UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Old Dominion Electric Cooperative, Complainant,	)	
v.	)	Docket No. EL23-61-000
PJM Interconnection, L.L.C., Respondent.	)	

ANSWER AND CONDITIONAL MOTION TO DISMISS OF PJM INTERCONNECTION, L.L.C.

PJM Interconnection, L.L.C. ("PJM"), pursuant to Rules 212 and 213 of the Federal Energy Regulatory Commission's ("Commission") Rules of Practice and Procedure[1] and the Notice of Extension of Time issued May 3, 2023,[2] submits this Answer and Conditional Motion to Dismiss the Complaint filed by Old Dominion Electric Cooperative ("ODEC" or "Complainant") on April 14, 2023.[3] As discussed below, the Commission should deny the Complaint because it does not establish that PJM's actions to maintain reliability during Winter Storm Elliott violated its Open Access Transmission Tariff ("Tariff"), Amended and Restated Operating Agreement ("Operating Agreement"), or its manuals. In the event the Commission decides to rule on the merits without engaging in the global settlement

[1] 18 C.F.R. §§ 385.212, 385.213.

[2] *Old Dominion Elec. Coop. v. PJM Interconnection, L.L.C.*, Notice of Extension of Time, Docket No. EL23-61-000 (May 3, 2023).

[3] *Old Dominion Elec. Coop. v. PJM Interconnection, L.L.C.*, Complaint of Old Dominion Electric Cooperative for Relief from Unjust and Unreasonable Capacity Resource Non-Performance Charges, Docket No. EL23-61-000 (Apr. 14, 2023) ("Complaint").

proceeding proposed by PJM,[4] it should dismiss the Complaint because it does not satisfy the standards set forth in Federal Power Act ("FPA") sections 206(b)[5] and 306[6], and Rule 206 of the Commission's Rules of Practice and Procedure.[7]

I. INTRODUCTION

ODEC is a PJM Market Participant[8] and a load-serving entity in PJM. It operates power generation facilities in Virginia and Maryland that are Capacity Resources in PJM, including the Wildcat Point facility, the Louisa facility, and the Marsh Run facility. As ODEC explains, "ODEC's Capacity Resources are subject to specific capability and deliverability requirements, as well as a must-offer requirement."[9] Certain Capacity Resources owned by ODEC did not meet their capacity obligations during Performance Assessment Intervals arising from Winter Storm Elliott on December 23-24, 2022 and were appropriately assessed Non-Performance Charges pursuant to Tariff, Attachment DD, section 10A.[10]

[4] *Essential Power OPP, LLC v. PJM Interconnection, L.L.C.*, Motion of PJM Interconnection, L.L.C. for Establishment of Settlement Judge Procedures, Docket Nos. EL23-53-000 et al. (Apr. 14, 2023) ("Motion for Settlement Procedures").

[5] 16 U.S.C. § 824e(b).

[6] 16 U.S.C. § 825e.

[7] 18 C.F.R. § 385.206(b).

[8] Capitalized terms used, but not otherwise defined, in this pleading have the meaning provided in, as applicable, the Tariff, Operating Agreement, or the Reliability Assurance Agreement Among Load-Serving Entities in the PJM Region.

[9] Complaint at 6.

[10] Tariff, Attachment DD, section 10A(a).

ODEC alleges that PJM's imposition of these Non-Performance charges "appears to violate" PJM's Tariff, Operating Agreement, and manuals,[11] and asks the Commission to order PJM to rescind and refund those charges "if the Commission determines that PJM did not follow its governing documents."[12] Yet, ODEC does not explain why the Non-Performance Charges assessed to its specific Capacity Resources should be excused under the limited exceptions set forth in the PJM Tariff, Attachment DD, section 10A(d).[13] ODEC also alleges that PJM's denial of certain designations of replacement resources under Manual 18, section 8.8, "is at best unclear and may have been made in error."[14] However, the Complaint does not demonstrate that PJM's denial of the replacement resources does not comply with the applicable manual. Accordingly, the Commission should deny the Complaint.

Because several complaints have been filed concerning PJM's imposition of Non-Performance Charges arising from Winter Storm Elliott, PJM filed the Motion for Settlement Procedures on April 14, 2023, which requests appointment of a Settlement Judge to preside over negotiations toward a consensual resolution of as many of the disputes concerning Non-Performance Charges as possible. PJM recognizes the potential benefits of prompt resolution, to the extent possible, of these disputes.

Nonetheless, should the Commission deny the Motion for Settlement Procedures and proceed towards a ruling on the merits of the Complaint, PJM moves to dismiss it. The

[11] Complaint at 1-2.

[12] *Id* at 2.

[13] *See* Tariff, Attachment DD, section 10A(d).

[14] Complaint at 13.

Complaint does not specify or support an alleged Tariff violation, and therefore does not satisfy the requirements of Rule 206(b) or FPA sections 206(b) and 306.

II. ANSWER TO COMPLAINT

A. The Capacity Performance Construct Shifted Performance Risk to Generators from Load by Requiring Generators to Perform when Needed, or Pay Stringent Non-Performance Charges. Excuses from Such Charges Were Limited by Design and Explicitly Approved by the Commission to Meet the Intended Goal of Ensuring Reliability During Stressed System Conditions

1. Relevant requirements of PJM's Capacity Performance Tariff provisions.

Following severe weather events in January 2014 during which generating resources in the PJM Region performed very poorly, PJM proposed, and the Commission accepted, capacity market reforms to incentivize committed Capacity Resources to deliver the promised energy and reserves when PJM calls upon them in emergencies.[15] Central to these reforms was a new capacity product, the Capacity Performance Resource, which must be "capable of sustained, predictable operation such that the resource will be reliably available to provide energy and reserves in an emergency condition."[16]

To incentivize Capacity Performance Resources to deliver the capacity and reliability they are paid to provide, the Tariff provides that when PJM takes Emergency Actions, underperforming Capacity Resources face Non-Performance Charges and over-performing resources earn bonus payments.[17] Specifically, for the period (known as

[15] *See PJM Interconnection, L.L.C.*, 151 FERC ¶ 61,208 (2015) ("CP Order"), *order on reh'g & compliance*, 155 FERC ¶ 61,157, (2016) ("CP Rehearing Order"), *aff'd sub nom. Advanced Energy Mgmt. All. v. FERC*, 860 F.3d 656 (D.C. Cir. 2017).

[16] CP Order at P 28.

[17] The details for applying and determining Non-Performance Charges and bonus payments are set forth in Tariff, Attachment DD, section 10A. A resource does not need to be a Capacity Resource to receive bonus payments.

