



Review of Coal Retirements

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Summary

- Over 52 GW (about 16% of the existing coal fleet) of coal-fired electric generating capacity has been announced for retirement by 2025. Of this, about 45 GW will retire by 2016.
- Coal-fired units slated for possible retirement, for the most part, are small in size, lack environmental controls, and are over 50 years old. Most also do not have the capability to burn sub-bituminous coal, a cheaper and low-sulfur coal type mined mostly in Powder River Basin, Wyoming.
- Retirement announcements have accelerated since 2010 when natural gas prices fell below \$3/MMBtu, marking a nearly 80% decrease from just two years earlier.
- The Environmental Protection Agency also finalized the Mercury and Toxics Standards (MATS) rule in 2011. The rule would regulate the emissions of particulate matter, mercury, and acid gases from coal plants.
- Announced coal plant retirements are concentrated in the Midwestern and Southeastern regions of the country. Together, these two regions account for 38 GW, or about three-quarters of all announced retirements.

Coal Retirements (as of March 2013)

	Announced for Retirement <small>(since Jan 2006)</small>	Overall U.S. Coal Fleet
Capacity	52 GW	322 GW
Units	340	1,264
Unit Age (avg.)	54 years	43 years
Unit Size (avg.)	153 MW	254 MW
Utilization <small>(avg. in 2011)</small>	49%	71%
Regulated <small>(% capacity owned by vertically integrated utilities)</small>	70%	75%
% with Scrubbers <small>(capacity already installed or under development)</small>	9%	59%
Ability to Burn Western Coal <small>(% capacity)</small>	37%	57%

Last 3 months

(retirement announcements)

