Summary of Findings
Department of Energy Order No. 202-18-1

November 6, 2017

Section 202(c) of the Federal Power Act (FPA) (codified at 16 U.S.C. § 824a(c)), through section 301(b) of the Department of Energy Organization Act (codified at 42 U.S.C. § 7151(b)), authorizes the Secretary of Energy, upon finding "that an emergency exists by reason of a sudden increase in the demand for electric energy, or a shortage of electric energy or of facilities for the generation or transmission of electric energy, or of fuel or water for generating facilities, or other causes," to issue an order "requir[ing] . . . such temporary connections of facilities and such generation, delivery, interchange, or transmission of electric energy as in [the Secretary's] judgment will best meet the emergency and serve the public interest." 16 U.S.C. § 824a(c)(1). If the order "may result in a conflict with [an] environmental law or regulation," then the Secretary must "ensure that such order requires generation, delivery, interchange, or transmission of electric energy only during hours necessary to meet the emergency and serve the public interest, and, to the maximum extent practicable, is consistent with any applicable . . . environmental law or regulation and minimizes any adverse environmental impacts." *Id.* § 824a(c)(2). Orders issued under FPA section 202(c) "that may result in a conflict with [an] environmental law or regulation" expire 90 days after they are issued, but the Secretary "may renew or reissue such order[s] . . . for subsequent periods, not to exceed 90 days for each period, as [the Secretary] determines necessary to meet the emergency and serve the public interest." *Id.* § 824a(c)(4)(A).

Order No. 202-17-4 (the September Order), issued on September 14, 2017, authorizes the operation of coal-fired Yorktown Power Station Units 1 and 2 pursuant to section 202(c), for reliability purposes only and under strict conditions, through December 13, 2017. On October 6, 2017, Sierra Club moved to intervene and petitioned for rehearing of the September Order pursuant to FPA section 313(a), 16 U.S.C. § 825*l*(a).[1] *Sierra Club's Motion Petition for Rehearing, and Motion to Intervene* (Oct. 6, 2017) (Petition). On October 20, 2017, the Department of Energy (DOE or Department) received an answer to Sierra Club's petition from the Virginia Electric and Power Company (Dominion) and PJM Interconnection LLC (PJM). On October 23, 2017, PJM responded to a list of questions from the Department's Office of Electricity Delivery and Energy Reliability, and further clarifications from PJM and Dominion are noted below.

[1] Issuance of today's Order falls within the timeframe provided under FPA section 313(a). *See* 16 U.S.C. § 825*l*(a) ("Unless the [Secretary] acts upon [an] application for rehearing within thirty days after it is filed, such application may be deemed to have been denied."); 10 C.F.R. § 205.5(a)(1); *see also Kan. Cities v. FERC*, 723 F.2d 82, 85 n.2 (D.C. Cir. 1983) (affirming the Federal Energy Regulatory Commission (FERC) regulatory interpretation of a section 313(a) deadline extension to fall on a business day).

For the reasons discussed in this Summary of Findings, and as reflected in Order No. 202-18-1, Sierra Club's petition for rehearing is denied.

Sierra Club raises two categories of objections to the Department's compliance with FPA section 202(c):

(1) The Department's failure to (a) properly consult with EPA under Section 202(c) and to (b) add further measures to reduce the Yorktown Units' hours of operation and emissions; and

(2) The Department's failure to properly assess the impacts of its action under the National Environmental Policy Act and its reliance on an inapplicable categorical exclusion.

The Department's objective was, and remains, to minimize the use of either unit, in light of environmental considerations, without compromising or jeopardizing the reliability of the power grid in the North Hampton Roads area. To accomplish this, the Department must balance competing challenges to arrive at a solution that "in [the Secretary's] judgment will best meet the emergency and serve the public interest." 16 U.S.C. § 824a(c)(1).

The Department Complied with Section 202(c) of the Federal Power Act

A key component of the Sierra Club's first objection is its claim that DOE did not fulfill the statute's consultation requirement. The Sierra Club, however, misreads section 202(c), arguing for a scope and procedural complexity of consultation that is not found in the statute. In renewing or reissuing certain orders under section 202(c), the statute requires DOE to "consult with the primary Federal agency with expertise in the environmental interest protected by [a conflicting] law or regulation" and to "include in any such renewed or reissued order such conditions as such Federal agency determines necessary to minimize any adverse environmental impacts to the extent practicable." 16 U.S.C. § 824a(c)(4)(B).

In this case, DOE consulted with the relevant federal agency, the U.S. Environmental Protection Agency (EPA). Following consultation, EPA concurred in writing with the Department's approach in the September Order. EPA did not recommend or propose further conditions on matters within its purview in the September Order or indicate that additional or different consultation with EPA was desired. The FPA does not specify procedures or substantive requirements for consultation under this provision. Rather, it requires only that a consultation take place and, if the consulted agency (here, EPA) proposes additional conditions in a renewal order, that such conditions be included in the order unless DOE "determines that such condition would prevent the order from adequately addressing the emergency" and publicly explains its determination. Here, EPA recommended no additional conditions. Rather, EPA expressly acknowledged the

September Order's consistency with EPA's April 2016 Administrative Compliance Order (ACO) and expressed no concerns about DOE's approach.

