

January 24, 2014

The Honorable Regina A. McCarthy
Administrator
U.S. Environmental Protection Agency
William Jefferson Clinton Federal Building
1200 Pennsylvania Ave., NW
Washington, DC 20460-0001

Dear Administrator McCarthy:

As follow up to our last meeting with you on the Clean Water Act Section 316(b) rulemaking, this letter highlights the rule's potential implications for nuclear units. Since the rule was proposed in April 2011, three issues have arisen that could trigger the premature retirement of a significant portion of the nuclear fleet. The loss of these units would have significant economic, reliability, and climate change implications. These issues include:

1. Requirements for repowered, replaced, or rebuilt units that could require units to install cooling towers if they undertake nuclear uprates or routine maintenance, including the replacement of turbines and condensers;
2. Language that could be interpreted to require the use of willingness-to-pay surveys to monetize non-use benefits that could result in significantly overstated benefits that justify a decision to install towers; and
3. Overly broad Endangered Species Act (ESA) provisions that could require facilities to cease operation or install cooling towers if a threatened or endangered (T&E) species is located in a water body from which a facility draws water even without evidence of impact to that species.

Our letter to you dated December 20, 2013 outlines these concerns in detail. All three issues remain key areas of concern for the industry and must be resolved in order to preserve the U.S. nuclear fleet. However, the balance of this letter focuses on the potential implication of the ESA provisions, as we understand them, for nuclear units—the largest source of zero carbon electricity generation in the fleet today. We urge EPA to study the unintended impact of these provisions on the nuclear fleet and the clean energy benefits the fleet provides.

First, we believe the Services should conclude the rule is “not likely to adversely affect” T&E species. We agree with EPA's original finding that the rule does not authorize any actions that could potentially harm T&E species because the rule provides additional protections for species from impingement and entrainment at cooling water intake structures. Moreover, this rule applies to existing sources, and T&E issues have long been evaluated and addressed at each of our facilities as required by the ESA. Facilities that have already undertaken an ESA Section 7 consultation or obtained a Section 10 permit should not be required to revisit these authorizations, and the final rule should make that clear in the regulatory text.

Second, any ESA monitoring and study requirements must be focused on T&E species directly affected by the intake through entrainment or impingement. We understand that the proposed ESA provisions will require permittees to identify listed species that *may* be in the waterbodies from which a facility draws water and *might be* indirectly affected by intake structures, including by potential impacts to their prey. This overly broad approach could be interpreted to require facilities to prove that the facility is not adversely affecting any T&E species present or that may be present. Attempting to prove this negative would be extremely burdensome and potentially impossible. As a result, this approach could lead to the imposition of requirements not specifically included in the ESA, including potentially requiring a facility to cease operations immediately or install cooling towers. Moreover, the approach used to incorporate proposed ESA provisions into the state 316(b) permitting process represents a dramatic departure from the current NRC-initiated Section 7 consultations procedure used for nuclear facilities that involves multiple federal agencies. Having the ESA consultation take place prior to submittal of a state permit application would shift the decision-making to a single federal agency. Rather, any ESA study or consultation should occur as an integral part of the current permitting process and not separately. In summary, the rule, as we understand it, would impose new ESA requirements that are beyond the scope of this rulemaking and that set an untenable precedent for future EPA rulemakings. These new ESA provisions are much more expansive than the current applications of ESA in the existing NPDES permitting process and are not supported by court decisions interpreting the requirements of the ESA.

Ultimately, we are concerned that these new ESA provisions could require owners and operators of cooling water intakes to install cooling towers even if there is no evidence that the facility is causing an adverse impact. Cooling towers are particularly problematic for existing nuclear units because of high retrofit costs associated with safety issues at nuclear plants and space constraints. This is true for nuclear units in competitive and regulated markets. In recent years, the economic conditions in competitive markets have caused the profitability of nuclear units to deteriorate. For example, the precipitous and sustained decline in natural gas prices since 2008 has significantly undermined the economics of nuclear generation by lowering the market price for energy. In Eastern PJM, the profitability of nuclear units (after accounting for normal operating and maintenance costs) has fallen to levels comparable to those realized by natural gas fired combined cycle generators. These economics tend to favor construction of new natural gas facilities compared to making large capital investments in existing nuclear plants. In fact, the North American Electric Reliability Corporation (NERC) concluded in a 2011 report that most nuclear units facing an obligation to install cooling towers would retire, and that 25 to 39 GW of electric generating capacity could be economically vulnerable to retirement as a result of a 316(b) rule that imposes closed cycle cooling.¹