Capacity: 4.3 GW
Units: 27

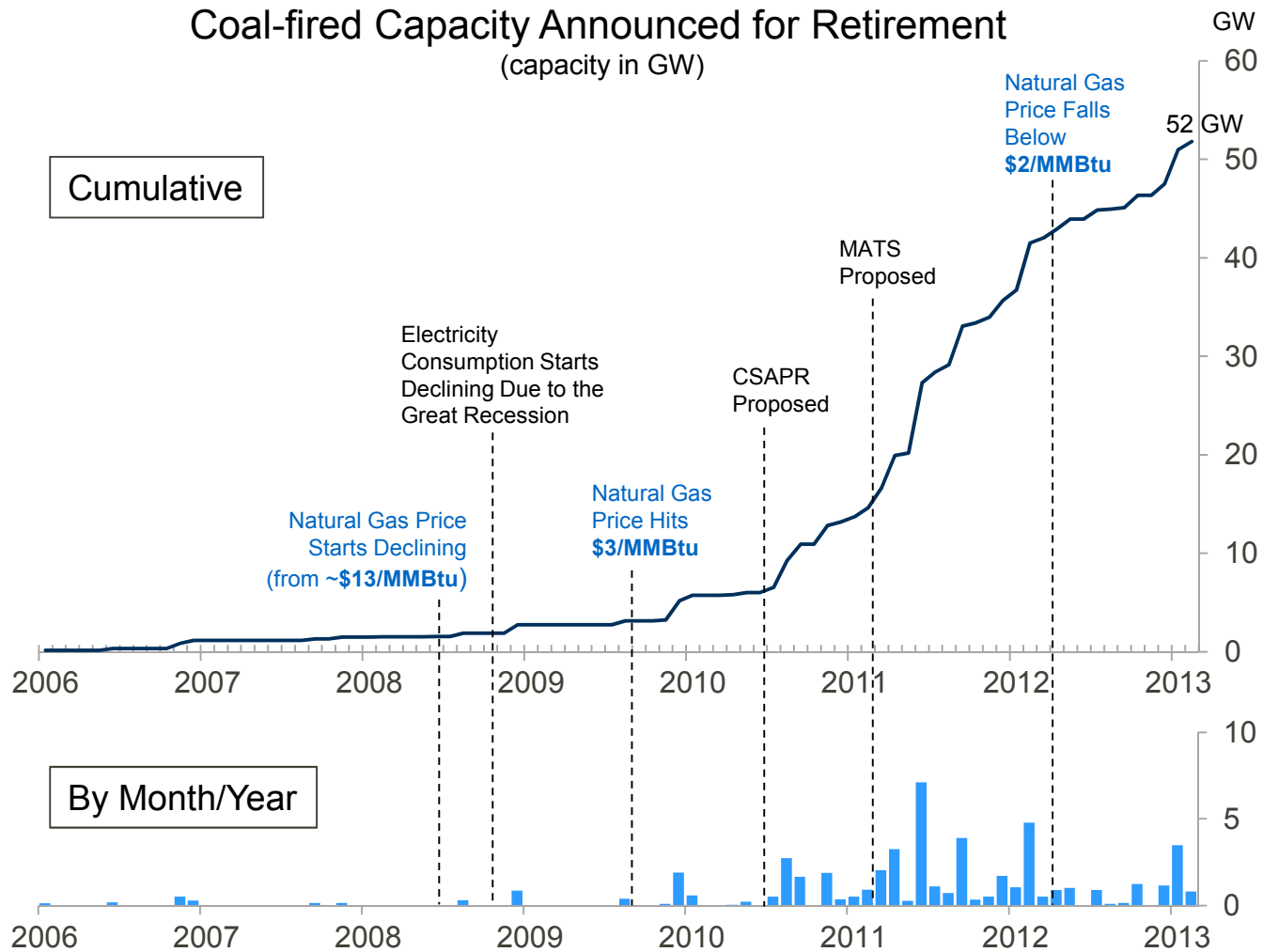
Last 6 months

(retirement announcements)

Capacity: 6.7 GW
Units: 36

Sources: MJB&A Analysis, EIA, EPA AMPD, EPA NEEDs v4.10

Coal Retirement Announcements and Major Regulatory and Market Events

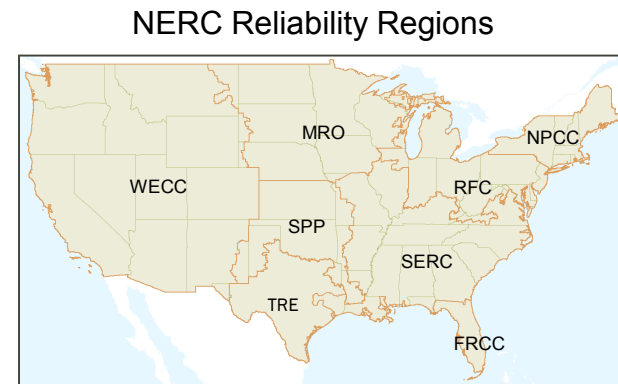
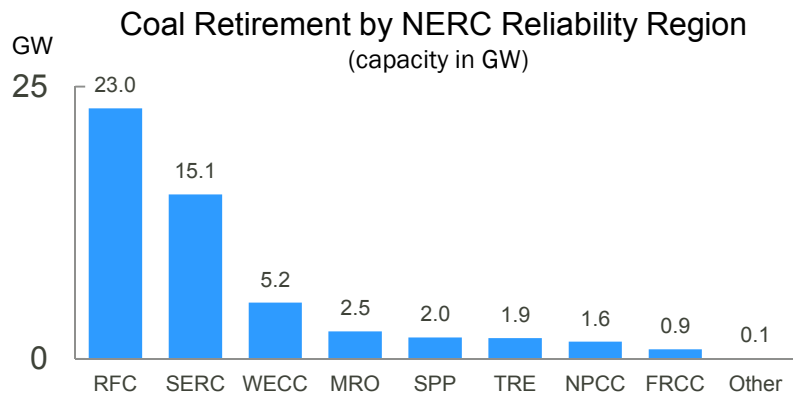


Sources: MJB&A Analysis, EIA, EPA NEEDs v4.10

Expected Retirement Schedule by Reliability Region

Coal-fired Capacity Retirement Schedule by NERC Reliability Region (capacity in MW)

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	NA	Total
FRCC											866							866
MRO	102	233	27	38		946	698		321		144							2,509
NPCC	100	282	1,051		150													1,583
RFC	2,138	2,216	3,602	625	5,995	7,977	163	272										22,988
SERC	109	1,275	1,262	1,918	1,695	5,665	2,066	564			28						509	15,091
SPP					1,056			450								450		1,956
TRE			1,130						770									1,900
WECC	169	170	168		660	896		612			2,332		165					5,172
Other		50																50
Total	2,618	4,226	7,240	2,581	9,556	15,484	2,927	1,898	1,091		3,370		165			450	509	52,115

