



White Paper

Making Fossil Assets Flexible Again

By Judah Rose, and Chris MacCracken, ICF

Shareables

- Focus of Trump Administration on easing regulatory burdens on coal power plants may make mothballing and reactivation of coal power plants easier.
- Increasing flexibility for coal power plants may increase capacity prices.
- The new administration might discover that saving existing coal plants may require letting them go offline.

Executive Summary

Following the outcome of the November 8, 2016, election, ICF is reviewing potential changes to existing EPA regulations and new regulations or initiatives under the Trump Administration that may have large market impacts. While most attention has focused on the most prominent new regulations like the EPA's Clean Power Plan—currently subject to a Supreme Court stay and pending before the DC Circuit—we believe that some focus on other less well-known regulations and long-existent policies and guidance is warranted. An often-unnoticed guidance may be vital in changing the practices around mothballing for energy assets such as coal.



This guidance is known as EPA's Reactivation Policy, and pertains to the New Source Review (NSR) regulations.¹ The EPA presumes that coal power plants mothballing for more than two years are a new source upon reactivation, and hence subject to New Source Performance Standards (NSPS). This presumption can lead to an investigation, including into intent—e.g., was the goal really temporary throughout the offline period or did the company actually expect the plant to be retired?² In the case of coal power plants, becoming a New Source effectively requires power plant retirement when coupled with Section 111(b) regulations on CO₂ emissions from new coal power plants; other requirements such as additional NO_x emission controls which can also lead to retirement; or new permitting through the Prevention of Significant Deterioration (PSD)/NSR programs.³ The regulations force older existing units, grandfathered from NSPS, into NSPS. The rationale is that air quality must not deteriorate and that the withdrawn capacity must set a new lower threshold for emissions levels.

In its three iterations, the Clean Air Act (CAA) sets no specific maximum lifetime for existing units, nor does it specify a maximum time for a unit to remain offline. Indeed, it mentions major modifications as a rationale for converting an existing unit to a new unit, but the offline issue is not directly addressed in the legislation. Since 2009, however, 53,000 MW of coal capacity retired, and almost none was mothballed for any significant period of time.

Long-standing regulations and guidance may be hard to change but can possibly have significant impacts on asset decisions and energy markets. We have not changed our baseline view that change is unlikely, but we are watching developments. This is because: (1) changing this particular guidance could be difficult, given that it is so long standing; (2) no parties have focused on it; (3) other regulatory changes may also need to be modified for there to be a noticeable effect such as interconnection and other permitting rules; and (4) technical challenges unique to coal plants might unexpectedly mitigate the impact of the change—e.g., extra difficult to retrain staff and/or maintain units during mothballing.

ICF offers no opinion on the benefits of the regulations, rules, or guidance and whether they should or should not be changed. Our focus is exclusive to predicting future market conditions.

Reactivation Policy

The origin of the presumption is in an EPA memorandum written in 1978 known as the "Dvorkin Memorandum." In response to a facility offline for four years (not a coal power plant), the memo asserts

¹ We are not lawyers, and sometimes we use the term "regulations" to cover rules, regulations, and guidance.

² Court disputes have occurred in this regard and could involve internal planning documents, emails, etc. Hence, the two-year limit is an important factor for power companies.

³ Section 111, subpart b, subjects peaking units to standards for gas-fired units with applicability based on the design lower heating value of the unit, with a maximum capacity factor of 50%.