Indeed, the statute expressly recognizes that, as occurred here, the consulted agency might not propose further conditions: "[t]he conditions, *if any*, submitted by such Federal agency shall be made available to the public." *Id.* (emphasis added). Thus, Sierra Club incorrectly reads the statute as requiring the consulted agency (*i.e.*, EPA) to verify, independently, DOE's compliance with FPA section 202(c)(2). The statute contains no such requirement or mechanism for such independent verification. Rather, FPA section 202(c)(4) provides the consulted agency the opportunity to propose conditions in a DOE order that would either supplement or substitute for conditions to be ordered by DOE and as to which DOE has discretion to accept or reject, subject to the requirement to explain its reasoning. Sierra Club incorrectly seeks to transform this consultation process from one in which an agency with specific environmental expertise advises DOE on conditions to one in which the consulted agency exercises an oversight role and must approve DOE's actions. However, Sierra Club offers no support for that interpretation, and DOE finds nothing in the text of the statute to support such an interpretation. DOE's consultation with EPA prior to issuing the September Order satisfied the statutory requirements.[2]

Next, Sierra Club suggests that alternative sources of power can and should replace Yorktown Units 1 and 2 generation during transmission outages or high load conditions, either of which could trigger the Remedial Action Scheme (RAS) that automatically sheds roughly 950 MW of load to prevent voltage collapse. *See Summary of Findings for Department of Energy Order No. 202-17-4*, at 4 (Sept. 14, 2017) (Summary of Findings). Notably, the Sierra Club acknowledges that the challenged September Order requires PJM and Dominion to exhaust available resources, including demand response and behind-the-meter generation resources, prior to operating Yorktown Units 1 or 2. Petition at 9-10. This reduces Sierra Club's objection to the fact that the September Order does not require the consideration of additional resources that may become available "over the course of the emergency." *Id.* at 10. In other words, Sierra Club concedes that the Department correctly evaluated available alternatives but quibbles that the Department should have analyzed speculative new resources as well.

While the Department does not oppose the use of alternative power sources generally, it explained in the September Order that, in its judgment and based on the record before it, the available alternative power cannot fully compensate for the loss of Yorktown Units 1 and 2 generation, and would therefore not suffice to preserve the reliability of the North Hampton Roads grid:

[2] Informal communications with EPA staff have continued. Despite learning of the Sierra Club's arguments in the October 6 petition, EPA personnel have not expressed an intent to add conditions.

> The only sufficient alternative to the RAS and its resulting outages for up to approximately 150,000 customers is the emergency operation of Yorktown Units 1 and 2. The demand response available to PJM is a small fraction of the load threshold and is "not sufficient to ensure reliable service." Likewise, Dominion has limited demand-side management and curtailment capabilities, insufficient for reliability purposes even when fully deployed.

Id. at 6 (citations omitted).

Both the Department's June 2017 and September 2017 orders specifically require the minimum use of Yorktown Units 1 and 2 that preserves system reliability—and, in fact, PJM and Dominion emphasize that "[h]istory and future projections show that the need [for operation of Yorktown Units 1 and 2] is far less than full time and, in total, may only amount to 81 days over the entire 18-20 month [transmission upgrade] period." *Motion for Leave to Answer and Answer of Virginia Electric & Power Company and PJM Interconnection LLC*, at 10 (Oct. 20, 2017) (Answer). Under section 202(c), the Department is authorized "to require by order such temporary connections of facilities and such generation, delivery, interchange, or transmission of electric energy as in [the Secretary's] judgment will best meet the emergency and serve the public interest." The requirement is conjunctive, not disjunctive. The Department acknowledges that minimizing the use of Yorktown Units 1 and 2, both of which were planned to be retired by now, is in the public interest, along with exploring alternative power sources. In the Secretary's judgment, however, reliance on alternative power sources alone, such as those Sierra Club suggests, does not best meet the emergency. The public interest is not served by the RAS being needlessly activated and power being shut off to 150,000 customers—and hundreds of thousands of people—which would be the result of insufficient generation during a transmission outage.

In assessing the need for an emergency order under section 202(c), the Department independently evaluates the situation, but it is not required to determine every reasonable alternative. The statute requires only that the Secretary use his or her best judgment to meet the emergency and serve the public interest. That judgment includes the determination of which factors play a central role in a given emergency and the weight to assign each such factor. In this situation, the expertise of the applicant was an important factor. The Department received an application from PJM, which is not only the regional transmission organization responsible for managing a transmission system across twelve states and the District of Columbia, but also holds the highest-level, federally-regulated reliability responsibilities for the system it manages. Summary of Findings at 2. The Department's independent analysis of PJM's request took into account the extensive earlier reviews conducted by PJM in evaluating the proposed solution. *Id.* at 2-3. Although DOE is not obligated to analyze the viability of alternative resources (especially at the unit level, which is an unbounded analysis if DOE were to consider potential new resources), the

following analysis broadly explains the rationale behind dispatching Yorktown Units 1 and 2 instead of other categories of alternative resources.