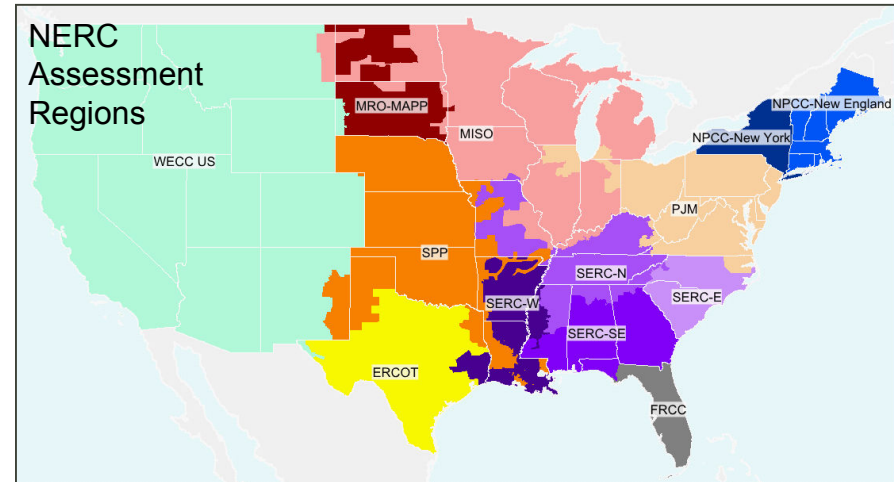


Sources: MJB&A Analysis, EIA, EPA, EPA NEEDs v4.10, NERC, Ventyx Velocity

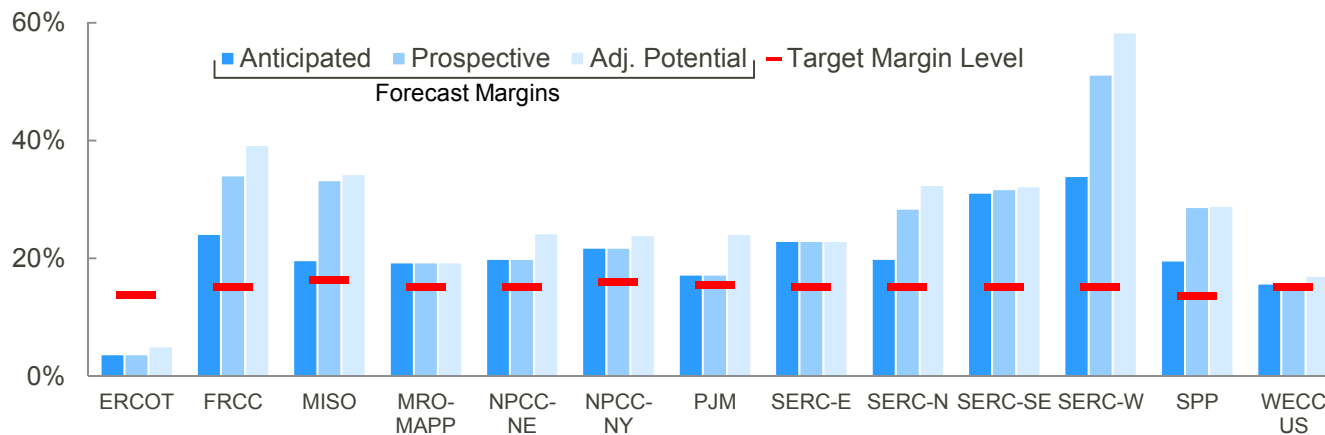
NERC Reliability Assessment – No Significant Resource Adequacy Concerns

“Due to the unique confluence of [...] environmental regulations, low natural gas prices, and other economic factors, **about 71 GW of fossil-fired generation is projected to retire by 2022, with over 90 percent retiring by 2017.** With the exception of ERCOT, the retirement of this capacity does not pose significant resource adequacy concerns. **Reserve Margins are likely to be reduced, but to levels that are still above targets.**” (*emphasis added*)

- 2012 Long-Term Reliability Assessment, North American Electric Reliability Corporation, November 2012