Similarly, cooling tower retrofits pose a problem for nuclear units in regulated states where retrofits are limited to what the public utility commission will approve. There is no certainty that state regulators will determine that investing billions of dollars to retrofit an existing nuclear unit with a cooling tower is the “lowest reasonable cost option” to meet the requirements. Rather,

¹ North American Electric Reliability Corporation, *Potential Impacts of Future Environmental Regulations* (November 2011).

state regulators will likely elect to allow a nuclear unit to shutter and instead approve an investment in a new natural gas combined cycle unit, resulting in higher greenhouse gas emissions.

The retirement of even a small number of nuclear units would have significant reliability and climate change implications. For example, Exelon has decided upon early retirement of its Oyster Creek Generating Station in New Jersey rather than installing uneconomic cooling towers. Assuming that generation from Oyster Creek would be replaced by existing resources in New Jersey, Oyster Creek avoided nearly two million metric tons of CO₂ emissions in 2012 alone.

In Virginia, Dominion's preliminary estimate for retrofitting the Surry Nuclear Power Station with cooling towers is approximately \$3 billion. As the NRC licenses for Surry's two nuclear units expire in 2032 and 2033, it is unlikely that such a significant investment in a facility with a limited remaining useful life will be viewed by Virginia's State Corporation Commission (SCC) as serving the best interests of Dominion's customers. With the long lead time necessary to plan and construct cooling towers coupled with the uncertainty of possible 316(b) ESA requirements and Dominion's obligation to reliably serve its customers' electric power needs, it is highly likely the SCC could reasonably find a new natural gas combined cycle facility to be a more viable option.

Similarly, in California, the Diablo Canyon Power Plant serves about 10 percent of the state's electricity needs with no greenhouse gas emissions. The state is currently implementing its once-through cooling regulations and estimates show that requiring closed-cycle cooling at Diablo Canyon would cost about \$9 billion to \$12 billion, providing a negligible environmental benefit.² State regulators and independent scientists have reviewed Diablo Canyon's impacts on numerous occasions, and all have reached the same conclusion: the facility's low impingement does not warrant any further assessment or action.³

Since October 2012, companies have announced the retirement of five reactors representing nearly 4,200 megawatts. Nuclear currently provides one fifth of the nation's electricity and 62 percent of U.S. clean generation.⁴ Emissions would increase if generation from fossil fuel-fired power plants replaces a large share of the retiring nuclear units' generation. As shown in the attached graphic, if the current pace of nuclear retirements continues, 25 percent of the nuclear fleet would likely retire by 2020. This outcome would cause the U.S. to lose over half of the progress we have made to date toward meeting President Obama's 2020 emission reduction goal of 17 percent of 2005 emissions.

We appreciate the time you and your staff have taken to hear our concerns on this rule, and please do not hesitate to contact us if you have any questions regarding our ESA concerns as

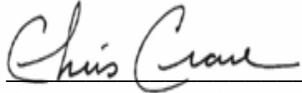
² Bechtel Power Corporation, *Final Technologies Assessment for Alternative Cooling Technologies or Modifications to the Existing Once-Through Cooling System for Diablo Canyon Power Plant (Final Draft)* (September 2013) (PG&E Comments submitted October 2013).

³ See e.g., Tenera, *Diablo Canyon Power Plant 316(b) Demonstration Report* (March 2000), pp. 1-2; Central Coast Regional Water Quality Control Board, Staff Testimony (July 10, 2003), pp. 6-7.

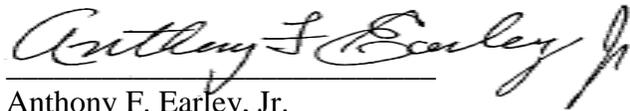
⁴ Energy Information Agency (EIA), Net Generation Data 2003 to June 2013 (Available at: <http://www.eia.gov>).

they relate to nuclear units. We look forward to continuing to work with you to finalize the rule in the coming weeks.