The alternatives Sierra Club presents for consideration (namely expanded demand response and distributed generation resources as well as battery storage) do not best meet the emergency because, unlike Yorktown Units 1 and 2, they cannot guarantee enough dispatchable power, both real[3] and reactive,[4] during excessive load periods or transmission outages. Reliance on alternatives to Yorktown Units 1 and 2 would require both real and reactive power supply, and achieving that over the anticipated remaining emergency timeframe[5] is infeasible due to a combination of technical and market challenges. The precise amount of dispatchable power needed to replace Yorktown Units 1 and 2 varies based on a combination of the system configuration (*e.g.*, whether any other facilities are offline) and load. The Department's analysis reasonably focused on the worst-case scenario, which would draw on the full output of both Units 1 and 2, or 270 MW (net), and also have the option of providing reactive power support. The combined capacity of all currently-available alternatives does not reach 270 MW (net), and the Department explains below why those alternative resources, even if combined, are unlikely to become sufficient substitutes over the remaining emergency timeframe.

First, relying on available demand response is inadequate because it cannot provide sufficient reactive power support.[6] Demand response is only a load reduction measure. Both real power and reactive power are critical to maintaining system reliability, and while demand response decreases both real power demand and reactive power demand, it does not generate power. The available demand response resources are few in number, and there is no indication in the record that market incentives could substantially and rapidly increase demand response over the anticipated emergency timeframe. PJM reports that it

[3] The North American Electric Reliability Corporation (NERC) Glossary, as adopted by the NERC Board of Trustees, defines "real power" as "[t]he portion of electricity that supplies energy to the Load" — that is, to customers. Glossary of Terms Used in NERC Reliability Standards (updated Oct. 6, 2017), http://www nerc.com/files/glossary_of_terms.pdf.

[4] The NERC Glossary defines "reactive power" as "[t]he portion of electricity that establishes and sustains the electric and magnetic fields of alternating-current equipment. Reactive Power must be supplied to most types of magnetic equipment, such as motors and transformers. It also must supply the reactive losses on transmission facilities. Reactive Power is provided by generators, synchronous condensers, or electrostatic equipment such as capacitors and directly influences electric system voltage. It is usually expressed in kilovars (kvar) or megavars (Mvar)." *Id.*

[5] This analysis applies to both the 90-day term of Order No. 202-17-4 and the estimated remaining time for the Skiffes Creek Transmission Project. The latter is expected to take 18-20 months. Four months have passed since construction commenced.

[6] When load is reduced, the requisite reactive power required by the system is proportionally reduced. DOE does not treat that as reactive power support akin to the ancillary services provided by Yorktown Units 1 and 2, however, because demand response merely removes the need for some reactive power support rather than actively providing it.

has approximately 26 MW of demand response available during the 2017/2018 Planning Year, but just 0.7 MW of demand response resources are available year-round. Email from S. Pincus to R. Batra (Oct. 23, 2017), included in the docket of this Order.[7] Additionally, Dominion reports that it has roughly 20 MW of Demand Side Management capability—specifically, remote air conditioning control, limited to a total of 120 hours and 30 days during the summer months. *Id.* Dominion also can curtail a large industrial customer by an average of 75 MW for transmission emergencies, but this curtailment is available only when the customer's load is about 99 MW, so that the reduced customer load is not more than 24 MW. *Id.* Even during the summer of 2017, the customer's load averaged 40 MW, well below the threshold for load curtailment. *Id.* Demand response is a voluntary program that even participating customers can decline to follow (at risk of contractual penalties). As such, PJM or Dominion cannot guarantee load reduction from demand response. Even if demand response were compulsory, it cannot provide reactive power benefits equivalent to generation units. For all of these reasons, reliance on demand response is not a workable solution to the reliability concerns at issue.

Second, distributed energy resources, such as rooftop solar and other behind-the-meter generation, also are insufficient to address the reliability concerns. Like demand response, behind-the-meter generation reduces the load a utility serves. But unlike demand response, distributed energy resources have the potential of adding supply to the system. This benefit is reduced, however, by two issues: (1) distributed energy resources are not assured because their availability depends on variable factors, such as solar radiation; and (2) reactive power support from distributed energy resources cannot be aggregated in a linear fashion, making its benefits too geographically constrained to be useful across the same area served by Yorktown Units 1 and 2. Distributed energy resources or behind-the-meter programs are also voluntary. Hence, customers cannot be compelled to install or use behind-the-meter generation. Current available resources are insufficient,[8] and fundamental questions about how to fairly compensate owners likely preclude substantial shifts in this resource over the anticipated emergency timeframe.[9] Thus, relying on

[7] The annual availability schedule is as follows: 0.7 MW from January through April, 11 MW in May, 25.5 MW from June through September, 11 MW in October, and 0.7 MW from November to December.

[8] PJM's forecast for distributed solar generation across the entire Dominion zone—not the smaller North Hampton Roads area—is 130MW (real power) at typical peaking conditions. Email from S. Pincus to R. Batra (Oct. 23, 2017). In weather patterns unfavorable to solar power generation, that number could drop to zero.