"that [the facility] had been shut down for over four years. In response to concern about the applicability of PSD to a source that had been down for 4 years, the EPA's Director of the Division of Stationary Source Enforcement wrote: 'A Shutdown lasting for two years or more, or resulting in removal of the source from the emissions inventory of the State, should be presumed permanent. The owner or operator proposing to reopen the source would have the burden of ...'(proof)"

Again, the CAA addresses facilities making major modifications, but it does not address being offline for economic reasons, nor does it have a time limit or language about presumption or burden. That is, the two-year rule versus a four-year rule or a one-year rule is a decision not made based on explicit instructions in the legislation. A paper⁴ on EPA's Reactivation Policy quotes the EPA:

"A shutdown lasting for two years or more, or resulting in removal of the source from the emissions inventory of the State, should be presumed permanent. The owner or operator proposing to reopen the source would have the burden of showing that the shutdown was not permanent, and of overcoming any presumption that it was... Since 1978, the Reactivation Policy has been further clarified through the EPA's consistent and repeated enforcement of its mandate. The Reactivation Policy explicitly considers the permanence of a shutdown facility as a 'key determination' as to whether the facility will be treated as a new source for purposes of PSD and NSR."

The Reactivation Policy also appeared in the footnote of the Final and Proposed Rule of PSD and NSR,⁵ which states:

"The key determination to be made is whether an emission unit is 'permanently shut down. In general, we explained in our "reactivation policy" that whether or not a shutdown should be treated as permanent depends on the intention of the owner or operator at the time of shutdown based on all the facts and circumstances. Shutdowns of more than 2 years, or that have resulted in the removal of the source from the State's emissions inventory, are presumed to be permanent. In such cases it is up to the facility owner to rebut the presumption."

Importance of Reactivation Policy

It is common for industrial facilities to temporarily shut down when market conditions are adverse, even in industries with complex operations, safety issues, and regulations like coal mining. Staff is decreased until the market recovers. It happens in spite of the difficulties that are endemic to organized industrial activity—i.e., it is difficult to let staff members go and then rehire them, train them, and restart the facility. While there is some evidence that the age of the coal power plant fleet makes going online and offline particularly challenging technically, we consider the jury still out on that given how rare it has been. However, in the power sector, there is a long history of excess capacity, and

⁴ See M. Corcoran paper from UC Davis Law School covering the history of the Reactivation Policy: <https://environs.law.ucdavis.edu/volumes/25/1/articles/corcoran.pdf>.

⁵ <https://www.gpo.gov/fdsys/pkg/FR-2002-12-31/pdf/02-31899.pdf>. On pp. 80208–80209, footnote 30.

these common industrial factors do not fully explain the lachrymose history of the industry from the perspective of merchant power plant owners. Even when concerns were removed by FERC that it would be considered an exercise of market power, the mothballing gap continued—i.e., the gap between what would be expected and what happened.⁶

Rather, we suggest here that it is partly a consequence of EPA decisions not necessarily required by CAA's NSR provisions and taken even before the deregulated power industry was contemplated. The choice of the two-year rule is stringent enough that it is too short a time to close a power plant unit, let staff go, decide to return to service, hire and train staff, and return to service. It is especially short because of the potential for unexpected delays in other regulatory activities such as interconnection, grid operator review, market monitor review, and other environmental regulatory and permitting processes. Put another way, two years appears to be the minimum time possible for a presumption and is a key part of the regulatory and market framework keeping the power industry in prolonged excess supply.

Alternatively, the reactivation policy could be changed so that three or more years could trigger the presumption or that no presumption could be made until the unit is permanently closed by the owner. Should the new administration act on its focus on relieving regulatory burdens on coal-fired generation through such a change in the reactivation policy, there might be more mothballing. This is especially the case if it is part of a larger review of regulations.

WHY IS MOTHBALLING CONSEQUENTIAL? TWO SIMPLIFIED EXAMPLES

The shape of the PJM capacity demand curve dictates that 100 MW of less supply increases the capacity prices by approximately \$0.08/ kW-month. Therefore, 7,500 MW of incremental mothballing could raise capacity prices by \$6/kW-month, or \$72/kW-year, or \$197/MW-day. In the most recent auction, the market clearing price in the Regional Transmission Organization was \$100/MW-day. Hence, a \$197/MW-day increase would raise the price by approximately 200%.