Performance Assessment Intervals) when certain PJM-declared Emergency Actions are in effect, the Tariff requires PJM to assess Non-Performance Charges when a Capacity Resource underperforms.[18] The Commission found that Non-Performance Charges will "act as a strong incentive for performance,"[19] explaining that "if and to the extent [a Capacity Resource] fails to perform during an emergency, when it is most needed, it is appropriate that the compensation for that resource be reduced and possibly entirely forfeited."[20]

There are only two excuses from Non-Performance Charges, and they are "strictly circumscribed."[21] Specifically, a resource's performance shortfall may be excused only if the resource was on a PJM-approved Generator Planned Outage or Generator Maintenance Outage or the resource "was not scheduled to operate by [PJM], or was online but was scheduled down, by [PJM], based on a determination by [PJM] that such scheduling action was appropriate to the security-constrained economic dispatch of the PJM Region."[22]

Moreover, there is a crucial caveat to that second exception: a resource shall be assessed Non-Performance Charges to the extent it "otherwise was needed and would have been scheduled by [PJM] to perform, but was not scheduled to operate, or was scheduled down, solely due to: (i) any operating parameter limitations submitted in the resource's

[18] *See* Tariff, Attachment DD, section 10A(c) (prescribing comparison of Actual Performance against Expected Performance); Tariff, Definitions – E-F (defining Emergency Action), *id.*, Definitions – O-P-Q (defining Performance Assessment Interval).

[19] CP Rehearing Order at P 72.

[20] CP Rehearing Order at P 29.

[21] CP Order at P 167.

[22] Tariff, Attachment DD, section 10A(d).

offer, or (ii) the seller's submission of a market-based offer higher than its cost-based [offer]."[23]

As a result of the very limited excuses from Non-Performance Charges, Capacity Market Sellers are responsible for ensuring resource performance, and thus "bear the burden of delivering on their capacity obligation."[24] When it comes to the issue of fuel procurement, "[a] natural gas generator is held responsible for arranging sufficient natural gas deliveries despite pipeline outages and this same principle should apply to all such outages."[25] In other words, Capacity Market Sellers, not PJM or load, bear the responsibility and risks associated with ensuring Capacity Resources are available to perform during emergencies. In this way, the Non-Performance Charge "holds capacity resources accountable for delivering on their capacity commitments"[26] and "provide[s] incentive to capacity sellers to invest in and maintain their resources by tying capacity revenues more closely with real-time delivery of energy and reserves during emergency system conditions."[27]

Capacity Resources are not paid to simply standby; they are paid to be available to perform and serve PJM's loads. Thus, Capacity Market Sellers should assume that their resources will be needed, at a minimum, any time the PJM Region is under a declared emergency for capacity shortages. If Capacity Market Sellers need to purchase natural gas

[23] Tariff, Attachment DD, section 10A(d).

[24] CP Rehearing Order at P 110.

[25] CP Rehearing Order at P 110.

[26] CP Rehearing Order at P 18.

[27] CP Order at P 158; *see also* CP Rehearing Order at P 88 ("Capacity sellers need to make the investment and maintenance decisions ahead of time to reduce the probability that they will consistently, and for prolonged periods, be unable to deliver energy during Performance Assessment Hours.").

and self-schedule to ensure that their Capacity Resources can be available when needed, then sellers of gas-fueled Capacity Resources should engage in such forward-looking behavior.[28]

The Non-Performance Charges advance the overarching goal of Capacity Performance: ensuring all Capacity Resources are available to provide energy or reserves when needed, while reallocating non-performance risk from consumers to capacity suppliers.[29] Stated another way, PJM's Tariff rules penalizing under-performance are designed so that customers get the reliability for which they are paying and generators' capacity revenues are tied "more closely with real-time delivery of energy and reserves during emergency system conditions."[30]

B. Commission Policy, and the Governing Provisions of the Tariff and Operating Agreement, Afford PJM Substantial Discretion and the Needed Tools and Flexibility to Declare, Manage, and Resolve Emergencies

As noted in the preceding section, Non-Performance Charges are assessed during Performance Assessment Intervals, which are triggered by PJM's declaration of certain types of procedures that qualify as Emergency Actions. The Commission has repeatedly recognized the importance of affording regional transmission organizations ("RTOs"),

[28] Generators have recognized that the Capacity Performance rules require that "the generator must manage its fuel supply risks and ensure that it is able to perform when called to do so by PJM." *See PJM Interconnection, L.L.C.*, Answer of Direct Energy to PJM Interconnection, L.L.C.'s Motion for Leave to Answer and Answer, Docket No. ER19-664-000, at 3 (Feb. 14, 2019).

[29] *See, e.g.*, CP Order at P 5 ("[A] resource adequacy construct that fails to provide adequate incentives for resource performance can threaten the reliable operation of PJM's system and force consumers to pay for capacity without receiving commensurate reliability benefits."); CP Rehearing Order at PP 27 ("PJM's proposed revisions to the capacity market penalty structure reallocate a significant portion of this performance risk to capacity resource owners and operators."), 109 (recognizing that each non-performance excuse "represent[s] a reallocation of non-performance risk from capacity suppliers to consumers." (citing *ISO New England Inc.*, 147 FERC ¶ 61,172, at P 71 (2014)).

[30] CP Order at P 158.

such as PJM, the discretion to respond to operational circumstances related to reliability concerns, and the Tariff and Operating Agreement assign PJM the central role in declaring and managing emergencies, with few if any express Tariff conditions on how PJM implements that vital responsibility.

For context, the Commission has long recognized that "[t]he reality of pool operations is a continuous matching of load and supply that requires every system operator to have the flexibility to respond to operational crises as they develop."[31] Applying this policy, the Commission recently declined to specify requested criteria that "could restrict operators' ability to apply their expert judgment to actual conditions on the system in making decisions to maintain reliable operations."[32] In the same vein, the Commission has found that "it may be appropriate to provide operational and reliability-related discretion to independent system operators, and to not second-guess their decisions in that regard."[33]

Understandably, the need for such discretion is most acute during emergencies, and PJM's governing documents are designed to not unduly constrain PJM's efforts to address emergencies. Most importantly, the Operating Agreement (executed by all Capacity Market Sellers, among others), without elaboration, assigns to PJM the authority to declare an Emergency and manage grid operations to ensure reliability and alleviate or end the Emergency.[34] The Operating Agreement, broadly defines "Emergency" to include "an abnormal system condition requiring manual or automatic action to maintain system

[31] *Me. Pub. Utils. Comm'n*, 97 FERC ¶ 61,322, at P 26 (2001).

[32] *PJM Interconnection, L.L.C.*, 180 FERC ¶ 61,051, at P 82 (2022).

[33] *Big Sandy Peaker Plant, LLC*, 154 FERC ¶ 61,216, at P 50 (2016); *see also Midcontinent Indep. Sys. Operator, Inc.*, 164 FERC ¶ 61,129, at P 37 (2018) ("We find that it is appropriate for MISO to have discretion to respond to operational circumstances related to reliability concerns.").

[34] Operating Agreement, section 10.4(xx).

frequency, or to prevent loss of firm load, equipment damage, or tripping of system elements that could adversely affect the reliability of an electric system or the safety of persons or property;" and "a condition that requires implementation of emergency procedures as defined in the PJM Manuals."[35]

Implementing this responsibility, PJM has an entire manual solely devoted to Emergency Operations.[36] That manual opens with policy statements that provide the essential context for the details that follow, explaining that "Power system disturbances" which can occur "as the result of loss of generating equipment . . . or as the result of unexpected load changes . . . may be of, or develop into, a magnitude sufficient to affect the reliable operation of the PJM RTO and/or the Eastern Interconnection;" and stressing that "[t]hese events demand timely, decisive action to prevent further propagation of the disturbance."[37] PJM's overarching responsibility during Emergencies is "[t]aking actions *[PJM] determines* are consistent with Good Utility Practice and are necessary to maintain the operational integrity of the PJM RTO and the Eastern Interconnection."[38]

As particularly relevant here, the Tariff defines "Emergency Actions" that trigger Performance Assessment Intervals as "any emergency action for locational or system-wide capacity shortages that either utilizes pre-emergency mandatory load management reductions or other emergency capacity, or initiates a more severe action."[39] One such

[35] Operating Agreement, Definitions – E-F.

