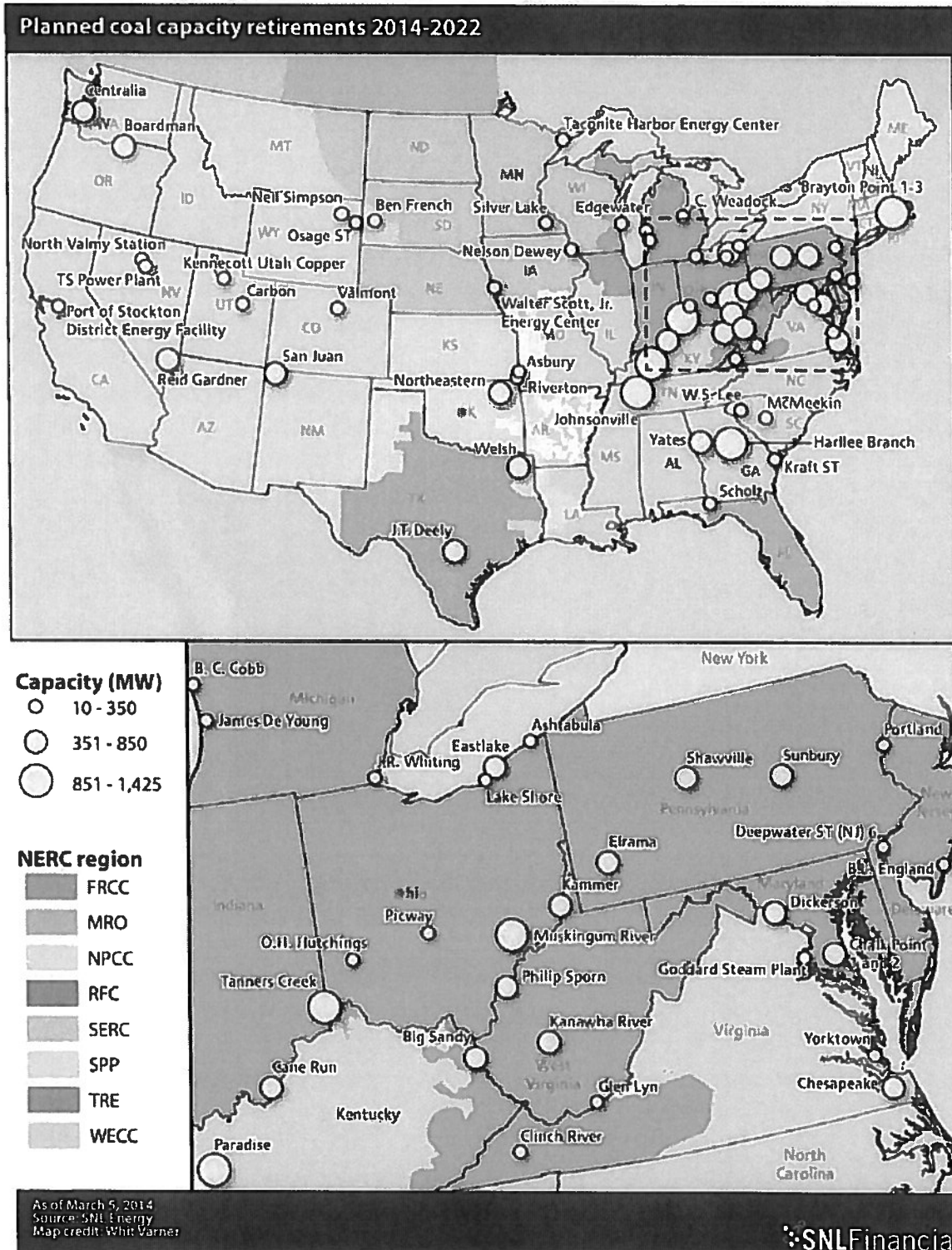


Looking forward, U.S. power producers currently plan to shutter 27,143 MW of coal capacity between 2014 and 2022, according to SNL Energy data. The majority of those planned retirements — 13,550 MW — will occur in 2015 when the U.S. EPA's Mercury and Air Toxics Standards, or MATS, takes effect. By contrast, 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.

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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 SO<sub>2</sub> 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



# Article

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	
<b>Total</b>	<b>2,854</b>	<b>13,550</b>	<b>2,462</b>	<b>5,358</b>	<b>1,190</b>	<b>-</b>	<b>1,255</b>	<b>254</b>	<b>219</b>	<b>27,143</b>	

- 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.

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**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.	-	600	1,016	-	-	-	-	-	-	1,616
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
<b>Total</b>	<b>2,854</b>	<b>13,550</b>	<b>2,462</b>	<b>5,358</b>	<b>1,190</b>	<b>-</b>	<b>1,255</b>	<b>254</b>	<b>219</b>	<b>27,143</b>

- 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**

Company	Capacity retiring (MW)					Total
	2014	2015	2016	2017	2018	
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.

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## 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.
Harlee Branch ST 1	SERC	GA	35.24	266	1965	Apr 2015	50	Southern Co.
Harlee Branch ST 3	SERC	GA	8.36	509	1968	Apr 2015	47	Southern Co.
Harlee 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.

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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	1079	1959	Dec 2015	56	Alliant Energy Corp.
Nelson Dewey ST 2	MRO	WI	44.34	1071	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 ST 1	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	Engineering Command Naval Facilities
Goddard Steam Plant ST 2	RFC	MD	23.07	5	1957	2016	59	Engineering Command Naval Facilities
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 ST 1	RFC	MD	33.17	331	1964	May 2017	53	NRG Energy Inc.
Chalk Point ST 2	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 ST 1	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	KV	69.50	650	1963	Jun 2017	54	Tennessee Valley Authority

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Retirement Unit	SECC	State	Capacity (MW)	Year Began	Retirement Date	Owner
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 2019	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.