[9] Earlier this year, FERC outlined the challenges in pricing sales of distributed energy back to the grid. *See* Policy Statement, Utilization of Electric Storage Resources for Multiple Services When Receiving Cost-Based Rate Recovery, 158 FERC ¶ 61,051 (Jan. 19, 2017). An "electric storage resource" is "a resource capable of receiving electric energy from the grid and storing it for later injection of electricity back to the grid." *Indianapolis Power & Light Co. v. Midcontinent Indep. Sys. Operator, Inc.*, 158 FERC ¶ 61,107 at P 6 n.14 (Feb. 1, 2017). That definition "include[s] all types of electric storage technologies, regardless of their size, storage medium (*e.g.*, batteries, flywheels, pumped-hydro), or whether located on the interstate grid or on a distribution system." *Id.*

variable or intermittent resources for reactive power is not a solution to reliability concerns.

Finally, rechargeable battery storage, even if technically feasible,[10] is not a viable solution because it would require a substantial financial outlay for long-life equipment to address a short-term problem that could be resolved in as little as 14 months when the Skiffes Creek Transmission Project comes online. To serve as an alternative to Yorktown Units 1 and 2, PJM and Dominion would have to procure enough battery storage to be on par with those units.[11] Insufficient battery storage would lead to the RAS being triggered, automatically shedding 950 MW of load. Suggesting that battery storage is a workable solution, Sierra Club's expert noted three recent examples: (1) a 20 MW, four-hour battery storage system; (2) a pair of four-MWh batteries, and (3) a 100 MW rechargeable storage system. *See* Sierra Club Exhibit F at 18-19. In this case, Dominion would need to procure approximately 270 MW (net) of battery storage to replace the output of Yorktown Units 1 and 2 adequately and reliably. Doing so would come at a high cost to ratepayers without a proven benefit if the full 270 MW is not required during the anticipated emergency timeframe.

Under Sierra Club's first example, Southern California Edison (SCE) recently procured four hours of 20 MW (80MWh) energy storage from Canada's AltaGas Ltd.[12] The Pomona Energy Storage Facility, built to house the batteries and inverters, was completed in under four months and came online in December 2016.[13] The project, with its 80 MWh of discharge capacity, cost between $40 million and $45 million.[14] Scaling those figures up for a rough estimate, a similar storage facility capable of 270 MW (net) output for four hours could cost approximately $540 million to $600 million. The cost of Tesla's project in South Australia, noted by Sierra Club as its third example, is estimated to be $576 to $730 per kilowatt,[15] which roughly equates to between $622 million and $788

[10] Unlike demand response or behind-the-meter generation, PJM and Dominion could deploy battery storage that could be available without contingencies, and some portion of direct-current battery output could be converted for reactive power support.

[11] Although it would be theoretically possible to deploy a combination of the alternative resources proposed by Sierra Club such that the required amount of battery storage could be reduced, it was the Department's judgment that, due to the minimal amount of demand response and behind-the-meter resources available, modeling combination scenarios would not serve to further inform DOE's review.

[12] https://www.altagas.ca/sites/default/files/2017-02/Pomona%20Energy%20Storage%20brochure.pdf.

[13] *Id.*

[14] *Id.*; http://www reuters.com/article/idUSFWN1AX0G9.

[15] https://www reuters.com/article/us-australia-power-tesla/teslas-big-battery-races-to-keep-south-australias-lights-on-idUSKCN1C40DD. The costs described in Australian dollars ($750 to $950) were converted to U.S. dollars in this document using a market-closing exchange rate of 0.7687 U.S. dollars to 1 Australian dollar, as reported by the Wall Street Journal on Monday, October 30, 2017. *See* http://www.wsj.com/mdc/public/page/2_3021-forex html.

million for the 270 MW, four-hour storage system contemplated earlier. Costs are highly variable and depend on procurement contract negotiations. But they would run into the hundreds of millions of dollars, and ratepayers would absorb a significant portion of those charges.[16] The examples Sierra Club's expert mentions address different situations, as it appears the battery storage systems were purchased consistent with overall system planning goals, as opposed to the situation here that would add a costly new resource to an existing system as a short-term fix while longer-term solutions were constructed. In short, none of the examples presented is applicable to the reliability situation faced here. While battery storage has improved markedly, it is not a workable solution to the substantial reliability concerns the Department has addressed in this particular geographic area.

Using Yorktown Unit 3 to alleviate the emergency is PJM and Dominion's only remaining option, and its operating constraints prevent it from addressing the emergency. Unit 3 is oil-fired and has a maximum real output of 789 MW, but it is unreliable and can only operate at an 8 percent capacity factor (63 MW) to comply with EPA's Mercury and Air Toxics Standards (MATS). PJM Application (June 13, 2017) at 18; Email from S. Pincus to R. Batra (Oct. 23, 2017); Email from M. Regulinski to R. Batra (Nov. 2, 2017), included in the docket of this Order. Dominion has stated at least five significant reasons for its concerns about Unit 3: structural duct work and damper repairs, turbine inspections and repairs, waterbox repairs, turbine valve work and repairs, and various boiler tube leaks. *See id*. Apart from power output that is only a fraction of what Units 1 and 2 can produce, Unit 3 is so unreliable that Dominion has only operated it for 54 days in the past three (3) years. *See* Yorktown Unit 3 Days of Operation 2014-2016, included in the docket of this Order. Unit 3 is not a viable alternative due to limitations that prevent PJM from relying on that unit consistently and for an extended period of time.