[36] *See* System Operations Division, *PJM Manual 13: Emergency Operations*, PJM Interconnection, L.L.C. (May 18, 2023), https://www.pjm.com/-/media/documents/manuals/m13.ashx.

[37] PJM Manual 13, section 1.1.

[38] *Id.* (emphasis added); *see also* Tariff, Definitions – G-H (defining Good Utility Practice).

[39] Tariff, Definitions – E-F.

action, declared here, is a "Maximum Generation Emergency" which means "an Emergency *declared by [PJM]* to address either a generation or transmission emergency in which *[PJM] anticipates* requesting one or more Generation Capacity Resources . . . to operate at its maximum net or gross electrical power output, subject to the equipment stress limits for such Generation Capacity Resource . . . in order to manage, alleviate, or end the Emergency."[40]

C. PJM Exercised Its Discretion to Declare Emergency Actions During Winter Storm Elliott as a Component of PJM's Prudent Response to Very Challenging, Rapidly Changing Conditions, Including Unexpectedly High Demand and Unexpectedly High Forced Outages

1. The PJM Region faced unprecedented rapidly changing conditions during Winter Storm Elliott.

Winter Storm Elliott, lasting from December 23, 2022, through December 25, 2022, caused record cold temperatures across the PJM Region.[41] The severe cold weather on December 23,[42] including a record-breaking temperature drop of 29 degrees Fahrenheit over 12 hours on that day surpassed the previous PJM record of a 22-degree drop during the 2014 Polar Vortex.[43] Adding to the grid management challenges, the overnight minimum load in the early morning hours of December 24 was by far the highest on record for that date—exceeding by 40,000 megawatts ("MW") the

[40] Tariff, Definitions – L-M-N (emphasis added).

[41] *See Winter Storm Elliott Frequently Asked Questions*, PJM Interconnection, L.L.C., 3 (Apr. 12, 2023), https://www.pjm.com/-/media/markets-ops/winter-storm-elliott/faq-winter-storm-elliott.ashx ("Winter Storm Elliott FAQ").

[42] All dates noted in this chronology are in 2022.

[43] *See* Winter Storm Elliott FAQ at 3.

second highest minimum overnight load on that date in the prior decade.[44] The challenges were exacerbated by almost a third of PJM's generation fleet (about 47,000 MW) taking unplanned (i.e., forced) outages during these emergency conditions.

2. PJM deployed its available tools to give generators advance notice of the need to prepare for challenging conditions.

Beginning on December 20, PJM issued multiple Cold Weather Advisories and Cold Weather Alerts on both a regional basis and an entire RTO basis. These various types of advisories and alerts, defined and explained in Attachment A and deployed as shown on the timeline in Attachment B, were intended to elevate awareness of impending conditions and provide notice to Members—including those responsible for Capacity Resources—so they could prepare personnel and facilities for extreme cold weather conditions.

3. PJM declared Emergency Actions during December 23 and December 24 as part of PJM's successful effort to preserve reliability.

On the morning of December 23, PJM started the operating day with approximately 133 gigawatts ("GW") of energy committed in the Day-Ahead Market and an additional 9 GW of available 30-minute reserves, notwithstanding the approximately 12 GW of unplanned (forced) outages that were reported for the PJM generation fleet.[45] The resulting total of 158,000 MW of generation reported as available on the morning of December 23 exceeded the then-forecast PJM Region peak of about 127,000 MW, leaving (at that time) almost 29 GW of reserve capacity expected to be available to absorb load increases and

[44] *See* Mike Bryson, Sr. et al., *Winter Storm Elliott*, PJM Interconnection, L.L.C., 8 (Jan. 13, 2023), https://pjm.com/-/media/committees-groups/committees/mic/2023/20230111/item-0x---winter-storm-elliott-overview.ashx ("Winter Storm Elliott Overview").

[45] *See* Winter Storm Elliott FAQ at 3, 7.

generation contingencies and support PJM's neighboring systems.[46] For comparison, PJM's day-ahead reserve requirement for December 23 was 3 GW.

However, as the day went on, temperatures plunged incredibly quickly and demand spiked. At the same time, PJM began seeing high levels of forced generation outages.[47] PJM responded by exercising its discretion to invoke its Emergency-related authorities, including calling upon generators with capacity commitments, deploying Synchronized Reserves, initiating RTO-wide Maximum Generation Emergency Actions, and calling on demand response resources. At 17:30 on December 23, PJM declared a Pre-Emergency Load Management Reduction Action and a Maximum Generation Emergency Action. [48] The declaration of the Maximum Generation Emergency Action triggered Performance Assessment Intervals and put all on notice of the severity of the emergency conditions facing the PJM Region.[49] During the evening of December 23, with (as previously noted) power demand rising to a peak of about 135,000 MW and generator forced outages increasing to 34,500 MW,[50] at 23:00, PJM declared a Maximum Generation Alert and Load Management Alert, starting December 24 at 00:00.[51]

[46] *See* Winter Storm Elliott Overview at 5.

[47] *See* Winter Storm Elliott Overview at 12.

[48] *See* Attachment B at 1. Although it was issued to be in effect through 23:59, PJM cancelled the Maximum Generation Emergency Action at 23:00.

[49] Performance assessment hours are triggered when PJM declares an Emergency Action. Tariff, Attachment DD, section 10.A(a). An Emergency Action is defined as "locational or system-wide capacity shortages" that cause "pre-emergency mandatory load management reductions or . . . a more severe action." Tariff, Definitions – E-F.

[50] *See* Winter Storm Elliott FAQ at 3.

[51] *See* Attachment B at 1.

Given the persistent higher than expected load demand and high forced outage rates (rising up to about 47,000 MW by the morning peak, as previously noted) on the morning of December 24, PJM continued to invoke its various alerts and authorities to manage the Emergency and maintain reliability, and to put all Market Participants on notice of the urgent need for capacity. Thus, PJM issued a rare public Region-wide call for conservation from 04:00 on December 24 to 10:00 on December 25.[52] At 04:20 on December 24, PJM issued a Pre-Emergency Load Management Reduction Action, and an Emergency Load Management Reduction Action.[53] On December 24, PJM issued a Maximum Generation Emergency for the period from 04:28 to 22:00 triggering Performance Assessment Intervals.

Additionally, around 06:30 on December 24, in response to generators starting to inform PJM dispatchers that their resources were reaching their emission runtime limits, PJM began working with the U.S. Department of Energy ("DOE") to obtain an emergency order pursuant to section 202(c) of the FPA. PJM petitioned DOE for a declaration of energy emergency on the afternoon of December 24.[54] At 17:30, DOE issued the requested section 202 emergency order,[55] authorizing all electric generating units serving the PJM Region to operate up to their maximum generation output levels under limited, prescribed circumstances, even if doing so exceeded their air quality or other permit limitations. The

[52] *See* Attachment B at 2.