N/A = 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



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## 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
Harlee 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.

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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.
Goudy 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 Callender ST 1	RFC	IN	140	1950	Feb 2012	53 Duke Energy Corp.

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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 1G	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.

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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.
Goudy 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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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													
Primary fuel group	Operating capacity (MW)												
	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

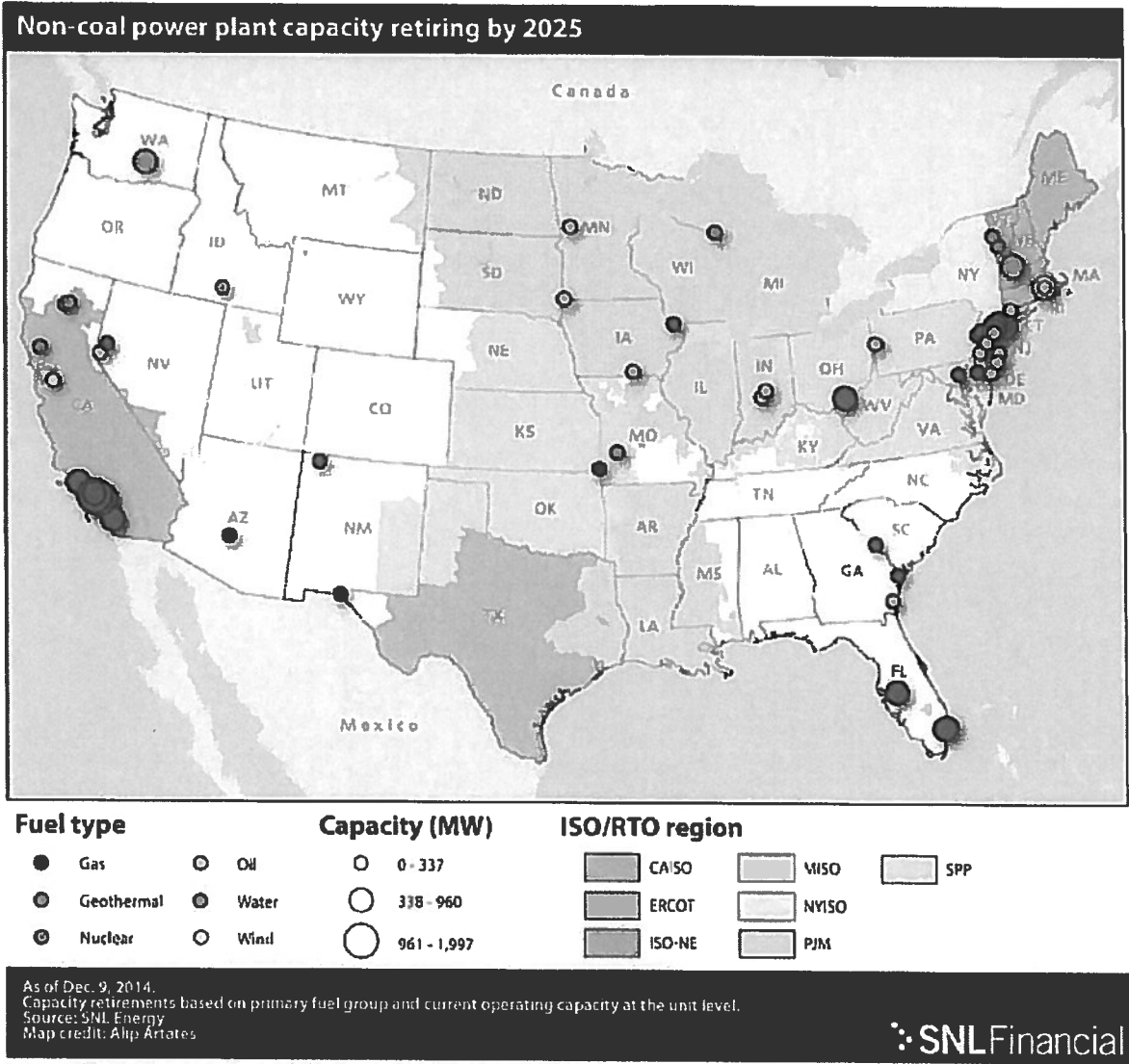
As of Dec. 9, 2014.  
Source: SNL Energy



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.

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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.

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**US non-coal power plant unit retirements by region**

Region	Operating capacity (MW)													Total
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025		
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 Alamos 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 Alamos ST 5, at 485 MW.

All six units of the Alamos 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 Alamos 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 Alamos, 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
Alamos 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
Alamos 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
Alamos ST 4	AES Corp.	335	Gas	California Independent System Operator	CA	1962	2022	60
Alamos 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.

The report includes proprietary information. Please do not use this report or information contained herein, outside the context of this proceeding.

**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 : **Case No. 14-1297-EL-SSO**  
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. :

**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.*

The report includes proprietary information. Please do not use this report or information contained herein, outside the context of this proceeding.

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In The Matter Of The Application Of The :  
Ohio Edison Company, The Cleveland :  
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Toledo Edison Company For Authority :  
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Pursuant To R.C. § 4928.143 In The :  
Form Of An Electric Security Plan. :

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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

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

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**in**

**Case No(s). 14-1297-EL-SSO**

Summary: Exhibit Supplemental Testimony Exhibits 2-5 of OEG witness Stephen J. Baron w/ disclaimer and Affidavit. electronically filed by Mr. Michael L. Kurtz on behalf of Ohio Energy Group