Unlike the Sierra Club's proposed alternatives, either individually or in the aggregate, the Yorktown coal units can resolve the reliability emergency. They provide both real power and reactive power support, without contingencies, and at the levels required. Without the Yorktown Units, PJM cannot ensure the reliability of the grid in the North Hampton Roads area throughout the transmission upgrade schedule. For that reason, the authorization of the Yorktown Units to operate for reliability purposes only, despite being less than ideal, remains the *best* available option to meet the identified emergency.

[16] For example, although SCE and Tesla did not disclose the contract price for Tesla's storage units at SCE's Mira Loma substation, SCE filed a rate case with the California Public Utilities Commission on March 30, 2017, seeking in part to recover costs of those facilities from its ratepayers. *See* Application of Southern California Edison Company (U 338-E) for Recovery of Aliso Canyon Utility Owned Energy Storage Costs (Mar. 30, 2017), http://www3.sce.com/sscc/law/dis/dbattach5e.nsf/0/FE377273FDBE2408882580F3007B32BE/$FILE/A1703XXX-SCE%20Application%20for%20Cost%20Recovery%20of%20ACES%20UOS.pdf.

Sierra Club's reference to the 2005 Mirant 202(c) order, for the proposition that the Department can and should require ordered entities to obtain alternative energy sources during the period of an emergency, is misplaced. Specifically, Sierra Club cites the following discussion in Order No. 202-05-3 (the Mirant Order): "DOE expects that the DCPSC, having sought an emergency order, will take such actions as are within its authority to provide adequate and reliable electric service for the Central D.C. area including, for example, expediting approval of PEPCO transmission system upgrades and instituting demand response programs." Order No. 202-05-3, at 9 (Dec. 20, 2005), https://energy.gov/sites/prod/files/oeprod/DocumentsandMedia/mirant_122005_2.pdf. However, at least two key differences distinguish the September Order from the Mirant Order. First, Dominion already has a demand response program. As explained above, Dominion's demand response program cannot ensure reliability on the North Hampton Roads power grid during a transmission outage. Second, the Mirant Order urged the D.C. Public Service Commission to "take all reasonable actions." Again as explained above, even if each of Sierra Club's alternatives were viewed as reasonable, the alternatives are inadequate to solve the reliability emergency on their own.

A determination not to order Yorktown Units 1 and 2 to operate could result in severe collateral effects—namely, load shedding across the North Hampton Roads area. Power would be shut off to thousands of customers, which could impact over half a million people.[17] Because the RAS is activated when load reaches a critical threshold, whether that threshold is triggered by a transmission outage or by heightened power demand, the full load is shed immediately. That is, the shedding is not piecemeal—950 MW of power immediately go off-line upon activation of the RAS. Without sufficient backup generation, the risk of load shedding pursuant to the RAS is far greater. While the September Order is directed at avoiding the emergency presented by that loss of power, it also takes into account the Department's independent analysis of the reliability situation in the North Hampton Roads area and an evaluation of proposed alternatives.[18] Without an emergency order the region may suffer heavy load shedding, and the Department has determined to protect the public interest by exercising its authority to avoid the loss of power that otherwise would result.

[17] *See* Summary of Findings at 4 (noting that the North Hampton Roads area population exceeded 660,000 in July 2016, according to U.S. Census estimates).

[18] In light of a permanent solution coming online soon, this analysis did not model all permutations of alternative resources; instead, in the Department's judgment, an examination of whether there were any realistic substitute resources during the anticipated emergency timeframe was conducted.

The Department Complied With Its Environmental Review Obligations

Sierra Club also contends that the Department did not adequately assess the impact of its Order under the National Environmental Policy Act (NEPA), 42 U.S.C. 4321 *et seq.* NEPA requires federal agencies to consider the potential environmental impacts of their proposed actions before taking action. The regulations of the Council on Environmental Quality (CEQ) implementing NEPA, codified at 40 C.F.R. parts 1500–1508, establish three levels of review for proposed actions subject to NEPA: categorical exclusion (CX) determinations,[19] environmental assessments (EA),[20] and environmental impact statements (EIS).[21] In this instance, Sierra Club highlights the issuance of the September Order as the underlying action subject to NEPA review. The Department acted consistently with NEPA by issuing a CX determination, which is based on its assessment of the proposed action and determination that it fits within a category of actions previously established by the Department and found not to have a significant impact, individually or cumulatively, on the environment. *See* Record of Categorical Exclusion Determination issued on September 11, 2017.

Specifically, the proposed action fits within the CX for power marketing services and power management activities. That CX covers "[p]ower marketing services and power management activities (including, but not limited to, storage, load shaping and balancing, seasonal exchanges, and other similar activities), provided that the operations of generating projects would remain within normal operating limits." *See* 10 C.F.R. Part 1021, Subpart D, Appendix B, B4.4.[22] The September Order requires Dominion to "operate Units 1 and/or 2 of the Yorktown Power Station as directed by PJM only as needed to address reliability issues." September Order at 2. Such operation fits squarely within the power management activities of load shaping and balancing that are included in B4.4.[23] Sierra Club does not dispute that the September Order authorizes covered power management activities. Instead, Sierra Club argues that the authorized operations would not be "within normal operating limits." Petition at 7.