[53] *See* Attachment B at 2.

[54] Request for Emergency Order Under Section 202(c) of the Federal Power Act of PJM Interconnection, L.L.C., Dept. of Energy (Dec. 24, 2022) https://www.energy.gov/sites/default/files/2022-12/PJM%20202%28c%29%20Request.pdf.

[55] *See* Department of Energy, Order No. 202-22-4 (Dec. 24, 2022), https://www.pjm.com/-/media/documents/ferc/orders/2022/20221224-pjm-202c-doe-order.ashx.

DOE emergency order lasted from 17:30 on December 24 through 12:00 on December 26.[56]

PJM's actions helped preserve reliability during this very challenging period. *Most importantly, PJM did not shed any load during Winter Storm Elliott.*

D. The Commission Should Deny the Complaint

1. ODEC has not demonstrated its Capacity Resources satisfy an exception to Non-Performance Charges.

As explained above, there are only two excuses from Non-Performance Charges. In the Affidavit of Dan Klose accompanying the Complaint,[57] Mr. Klose states that "there were certain limited periods where some of [ODEC's] units were not available due to operational and/or maintenance issues. These issues were unexpected and, therefore, unplanned by ODEC."[58] "Unexpected" or "unplanned" operational and maintenance issues, however, do not fall into either of the excused categories set forth in the Tariff.[59] Indeed, the first excuse applies only to a "Generator Planned Outage or Generator Maintenance Outage *approved by [PJM]*."[60] By describing these outages as "unplanned" or "unexpected," Mr. Klose concedes these outages were Generator Forced Outages not previously approved by PJM. The Complaint also makes no allegation that the outages suffered by ODEC's Capacity Resources are covered by the second excuse, for resources

[56] *Id.*

[57] *See* Complaint at Attachment A (Affidavit of Dan Klose on Behalf of Old Dominion Electric Cooperative ("Klose Aff.")).

[58] *Id.* ¶ 11.

[59] *See* Tariff, Attachment DD, section 10A(d).

[60] *Id.* (emphasis added).

"not scheduled to operate" or "scheduled down" by PJM.[61] Accordingly, because neither excuse to Non-Performance Charges applies, the Commission should deny the Complaint.

2. "Examples" of violations specified by other complaints are not a sufficient basis for ODEC's Complaint.

Rather than specifying and supporting Tariff violations concerning ODEC's facilities, the Complaint refers to "example[s]"[62] from other recent complaints that contain allegations of violations arising from PJM's response to Winter Storm Elliott. Because the Complaint provides no support for these "examples," the Commission should not construe them as grounds for ODEC's complaint.

Moreover, PJM has fully refuted each "example" referenced by ODEC in the docket in which it was raised. First, while the Complaint broadly objects that "PJM initiated and maintained Emergency Actions that triggered Performance Assessment Intervals, without first curtailing all non-firm exports,"[63] PJM comprehensively demonstrated in its answer to the ComEd Generators Complaint[64] that PJM is required under the Tariff, Operating Agreement, relevant PJM manuals, North American Electric Reliability Corporation reliability standards, and agreements with other Balancing Authorities to provide emergency assistance to neighboring regions when possible;[65] and

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[61] *Id.*

[62] Complaint at 10.

[63] Complaint at 10 (citing *Aurora Generation, LLC v. PJM Interconnection, L.L.C.*, Complaint Requesting Fast Track Processing and Shortened Answer Period, and Request for Interim Order Suspending Billing and Payment Provisions, Docket No. EL23-54-000, at 3 (Apr. 4, 2023) ("ComEd Generators Complaint")).

[64] *Aurora Generation, LLC v. PJM Interconnection, L.L.C.*, Answer, Motion to Dismiss or Summarily Dispose Complaint, and Request for Confidential Treatment of PJM Interconnection, L.L.C., Docket No. EL23-54-000 (May 30, 2023) ("PJM Answer to ComEd Generators Complaint").

[65] PJM Answer to ComEd Generators Complaint, at 51 (citing Exhibit 6, Affidavit of Michael E. Bryson on Behalf of PJM Interconnection L.L.C. ¶¶ 7-19 ("Bryson Aff.")). For the Commission's convenience, PJM includes excerpts from the Affidavits of Joseph Mulhern, Micheal E. Bryson, and Steven A. Naumann filed

that PJM met these obligations and satisfied Good Utility Practice by "help[ing] adjacent Balancing Areas to the extent feasible without shedding load in PJM."[66] For the Commission's convenience, and to assure a complete record in this docket, PJM includes in Attachment E to this answer PJM's full rebuttal to the ComEd Generators Complaint on this "non-firm exports" issue.[67] Of particular note, PJM shows there, that its decisions to initiate various actions were validated by the supply and demand conditions that existed in real-time, and pre-emergency and Emergency Actions would have been necessary on both December 23 and 24, even if all non-firm exports had been cut.[68] PJM's decisions regarding non-firm exports were not only compliant with the Tariff, Operating Agreement, and Manual 13, but were also in accordance with Good Utility Practice.[69] As PJM's witness Mr. Naumann testifies, "the fact that neighboring regions did not have excess capacity to supply to PJM if additional PJM generation tripped, and uncertainty of the level of load, maintaining non-firm exports when PJM had additional resources to do so must be considered Good Utility Practice."[70] Further, PJM shows that it successfully avoided load shedding and provided assistance to neighboring regions that "enabled them either to avoid or mitigate shedding their customers' load."[71] PJM did so by prioritizing its own load and

in Docket Nos. EL23-53-000, EL23-54-000, and EL23-55-000, in Attachment C, using the pagination of the as-filed affidavits.

[66] PJM Answer to ComEd Generators Complaint, at 51-52 (citing and quoting Bryson Aff. ¶ 19).

[67] The relevant excerpt for this issue in Attachment E is at 51-67 (using the as-filed answer's pagination).

[68] PJM Answer to ComEd Generators Complaint, at 66 (citing Bryson Aff. ¶¶ 20-23).

[69] *Id.* at 65-66.

[70] *Id.* at 66 (quoting Exhibit 7, Affidavit of Steven T. Naumann, P.E. on Behalf of PJM Interconnection, L.L.C. ¶ 16).

[71] *Id.* at 66 (citing Bryson Aff. ¶ 19).

by cutting both firm and non-firm exports when necessary.[72] Thus, PJM was acting at all times to the best of its ability given the information available to PJM at the time.

Second, ODEC alleges "PJM violated the requirements of its Tariff by initially making an erroneously low load forecast."[73] PJM comprehensively rebutted this allegation in both the PJM Answer to the ComEd Generators Complaint[74] and PJM's answer to the Complaint of the Coalition of PJM Capacity Resources.[75] The bottom line is that any difference between PJM's forecast and actual load does not justify the Complainant's performance failures. ODEC had an obligation to perform regardless of PJM's forecast.

Moreover, as PJM's prior answers show, PJM's load forecast for December 23-24 was reasonable given the totality of the information available in advance of Winter Storm Elliott.[76] PJM uses state of the art forecasting tools and processes.[77] PJM was mindful that Winter Storm Elliott could have unpredictable impacts, and conducted a detailed review of its load forecast prior to the event. While Winter Storm Elliott presented conditions that

[72] *Id.* at 67 (citing Bryson Aff. ¶ 23).