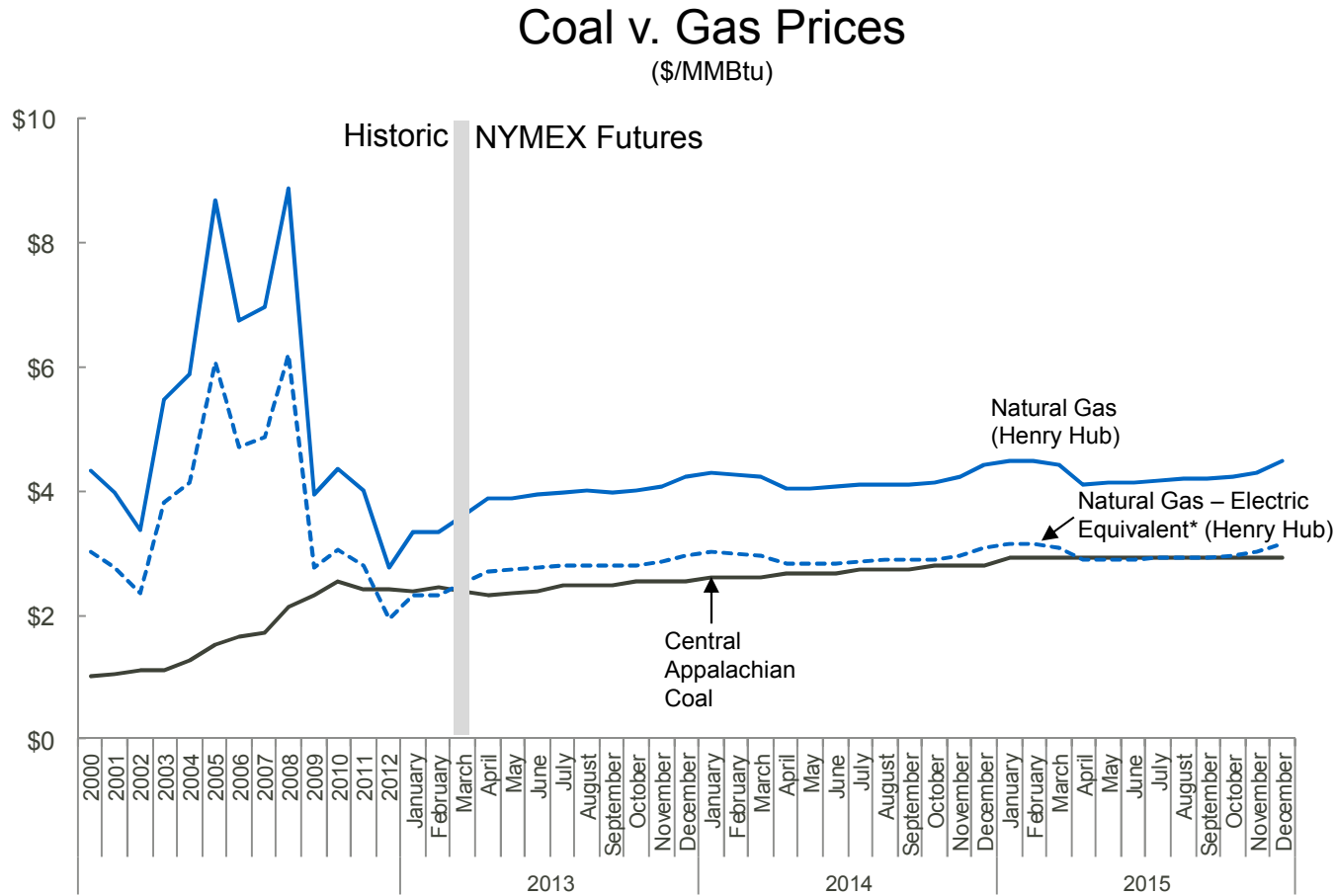


2017 Forecast Reserve Margins by NERC Assessment Region



Sources: MJB&A Analysis, NERC Long-Term Reliability Assessment (November 2012)

Natural Gas Remains Competitive with Coal



Note: *Electrical equivalents assume average heat rates of 7,000 Btu/KWh for a natural gas combined cycle facility and 10,000 Btu/KWh for a coal-fired unit.
Sources: MJBA Analysis, NYMEX (based on Mar 25, 2013 trade date), EIA

Additional Information

For a complete and up-to-date list of announced coal plant retirements including installed capacities, ownership data, location information, status of existing pollution control equipment, age, and other operational characteristics, please contact:

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