[19] A CX is a category of actions that a federal agency has determined do not individually or cumulatively have a significant impact on the environment and for which, therefore, neither an environmental assessment nor an environmental impact statement is normally required. *See* 40 C.F.R. § 1508.4.

[20] An EA is a relatively brief analysis conducted to determine whether a proposed action may have a significant impact on the environment and, thus, whether an EIS is required. *See id.* § 1508.9.

[21] An EIS is a detailed analysis of the potential environmental impacts of a proposed action (and alternatives) that may have a significant impact on the environment. *See id.* § 1508.11.

[22] This CX was revised during a 2011 DOE rulemaking, in part, to make clear that it applies to power management activities, including those evaluated or overseen, even if not directly undertaken, by the Department. *See* 76 Fed. Reg. 214, 227 (Jan. 3, 2011).

[23] "Balancing" was added to "load shaping" in B4.4 during the rulemaking to make clear that the CX is intended to cover load balancing which "helps ensure system reliability by managing energy resources to be equal with load." 76 Fed. Reg. 63,764, 63,777 (Oct. 13, 2011).

Sierra Club's argument rests on its mistaken interpretation that "normal operating limits" refers to compliance with environmental standards, including MATS. *Id.* Rather, "normal operating limits" refers to elements of power generation capacity, not permit or other regulatory limits.

First, the Sierra Club's interpretation fails to account for the words "would remain" that precede "within normal operating limits" in the CX. "Would remain" provides important context, demonstrating that the CX contemplates the proposed operation being evaluated against the current operation to see if the operations will be consistent, *i.e.*, "would remain within normal operating limits." Sierra Club's interpretation would require one to evaluate the proposed operation against other operating units, reading the words "would remain" out of the regulation. As such, Sierra Club's interpretation of the CX is erroneous and conflicts with the regulatory text.

Second, Sierra Club offers no authority in support of its interpretation. As explained below, the CX refers to "normal operating limits," which DOE interprets to refer to elements of power generation capacity, not permit or other regulatory limits, such as Clean Air Act emissions limits as Sierra Club contends. The text of the regulation and industry practice both amply support the Department's interpretation of its own CX. Moreover, the Supreme Court has explained that "[w]hen an agency interprets its own regulation, the Court, as a general rule, defers to it unless that interpretation is plainly erroneous or inconsistent with the regulation." *Decker v. Nw. Envtl. Def. Ctr.*, 568 U.S. 597, 613 (2013) (internal quotation marks omitted) (citing *Chase Bank USA, N.A. v. McCoy*, 562 U.S. 195, 208 (2011) (quoting *Auer v. Robbins*, 519 U.S. 452, 461 (1997))).

In its CX determinations for these orders, the Department interpreted the language "would remain within normal operating limits" to mean that operations would remain within normal *operational* capacities and limits. *See* CX determinations for the June and September Orders; *see also* CX Determination for Order No. 202-17-1 (Categorical Exclusion Determination, Grand River Dam Authority).[24] The operational capacities for Units 1 and 2 are reflected in their maximum real outputs of 159 MW and 164 MW

[24] The Department's establishment of other CXs related to electrical power and transmission supports its interpretation that normal operating limits relates to operational capacity. For example, for some actions, the Department has established corollary categories of actions that typically require a CX, EA, or EIS. *See, e.g.*, the CX at B4.1, which covers certain electric power acquisitions involving "existing generation resources operating within their normal operating limits." 10 C.F.R. Part 1021, Subpart D, Appendix B. The EA corollary for this CX is C7, which applies, in part, to "changes in the normal operating limits of generation resources equal to or less than 50 average megawatts," and the D7 EIS corollary, which applies to "changes in the normal operating limits of generation resources greater than 50 average megawatts." *Id.* It is clear from the focus on MWs in these provisions that the term "normal operating limits" refers to operational capacity.

respectively, with a net output[25] from each unit of 135 MW. *See* PJM Application (June 13, 2017) at 5; Email from M. Regulinski to R. Batra (Sept. 5, 2017); Email from M. Regulinski to R. Batra (Oct. 27, 2017). The maximum real outputs represent the high end of the operating parameters for these units. The objective is to operate the units consistent with these outputs; such operation is consistent with the prescribed normal operating limits.[26] The Department's determination that the units will remain within normal operating limits is supported by the record. As evidenced by the operational data provided to date for operations under the June and September Orders, these units have remained within their maximum real output limits. *See* Renewal Application, Attachment 1; Report on Yorktown Units 1 and 2 Operations Pursuant to Order No. 202-17-4 (Sept. 28, 2017), Attachments 1, 3, and 5. Pursuant to the September Order, these units will remain within their operational capacities and are expected to operate below their capacity given the restrictions provided in the September Order (*i.e.*, operate as directed by PJM only as needed to address reliability issues and exhaust all reasonably and practically available resources prior to operating). In fact, the units are anticipated to run only 81 days over the 18-20 month construction period, Answer at 10, which is 81 out of 540-600 days or 13-15% of the time.