[73] Complaint at 10 (citing *Coalition of PJM Capacity Resources v. PJM Interconnection, L.L.C.*, Complaint of Coalition of PJM Capacity Resources. Docket No. EL23-55-000, at 2 (Apr. 4, 2023)).

[74] PJM Answer to ComEd Generators Complaint at 18-27. For the Commission's convenience, PJM includes this extensive discussion and explanation of PJM's load forecast in the answer excerpts in Attachment E, again using the pagination of the as-filed answer.

[75] *Coalition of PJM Capacity Resources v. PJM Interconnection, L.L.C.*, Answer, Motion to Dismiss or Summarily Dispose Complaint, and Request for Confidential Treatment of PJM Interconnection, L.L.C., Docket No. EL23-55-000, at 18-28, 50-58 ("PJM Answer to Coalition Complaint"). For the Commission's convenience, and to ensure an appropriate record in this docket, PJM includes in Attachment D to this answer the noted excerpts from the PJM Answer to Coalition Complaint addressing this load forecast issue.

[76] PJM Answer to ComEd Generators Complaint at 31; PJM Answer to Coalition Complaint at 21-22, 52-53.

[77] PJM Answer to ComEd Generators Complaint at 18 (citing Exhibit 3, Affidavit of Joseph Mulhern on Behalf of PJM Interconnection, L.L.C. ¶ 13); PJM Answer to Coalition Complaint at 18-20.

PJM's model had never seen before,[78] these conditions were within the bounds of PJM's preparation.[79] The higher than forecasted loads for December 23 and December 24 were attributable to the anomalous combination of record-breaking temperature drops and demand levels never before seen over the Christmas holiday.[80]

Third, ODEC claims "there are concerns raised that PJM violated its Tariff by repeatedly deciding not to issue reliability commitments that would have caused more generators to be online and able to operate during the emergency."[81] Though ODEC does not attribute this statement, PJM addressed and resolved a seemingly similar objection in the PJM Answer to the Coalition Complaint. In that answer, rebutting an objection that PJM should have conducted more Reliability Assessment and Commitment Runs on December 22 and 23, PJM showed that it could not have issued more reliability commitments because it did not know it needed more resources until the morning of December 23.[82] PJM reasonably believed it had more than enough resources available to meet load that day based on the information provided by the generators.[83] PJM had no way of knowing that the resources it called on and was relying on would not perform. PJM should not be faulted for failing to call on additional resources before it could have known

[78] PJM Answer to ComEd Generators Complaint at 23; PJM Answer to Coalition Complaint at 23.

[79] PJM Answer to ComEd Generators Complaint at 23 (citing Winter Storm Elliott FAQs at 5); PJM Answer to Coalition Complaint at 23 (citing Winter Storm Elliott FAQs at 5).

[80] PJM Answer to ComEd Generators Complaint at 22-23, 25; PJM Answer to Coalition Complaint at 22-23, 25.

[81] Complaint at 10.

[82] PJM Answer to Coalition Complaint at 55. This PJM showing is included in the excerpts reproduced in Attachment D.

[83] *Id.*

that the resources it called on would not meet their obligations. In short, ODEC should not attempt to shift the blame on PJM in an attempt to be excused from Non-Performance Charges for its failure to perform during the Performance Assessment Intervals.

Fourth, ODEC appears to argue that PJM's "decision to end emergency procedures" did not "follow [PJM's] Tariff" and was a "poor[] exercise" of PJM's discretion.[84] However, as PJM showed in its answers to the ComEd Generators Complaint, the Coalition Complaint, and the complaint of the Nautilus Entities,[85] under the Good Utility Practice standard, PJM has broad flexibility when making decisions in emergency conditions.[86] The Good Utility Practice standard is incorporated in the Tariff and the Operating Agreement.[87] This standard is highly deferential, and requires that PJM's decisions must be "reasonable . . . in light of the facts known at the time the decision was made."[88] This is especially true in emergency conditions.[89] PJM's Tariff, Operating

[84] Complaint at 10.

[85] *See generally*, PJM Answer to ComEd Generators Complaint at 44-51, 69-77; PJM Answer to Coalition Complaint at 42-49, 77-81; *Essential Power OPP, LLC v. PJM Interconnection, L.L.C.*, Answer, Motion to Dismiss or Summarily Dispose Complaint, and Request for Confidential Treatment of PJM Interconnection, L.L.C., Docket No. EL23-53-000, at 43-51 (May 30, 2023) ("PJM Answer to Nautilus Entities Complaint").

[86] PJM Answer to ComEd Generators Complaint at 45; PJM Answer to Coalition Complaint at 44; PJM Answer to Nautilus Entities Complaint at 46.

[87] Tariff, Definitions – G-H (defining Good Utility Practice); Operating Agreement, Definitions – G-H (same).

[88] Tariff, Definitions – G-H (defining Good Utility Practice); Operating Agreement, Definitions – G-H (same); *see Salt Creek Solar, LLC v. Sw. Power Pool, Inc.*, 180 FERC ¶ 61,116, at P 68 (2022) ("The Tariff['s] definition of Good Utility Practice affords SPP discretion to exercise reasonable judgment in light of the facts known at the time it makes a business decision.").

[89] *N. Nat. Gas Co.*, 103 FERC ¶ 61,083, at P 14 (2003) ("The Commission gives pipelines much discretion regarding when and how they respond to system emergencies."); *Mun. Light Bds. v. Boston Edison Co.*, 53 FPC 1545, 1565 (1975) ("Since emergencies usually allow no time for consultation or debate the judgment must be made by the electric utility involved. The judgment, however, must be reasonable and made in good faith; it might be one which a reasonable man acting in good faith might have made under the circumstances then known and within the time which appeared to be available for action."); *aff'd sub nom. Norwood v. FPC*, 546 F.2d 1036 (D.C. Cir. 1976).

Agreement, and Manuals provide PJM the flexibility to respond to emergencies, including the decision of when such emergencies end. More particularly, Operating Agreement, section 1.7.11 states that PJM has the exclusive responsibility "for declaring the existence of an Emergency, and for directing the operations of Market Participants as necessary to manage, alleviate or end an Emergency," and that PJM's directives "shall be binding on all Market Participants until [PJM] announces that the actual or threatened Emergency no longer exists."[90] Similarly, Manual 13 vests with PJM the responsibility for "[d]eclaring an emergency exists or has ceased to exist," and provides for broad operational flexibility during emergencies.[91]

In particular, PJM's decisions about when to declare and end emergencies, and how much of the PJM Region to include in those emergency declarations, clearly were reasonable based on the facts known to PJM operators at the time.[92] While the Complaint alleges "significant and adverse impacts on Market Participants as a result of PJM failing to either follow its Tariff and/or poorly exercise its discretion," it does not explain how PJM's actions in declaring the emergency or ending emergency procedures exceeded the wide boundaries of Good Utility Practice incorporated into the Tariff, Operating Agreement, and Manual 13.[93] As the Complaint concedes, "ODEC does not fault individual PJM operators for perhaps exercising their best judgment in the throes of the

[90] Operating Agreement, Schedule 1, section 1.7.11(a).