Sincerely,



Christopher M. Crane
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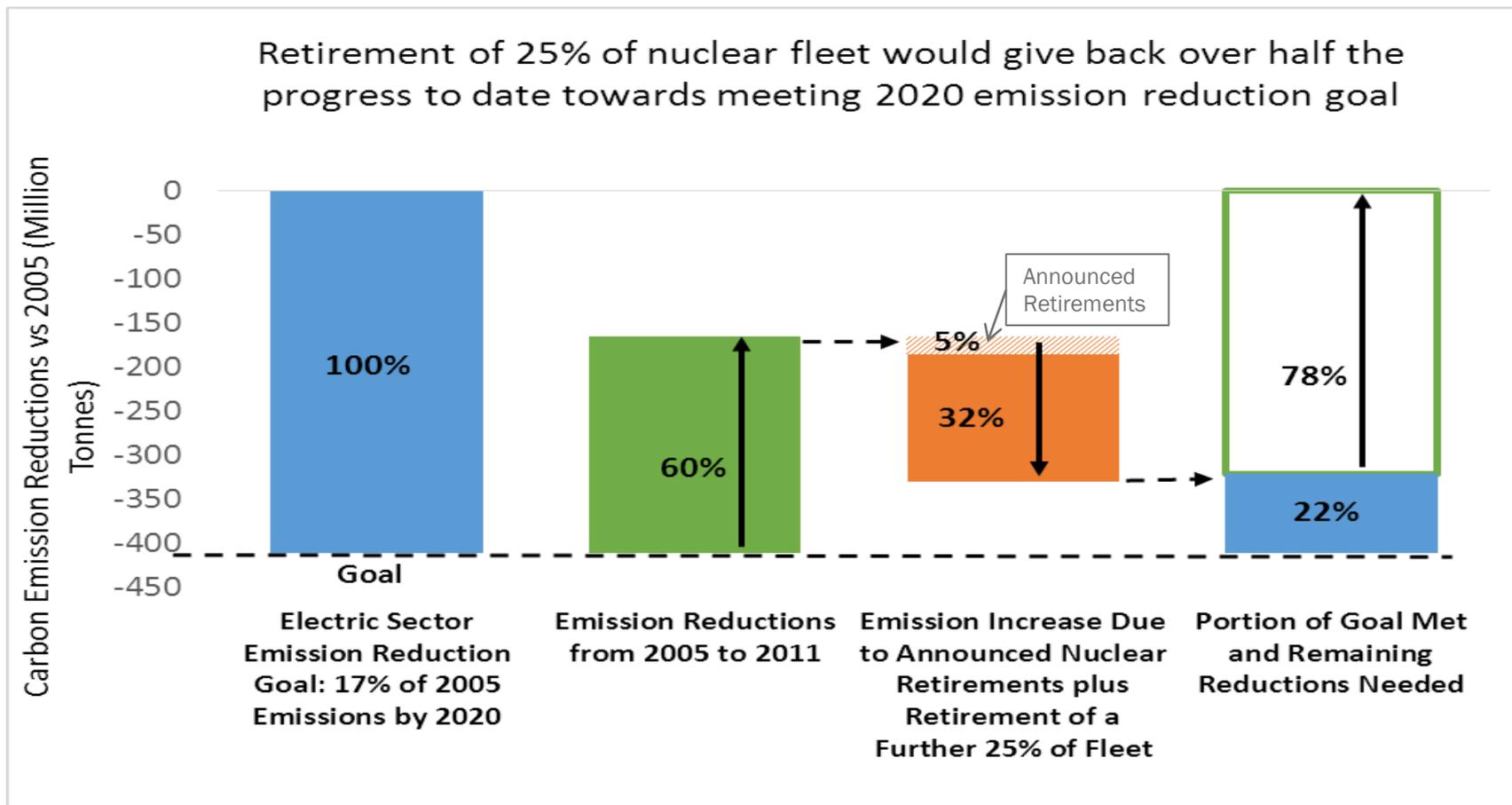


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Impact on carbon goals without nuclear



Source: EIA; Exelon Estimates

Nuclear retirement increase assumes retirement of SONGS, Crystal River, Kewaunee, Vermont Yankee, and Oyster Creek plus 24.6 GW of additional “generic” capacity (29.4 GW total, including the announced retirements). Nuclear output is assumed to displace carbon at a rate of 0.67 tonnes per MWh of lost output.

“[T]he odds seem low that the world can avoid catastrophic warming without carbon-free nuclear power.” – *Unavoidable Answer for the Problem of Climate Change*, New York Times (Nov. 2013)