Third, DOE's interpretation is consistent with the common understanding of the term "operating limits" in the technical community and in the context of the power generation facilities at issue. For example, NERC defines "equipment rating" to mean "[t]he maximum and minimum voltage, current, frequency, real and reactive power flows on individual equipment under steady state, short-circuit and transient conditions, as permitted or assigned by the equipment owner." Glossary of Terms Used in NERC Reliability Standards (updated Oct. 6, 2017), http://www.nerc.com/files/glossary of terms.pdf. NERC defines "normal rating" as "[t]he rating as defined by the equipment owner that specifies the level of electrical loading, usually expressed in megawatts (MW) or other appropriate units that a system, facility, or element can support or withstand through the daily demand cycles without loss of equipment life." *Id.*

In the alternative, even under Sierra Club's proffered interpretation that the phrase "normal operating limits" includes considerations beyond operational capacity, such as Clean Air Act emissions requirements, the September Order and operation of Units 1 and 2 pursuant to that Order would meet the parameters of B4.4. Sierra Club argues that the operation of these units will not be within normal operating limits because such operation would not be in compliance with MATS. *See* Petition at 7. However, as Sierra Club acknowledges, these units are proposed for deactivation because they are not, and never

[25] The net MW output is "the gross output of the units reduced by station auxiliary power, which is the power needed to operate the station itself and the generation units." Email from M. Regulinski to R. Batra (Oct. 27, 2017).

[26] While it is possible for a unit to exceed its maximum real outputs, doing so is ill-advised, as it could result in overheating, equipment damage, inefficiencies, and a shortened operational life of the unit.

have been, in compliance with MATS. *See id.* Accepting *arguendo* Sierra Club's interpretation that the phrase "normal operating limits" under which Units 1 and 2 "would remain" refers to how the units have operated in relation to MATS compliance, then it follows that "normal operation" of these particular units is non-compliance. In other words, under this reading of the regulation, "normal operating limits" and MATS non-compliance would be co-extensive.

The MATS took effect in April 2012. *See* 77 Fed. Reg. 9304 (Feb. 16, 2012). Section 112(i)(3)(A) of the Clean Air Act allowed existing power plants three years—*i.e.*, until April 2015—to comply with MATS. *See* 42 U.S.C. § 7412(i)(3)(A). During these three years, Yorktown Units 1 and 2 were not operating in compliance with MATS. Section 112(i)(3)(B) of the Clean Air Act further allowed for a one-year extension of compliance until April 2016. *See id.* § 7412(i)(3)(B). Dominion sought and received this compliance extension from the Virginia Department of Environmental Quality (VADEQ). Thereafter, Dominion sought and received an ACO from EPA. *See* AED-CAA-113(a)-2016-0005. The ACO allowed the Yorktown Units 1 and 2 to operate, under certain conditions, through April 15, 2017. *See id.* at 8. In the five and a half years since the MATS took effect, the Yorktown units have never been equipped to comply with MATS. Nevertheless, they have operated, and for five of those years, they were operating pursuant to allowances in the Clean Air Act. The Department's Orders allow for continued conditional operation, incorporating conditions contained in EPA's ACO, consistent with how these units have operated (as relates to MATS) for years.

In addition to the applicability of the B4.4 CX, Sierra Club argues that the June Order and the September Order are major federal actions significantly affecting the environment. *See* Petition at 6. Sierra Club points to the mercury and hydrogen chloride (HCl) per-pound emissions estimates (3.3068 lbs./TBtu and 0.0478 lbs./MMBtu, respectively)[27] that were provided by PJM in its Renewal Application and notes that these estimated emissions exceed the MATS for these two pollutants. *See id.*; Renewal Application, Attachment 2. First, these per pound emissions estimates are based on emissions factors, and the projected monthly emissions provided by PJM are based on conservative operational assumptions and are intended to be bounding. For example, PJM's monthly emissions estimates are based on its expectations that there will be a total of 81 days over load thresholds that will necessitate operation of Units 1 and/or 2. *See* Report on Yorktown Units 1 and 2 Operations Pursuant to Order No. 202-17-4 (Sept. 28, 2017), Attachment 4. The monthly emissions estimates "are based on full operating days" and conservatively assume an operating day consists of "24 hours of operation, 16 hours at low load and 8 hours at maximum load." Report on Yorktown Units 1 and 2 Operations

[27] PJM's per pound emissions estimates for mercury and HCl are based on emissions factors from AP-42, Fifth Edition. *See* Report on Yorktown Units 1 and 2 Operations Pursuant to Order No. 202-17-2 (Aug. 24, 2017) at 4. Mercury emissions were based on AP-42, Table 1.1-18 and HCl was based on AP-42, Table 1.1-15. *See id.*

Pursuant to Order No. 202-17-2 (Aug. 24, 2017) at 4. Second, in order to minimize emissions, the Secretary included conditions in the September Order to minimize the impacts from operation of Yorktown Units 1 and 2. As such, there is no indication that the emissions estimated by PJM will necessarily be reached.