[91] PJM Manual 13, section 1.1.

[92] PJM Answer to ComEd Generators Complaint at 69-77; PJM Answer to Coalition Complaint at 77-81.

[93] Complaint at 10.

Winter Storm Elliott event."[94] Under the Good Utility Practice standard, PJM's decisions must be evaluated based on what was known "in the throes of the Winter Storm Elliott event" and the Complaint provides no reason to second-guess those decisions.

3. PJM properly denied ODEC's designation of certain replacement resources.

In addition to causes of action alleged by others, ODEC contends that PJM "may" have erroneously denied ODEC's specification of replacement resources. ODEC alleges that PJM's denial of the replacement resources "may have been made in error" because "[i]n several instances, the actual minimum performance lower than the Reliability Pricing Model ("RPM") commitment on the resources was at the discretion of the PJM dispatcher to follow the automatic generator control signal or because the unit was released from dispatch."[95] Because PJM's denials of ODEC's replacement resources were in accordance with the relevant manual's requirements, the Commission should deny ODEC's claim.

In general, PJM's capacity performance construct is resource specific. PJM's Manual 18, section 8.8, provides a limited exception to this resource-specific construct, allowing for replacement resources under specified circumstances with narrow conditions, which ODEC does not meet. More specifically, section 8.8(5) requires that "the resulting total Daily Resource Commitments (RPM and [Fixed Resource Requirement]) (in [unforced capacity] terms) on a generation resource used as a replacement resource cannot exceed such replacement resource's Actual Performance during the Performance

[94] *Id.*

[95] *Id.* at 13.

Assessment Intervals."[96] Thus, a resource designated as a replacement resource cannot satisfy Daily Resource Commitments in excess of its Actual Performance.

In his affidavit, Mr. Klose quotes a communication from PJM, stating that the replacement resources were denied because, "[t]he minimum actual performance for LOUISA G2 across all intervals during the operating day was lower than the RPM commitment on the resource; therefore, this violates business rule (5) as stated in Manual 18 Section 8.8."[97] Neither the Complaint nor the Affidavit of Dan Klose disputes that the replacement resources PJM denied did not have surplus capacity available to fulfill the commitments of the resource ODEC designated for replacement. Instead, the Complaint states "ODEC believes that PJM's basis for rejecting ODEC's replacement is at best unclear and may have been made in error, even if certain business rules penalize generation for following PJM dispatch instructions."[98]

PJM's basis for denying the replacements does not lack clarity. PJM denied the replacements because they did not meet the criteria set forth in Manual 18, section 8.8(5). ODEC does not dispute that the Actual Performance of the Louisa units ODEC designated was lower than their RPM commitments, meaning that these units did not have sufficient capacity available to serve as replacements for other ODEC resources. ODEC's suggestion that the designated replacement resources did not satisfy this criteria "at the direction of the PJM dispatcher . . . or because the unit was released from dispatch"[99] is immaterial,

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[96] *See* Capacity Market & Demand Response Operations, *PJM Manual 18: PJM Capacity Market*, PJM Interconnection, L.L.C., section 8.8(5) (Feb. 9, 2023), https://www.pjm.com/-/media/documents/manuals/m18.ashx.

[97] Klose Aff. ¶ 15.

[98] Complaint at 13.

[99] Complaint at 13.

because it does not change the fact that the replacement resources ODEC designated had no surplus capacity available and therefore did not satisfy section 8.8(5).

4. Under PJM's Operating Agreement, disputes concerning PJM's dispatch decisions cannot be raised with FERC.

To the extent that the Complaint implies any allegation of improper scheduling by PJM, the Commission need not reach or decide any such claim, which would be barred by Operating Agreement, Schedule 1, section 1.8.2 and *PPL EnergyPlus*.[100] Specifically, Operating Agreement, Schedule 1, section 1.8.2 provides that disputes concerning PJM's dispatch decisions should be brought directly to PJM, not to the Commission. This provision states that "[c]omplaints arising from or relating to [the selection, scheduling or dispatch of resources] shall be brought to the attention of [PJM]."[101] Section 1.8.2 requires that any such complaints must "be brought to the attention of [PJM] not later than the end of the fifth Business Day after the end of the Operating Day to which the selection or scheduling relates, or in which the scheduling or dispatch took place."[102] It further provides that PJM's market participants shall not be entitled to any "form of reimbursement from [PJM] or any other Market Participant for any loss, liability or claim, including any claim for lost profits, incurred as a result of a mistake, error or other fault by [PJM] in the selection, scheduling or dispatch of resources."[103]

The Commission's decision in *PPL EnergyPlus* confirms this reading of the Operating Agreement. There, the Commission barred the claim of a generator that its unit

[100] *PPL EnergyPlus*, 117 FERC ¶ 61,338, at P 33 (2006).

[101] Operating Agreement, Schedule 1, section 1.8.2(a); Tariff, Attachment K-Appendix, section 1.8.2(a).

[102] Operating Agreement, Schedule 1, section 1.8.2(a); Tariff, Attachment K-Appendix, section 1.8.2(a).

[103] Operating Agreement, Schedule 1, section 1.8.2(d); Tariff, Attachment K-Appendix, section 1.8.2(d).

should have been called sooner by the operators during a reliability emergency related to the overload of a single transmission line.[104] The generator argued that its unit should have been dispatched before PJM called a Maximum Emergency Generation Event and started to purchase emergency power and not afterwards, in violation of the Operating Agreement.[105] The Commission dismissed the generator's claim stating: "PJM and the signatories to the Operating Agreement, including PPL, have agreed that disputes concerning these matters not lead to the retroactive unraveling of PJM's market dispatch decisions leading to re-creation of hypothetical prices based on potentially different dispatch decisions."[106] This finding should apply equally to any claims of improper scheduling implied by the Complaint.

Further, PJM's longstanding rationale for including this provision in the Operating Agreement, as explained by the Commission, underscores why it should be applicable in this case:

> As PJM correctly notes . . . the parties' claim limitation agreement recognizes the day-to-day stress of system operations and the need, on PJM's part, to exercise judgment in making dispatch decisions, particularly in emergencies. Because such dispatch decisions are made in real-time, such decisions cannot be reversed and trying to recreate monetary damages for potential errors would be difficult and inappropriate.[107]

The "stress" faced by the PJM operators and the "need for judgement" during Winter Storm Elliott dwarf the issues faced by the operators in *PPL EnergyPlus*, where the emergency

[104] *PPL EnergyPlus*, 117 FERC ¶ 61,338, at PP 2, 33.

[105] *Id.* PP 3-4.

[106] *Id.* P 33.

[107] *Id.*

conditions affected only a small part of the PJM system. This rationale thus applies with even greater force to the facts in this proceeding given the severity of the situation that PJM faced.

III. ADMISSIONS AND DENIALS PURSUANT TO 18 C.F.R. § 385.213(c)(2)(i)

Pursuant to Rule 213(c)(2)(i) of the Commission's rules of Practice and Procedure,[108] PJM affirms that any allegation in the Complaint is not specifically and expressly admitted above is denied.

IV. AFFIRMATIVE DEFENSES PURSUANT TO 18 C.F.R. § 385.213(c)(2)(ii)

PJM's affirmative defenses are set forth above in this answer, and include the following, subject to amendment and supplementation.