PJM already has substantial capacity that did not clear the latest capacity auction. In the most recent auction, roughly 7,600 MW of coal plants and 4,800 MW of nuclear capacity⁷ did not clear the auction and will not receive capacity payments. As a point of reference, there are 61,000 MW of coal power plants in PJM and 50,000 MW of peaking capacity. Thus, there is already a significant amount of capacity not clearing the auction. However, these power plants are still operating and depressing energy prices. This outcome potentially reflects the impact of the reactivation policy. It is reasonable to consider scenarios in which units that did not clear the auction would be taken offline for a period of time. Furthermore, PJM and FERC might reconsider the demand curve and other rules when they find that low capacity prices actually lead to units going offline, such as not having price caps without price floors.

⁶ There seems to be a lack of mothballing, even in the aftermath of market power changes such as in the June 9, 2015, Capacity Performance Order of FERC allowing bids up to net Cost of New Entrant times balancing ratio without scrutiny and as a safe harbor, a level that effectively allows for mothballing.

⁷ Reflects ICAP capacity; converted from UCAP to ICAP by using 6% EFORD

About ICF

ICF (NASDAQ:ICFI) is a global consulting and technology services provider with more than 5,000 professionals focused on making big things possible for our clients. We are business analysts, policy specialists, technologists, researchers, digital strategists, social scientists, and creatives. Since 1969, government and commercial clients have worked with ICF to overcome their toughest challenges on issues that matter profoundly to their success. Come engage with us at icf.com.

Any views or opinions expressed in this white paper are solely those of the author(s) and do not necessarily represent those of ICF. This white paper is provided for informational purposes only and the contents are subject to change without notice. No contractual obligations are formed directly or indirectly by this document. ICF MAKES NO WARRANTIES, EXPRESS, IMPLIED, OR STATUTORY, AS TO THE INFORMATION IN THIS DOCUMENT.

No part of this document may be reproduced or transmitted in any form, or by any means (electronic, mechanical, or otherwise), for any purpose without prior written permission.

ICF and ICF INTERNATIONAL are registered trademarks of ICF and/or its affiliates. Other names may be trademarks of their respective owners.

The ERCOT market serves as another example. ERCOT has 20,000 MW of coal capacity. If 5,000 MW were to mothball, the price could frequently go to \$9,000/MWh, with revenues equal to or higher than in PJM. Instead, the price for scarcity, the equivalent of capacity, is approximately \$50/MW-day.

These two examples illustrate the possibility for an administrative change regarding the reactivation policy to impact market outcomes. The potential for this type of change is worth reviewing as part of market strategy development for participants under the new administration, and hence, it is worth monitoring from the perspective of anticipating future developments.

About the Authors



Judah Rose joined ICF in 1982 and has 30 years of experience in the energy industry with clients such as electric utilities, financial institutions, law firms, government agencies, fuel companies, and independent power producers. He is an ICF Distinguished Consultant, an honorary title given to three of ICF's 4,500+ employees. He has served on the ICF Board of Directors as the management shareholder representative.

Mr. Rose has supported the financing of tens of billions of dollars of new and existing power plants and is a frequent counselor to the financial community. He provides expert testimony and litigation support, addressed approximately 100 major energy conferences, and authored numerous articles.



Chris MacCracken is a Principal with ICF. He assists clients in assessing the impacts of environmental regulation on their portfolios to support the development of compliance, regulatory, and operational strategies. Chris's clients include electric utilities, independent power producers, and NGOs. He has directed ICF's support in a number of regulatory analysis engagements, including for RGGI Inc. in support of the 2016

RGGI Program Review and several related to state plan design strategy under the Clean Power Plan.

For more information, contact:

Judah Rose

judah.rose@icf.com +1.703.934.3342

Chris MacCracken

chris.maccracken@icf.com +1.703.934.3277

- facebook.com/ThisIsICF/
- twitter.com/ICF
- youtube.com/icfinternational
- plus.google.com/+icfinternational
- linkedin.com/company/icf-international
- instagram.com/thisisicf/