Moreover, DOE consulted with EPA about the September Order, and EPA had the opportunity to suggest additional conditions it determined "necessary to minimize any adverse environmental impacts to the extent practicable." 16 U.S.C. § 824a(c)(4)(B). EPA did not suggest additional conditions or indicate concerns with DOE's approach. *See* Email from L. Starfield to P. Hoffman (Sept. 11, 2017), available at https://energy.gov/oe/downloads/additional-documents-order-no-202-17-4.

Nevertheless, there is a reasonable expectation that some emissions could exceed the MATS. Yorktown Units 1 and 2 are not equipped to be MATS compliant. As all parties have acknowledged, that is the reason Dominion seeks to retire the units and why it sought and was granted compliance extensions from VADEQ and EPA, and in part, why the September Order[28] was requested.

After stating the per pound emissions estimates, Sierra Club then cites to PJM's estimates for total emissions of mercury and HCl over the projected 18-20 month period and concludes, without any supporting analysis related to the operation of Units 1 and 2, that "[t]hose emissions will have a significant impact." Petition at 6. DOE assessed the constrained operation allowed under the September Order and determined that the constraints were consistent with those previously imposed by EPA in the ACO, and that such operations would not result in significant impacts. Sierra Club cites to selective parts of EPA's May 2011 proposed rulemaking related to National Emissions Standards for Hazardous Air Pollutants and Standards of Performance which are inapposite to the Order,[29] and states that mercury is hazardous even in small quantities and that HCl can cause acute and chronic health harms. *See id.* Also, as an attachment to its Petition, Sierra Club includes a 2011 EPA memorandum related to a non-Hg case study of chronic

[28] "[A]ction taken by a party, that is necessary to comply with an order issued under this subsection" which "results in non-compliance with . . . any Federal, State, or local environmental law or regulation . . . shall not be considered a violation . . . or subject such party to any requirement, civil or criminal liability, or a citizen suit." 16 U.S.C. § 824a(c)(3).

[29] For example, Sierra Club notes a dose of .0001mg/kg-day for mercury and states that exposures above that level raise health concerns. *See* Petition at 6. This dose is the "reference dose" (RfD) for methyl mercury, which was described during the rulemaking as "the amount of a chemical which, when ingested daily over a lifetime, is anticipated to be without adverse health effects to humans, including sensitive subpopulations." 76 Fed. Reg. 24,976, 24,982 (May 3, 2011). The rulemaking further described the RfD as "an estimate (with uncertainty spanning perhaps an order of magnitude) of a daily exposure . . . that is likely to be without an appreciable risk of deleterious effects during a lifetime." *Id.* at 25,000. This scenario plainly does not reflect expected exposure based on operations under the September Order. The operations of Units 1 & 2 will be limited to generation needed to meet grid reliability, and will be of a limited 18-20 month duration.

inhalation risks that does not correlate to the emissions or potential exposures related to the September Order.[30] *See* Petition at 6; EPA Memorandum (Mar. 16, 2011) attached to Petition. Yet, Sierra Club has provided no applicable data or analysis in support of this claim, and therefore has failed to demonstrate significant impacts from the subject Order.

Finally, Sierra Club notes that CEQ has NEPA procedures that are applicable in emergency situations. *See* Petition at 8. The Department agrees that § 1506.11 provides that "[w]here emergency circumstances make it necessary to take an action with significant environmental impact without observing the provisions of these regulations, the federal agency taking the action should consult with the Council about alternative arrangements." As explained above, the Department concluded that issuance of the September Order would not result in significant environmental impacts. Therefore, alternative arrangements and consultation were not required. In this case, the Department has chosen to proceed consistently with one of the established levels of NEPA review: issuance of a CX determination.[31]

Sierra Club concludes by stating that the extended nature of the situation provides time for DOE to conduct additional NEPA review and to inform subsequent renewals. *See* Petition at 9-10. As detailed above, the Department has complied with NEPA by issuing a CX determination. Nevertheless, the Department will evaluate any future renewal applications from PJM and assess the appropriate level of NEPA review based on the facts presented at that time.

Conclusion

When emergency situations arise, it is critical to have the tools to respond to them quickly, efficiently, and effectively. The Department issued the September Order because, in the Secretary's judgment, its provisions would best meet the emergency and serve the public interest in the North Hampton Roads area. The operative interest is in keeping the lights on, allowing the PJM-mandated transmission upgrades to continue, while to the maximum extent practicable remaining consistent with environmental law and minimizing the adverse effects of power generation on human health and the environment. The September Order is tailored to accomplish those goals. Accordingly, Sierra Club's petition for rehearing is denied.

[30] Sierra Club cites this inapposite study because it references the Yorktown facility. The study was actually based on 5-year concentrations for pollutants that were calculated based on information from 2005-2009, and the maximum individual risk for each facility was calculated based on "risk associated with a continuous lifetime (24 hours per day, 7 days per week, and 52 weeks per year for a 70-year period) exposure to the maximum concentration." EPA Memorandum at 12.

[31] Sierra Club incorporates by reference Section IV.C of its original Petition. *See* Petition at 8 n.5. The substantive arguments raised therein have been addressed above.