1. The Complainant has not satisfied its burden of proof under FPA section 206 (16 U.S.C. § 824e), and has not demonstrated that PJM violated any Commission order, the Tariff, the Operating Agreement, Reliability Assurance Agreement, the Consolidated Transmission Owners Agreement, or any other Commission-jurisdictional governing document.

2. The Complainant does not state a claim upon which relief can be granted, because it has not satisfied the pleading requirements of FPA sections 206(b) (16 U.S.C. § 824e(b)) and 306 (16 U.S.C. § 825e), and Commission Rule 206(b) (18 C.F.R. § 385.206(b)), which require that a violation of the FPA, applicable regulatory requirement, Tariff, or other Commission-jurisdictional governing document be specifically alleged and supported.

3. PJM's assessment of Non-Performance Charges to ODEC complied with applicable Tariff provisions and ODEC's non-performance during Winter Storm Elliott is not excused.[109]

4. PJM's denial of replacement resources designated by ODEC complied with the applicable provisions of PJM Manual 18.[110]

[108] 18 C.F.R. § 385.213(c)(2)(i).

[109] Tariff, Attachment DD, section 10A(d).

[110] PJM Manual 18, section 8.8.

V. CONDITIONAL MOTION TO DISMISS

If the Commission denies PJM's Motion for Settlement Procedures and proceeds to the merits of the complaints, it should dismiss ODEC's Complaint because it does not meet the statutory or regulatory standards set forth in FPA sections 206(b)[111] or 306[112] and Rule 206(b).[113]

A "complaint does not satisfy its burden under FPA sections 206 and 306 by broadly alleging potential . . . violations" that lack specificity as to the requirement or provision violated and an explanation of how the violation occurred.[114] Therefore, "rather than make allegations, '[a complainant] must make an adequate proffer of evidence including pertinent information and analysis to support its claims.'"[115] The Commission has dismissed complaints for not fulfilling Rule 206(b)(1) and (2) requirements where "the

[111] 16 U.S.C. § 824e(b) ("[T]he burden of proof to show that any rate, charge, classification, rule, regulation, practice, or contract is unjust, unreasonable, unduly discriminatory, or preferential shall be upon . . . the complainant.").

[112] 16 U.S.C. § 825e ("Any person . . . complaining of anything done or omitted to be done by any . . . public utility in contravention of the provisions of this chapter may apply to the Commission by petition which shall briefly state the facts.").

[113] 18 C.F.R. § 385.206(b)(1)-(2) (Requiring complaint to "clearly identify the action or inaction which is alleged to violate applicable statutory standards or regulatory requirements" and "explain how the action or inaction violates applicable statutory standards or regulatory requirements.").

[114] *Coal. of Eastside Neighborhoods for Sensible Energy v. Puget Sound Energy, Inc.*, 183 FERC ¶ 61,057, at P 29 (2023). *See Black Oak Energy LLC v. N.Y. Indep. Sys. Operator, Inc.*, 122 FERC ¶ 61,261, at P 31 (2008) ("In a proceeding under FPA section 206, the burden of proof to show that any charge or practice is unjust or unreasonable is on the complainant."); *330 Fund I, LP v. N.Y. Indep. Sys. Operator, Inc.*, 126 FERC ¶ 61,151, at P 12 (2009) ("[T]he complainant, has the burden of proof to establish the facts needed to support the claims in its section 206 complaint.").

[115] *Citizens Energy Task Force v. Midwest Reliability Org.*, 144 FERC ¶ 61,006, at P 38 (2013) (citing *CAlifornians for Renewable Energy, Inc. v. Pac. Gas & Elec. Co.*, 142 FERC ¶ 61,143, at P 18 (2013)); *see Coal. of Eastside Neighborhoods*, 183 FERC ¶ 61,057, at P 28 ("[R]ather than bald assertions, [a complainant] must make an adequate proffer of evidence including pertinent information and analysis to support its claims"); *City of Oakland v. Pac. Gas & Elec. Co.*, 167 FERC ¶ 61,097, at P 6 (2019) ("The Commission requires that the complainant provide the Commission with evidentiary materials, including documents that support the facts in the complaint.").

Complaint [did] not cite any specific provision of any Commission order or regulation, or any specific provision of the . . . [relevant] Tariff . . . , that Respondents have allegedly violated."[116] Where a complaint merely makes broad references to Commission orders and does not specify the specific violations at issue, it "fails to provide that minimum level of specificity."[117]

ODEC has not satisfied these pleading requirements and states that "ODEC recognizes that the Commission generally requires complainants to individually demonstrate the bases of their complaint, such as a Tariff violation," but then argues that the Commission should excuse its Non-Performance Charges "given the significance and breadth of Market Participants impacted by PJM's possible Tariff violations."[118] Under the pleading requirements discussed above, a complaint thus conditioned on violations alleged by others cannot carry its burden.[119] The Complaint makes broad allegations that PJM acted in an unjust and unreasonable manner but does not provide any evidence as to how PJM's actions were unjust and unreasonable specific to ODEC's capacity resources.[120]

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[116] *Coal. of Eastside Neighborhoods for Sensible Energy v. Puget Sound Energy, Inc*., 153 FERC ¶ 61,076, at P 59 (2015); *see Citizens Energy Task Force*, 144 FERC ¶ 61,006, at P 39 (Commission finds "that the Complaint . . . fails to meet the requirements of Rule 206 because the Complaint does not explain how the averred facts support the alleged violations.").

[117] *See Coal. of Eastside Neighborhoods for Sensible Energy*, 153 FERC ¶ 61,076, at P 60.

[118] Complaint at 11.

[119] *See, e.g. City of Oakland*, 167 FERC ¶ 61,097, at P 6 (complainant must "explain how the action or inaction violates the standard or requirement"); *Coal. of Eastside Neighborhoods for Sensible Energy*, 153 FERC ¶ 61,076, at P 59 (dismissing complaint that "[did] not cite any specific provision of the . . . Tariff . . . that Respondents have allegedly violated"); *Citizens Energy Task Force*, 144 FERC ¶ 61,006, at P 39 (dismissing complaint because a "complaint must, at a minimum, set forth the specific provision of the Reliability Standard that is at issue").

[120] *See, e.g.*, Complaint at 1-2 ("PJM's imposition of Non-Performance Charges […] *appears* to violate the requirements of PJM's Open Access Transmission Tariff ("Tariff"), the Amended and Restated Operating Agreement of PJM Interconnection, L.L.C. ("Operating Agreement"), and certain PJM Manuals, and are otherwise unjust and unreasonable.")(emphasis added), 15 ("PJM's imposition of Non-Performance Charges

Finally, to the extent that ODEC fears that its bonus payments will be reduced because the Commission may excuse other complainants from their Non-Performance Charges,[121] intervention in the Winter Storm Elliott proceedings of the other complainants is the appropriate means to protect this interest, which is contingent on the outcome of those proceedings. In fact, ODEC has intervened in all eleven ongoing proceedings.[122] Intervention in the ongoing proceedings is sufficient to resolve ODEC's concerns raised in the Complaint. PJM has indicated that any settlement would need to be principled and applied consistently across all similarly situated Capacity Market Sellers.

Thus, because this Complaint simply appears to be a placeholder to ensure comparable treatment in the event a settlement is reached, the Commission should dismiss it in the event the Commission denies PJM's Motion for Settlement Procedures.

for ODEC's Capacity Resources *may have violated* the PJM Tariff, Operating Agreement and/or Manuals, or *might* otherwise be unjust and unreasonable under FPA section 206.")(emphasis added).

[121] Complaint at 3.

[122] At the time that this answer was filed, other Winter Storm Elliot-related complaints had already been submitted in Docket Nos. EL23-53-000, EL23-54-000, EL23-55,-000, EL23-56-000, EL23-57-000, EL23-58-000, EL23-59-000, EL23-60-000, EL23-63-000, EL23-66-000 and EL23-67-000.

VI. COMMUNICATIONS AND SERVICE

PJM requests that the Commission place the following individuals on the official service list for this proceeding:[123]

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[123] To the extent necessary, PJM requests a waiver of Commission Rule 203(b)(3), 18 C.F.R. § 385.203(b)(3), to permit more than two persons to be listed on the official service list for this proceeding.

VII. CONCLUSION

For the reasons set forth in this answer, the Commission should deny the Complaint. If the Commission denies PJM's Motion for Settlement Procedures, it should dismiss the Complaint because it does not comply with the pleading requirements of FPA sections 206(b) and 306, and Rule 206(b).

Respectfully submitted

/s/ *Andrew T. Swers*

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June 2, 2023

ATTACHMENTS

ATTACHMENT A: ADVISORIES, ALERTS, CONDITIONS

ATTACHMENT B: TIMELINE

ATTACHMENT C: EXCERPTS FROM AFFIDAVITS OF JOSEPH MULHERN, MICHEAL E. BRYSON, AND STEVEN A. NAUMANN FILED IN DOCKET NOS. EL23-53-000, EL23-54-000, AND EL23-55-000

ATTACHMENT D: EXCERPTS FROM PJM'S ANSWER, MOTION TO DISMISS OR SUMMARILY DISPOSE COMPLAINT, AND REQUEST FOR CONFIDENTIAL TREATMENT TO COALITION OF PJM CAPACITY RESOURCES COMPLAINT IN DOCKET NO. EL23-55-000

ATTACHMENT E: EXCERPTS FROM PJM'S ANSWER, MOTION TO DISMISS OR SUMMARILY DISPOSE COMPLAINT, AND REQUEST FOR CONFIDENTIAL TREATMENT TO COMED GENERATOR'S COMPLAINT IN DOCKET NO. EL23-54-000

ATTACHMENT A

ADVISORIES, ALERTS, CONDITIONS

ADVISORIES, ALERTS, CONDITIONS

- A **Cold Weather Advisory** provides an early notice that forecasted temperatures may prompt PJM to issue a Cold Weather Alert.[1] Such an advisory is designed to elevate awareness and give PJM members ample time to gather information required by NERC standards.[2] A Cold Weather Advisory can be issued one or more days in advance of the operating day.[3]
- A **Cold Weather Alert** is issued one or more days in advance of the operating day for elevated awareness and to give PJM members time to prepare personnel and facilities for expected extreme cold weather conditions.[4] PJM can initiate a Cold Weather Alert when forecasts predict temperatures of 10 degrees Fahrenheit or below.[5] However, PJM may issue an alert at higher temperatures if PJM anticipates increased winds or if PJM projects a portion of gas fired capacity is unable to obtain spot market gas during load pick-up periods.[6] PJM will initiate the Cold Weather Alert for the appropriate region(s) in advance of the operating day based on several factors, including historical experience, information supplied by the pipelines, and/or information supplied from the generator owners.[7] PJM Manual 13 specifies that "PJM Dispatch will notify the

[1] System Operations Division, *PJM Manual 13: Emergency Operations*, PJM Interconnection, L.L.C., section 3.3.1 (May 18, 2023), https://www.pjm.com/-/media/documents/manuals/m13.ashx.

[2] PJM Manual 13, section 3.3.1.

[3] PJM Manual 13, section 3.3.1.

[4] PJM Manual 13, section 3.3.2.

[5] PJM Manual 13, section 3.3.2.

[6] PJM Manual 13, section 3.3.2.

[7] PJM Manual 13, section 3.3.2.

generator owner that the unit is required to be online and ready to follow PJM Dispatch signals at XX:XXhrs on XX day for reliability. The unit parameters and the offer will then be confirmed and the unit will be offer capped."[8]

- **Energy Emergency Alerts:** PJM follows the North American Electric Reliability Corporation ("NERC") Reliability Standards for making emergency alert declarations relating to reliability.[9] Consistent with NERC's reliability standards, emergency conditions exist in PJM when PJM declares an Energy Emergency Alert ("EEA") Level 2.[10] NERC has established three levels of EEAs.[11]
  - PJM may declare an EEA1 when all available generation resources are in use or are committed to meet firm Load, firm transactions, and reserve commitments, and PJM is concerned about sustaining its required Contingency Reserves.[12]
  - PJM may declare an EEA2 when PJM is no longer able to provide its expected energy requirements and is energy deficient, has implemented its operating plan to mitigate emergencies, but is still able to maintain minimum Contingency Reserve requirements.[13] PJM will perform public appeals to reduce demand, reduce voltage, and interrupt non-firm load in accordance with applicable contracts.[14]

[8] PJM Manual 13, section 3.3.2.

[9] *See* Operating Agreement, Schedule 1, section 8.5; Tariff, Attachment K-Appendix, section 8.5.

[10] *See* Operating Agreement, Schedule 1, section 8.5; Tariff, Attachment K-Appendix, section 8.5.

[11] *NERC Standard EOP-011-1*, North American Electric Reliability Corporation, Attachment 1, Energy Emergency Alerts, section B (Dec. 1, 2015), http://www.nerc.com/pa/Stand/Reliability%20Standards/EOP-011-1.pdf (NERC Standard EOP-011-1 was in effect during Winter Storm Elliott and has since been replaced by NERC Standard EOP-011-2, effective April 1, 2023); PJM Manual 13, section 2.3.1.

[12] NERC Standard EOP-011-1, Attachment 1, Energy Emergency Alerts, section B(1).

[13] NERC Standard EOP-011-1, Attachment 1, Energy Emergency Alerts, section B(2).

[14] PJM Manual 13, section 2.3.2.

- Before declaring an EEA3, PJM must make use of all available resources, including, but not limited to, all available generation units that are online, all generation capable of being online in the time frame of the emergency, and available demand-side resources.[15] An EEA3 occurs when firm load interruption is imminent or in progress, and PJM is unable to meet minimum Contingency Reserve requirements.

- **Actions** are issued in real time and require PJM and/or member response. Actions include:
  - **Maximum Generation Emergency**: issued to increase the PJM RTO generation above the maximum economic level. It is implemented whenever generation is needed that is greater than the highest incremental cost level.
  - **Emergency Load Management Reductions**: PJM Dispatch posts detailed instructions to the Curtailment Service Providers (CSP) to dispatch 30, 60 and/or 120 minute Pre-Emergency Load Management Reductions.
  - **Voltage Reduction**: the purpose of this action is to warn members that the available synchronized reserve is less than the Synchronized Reserve Requirement and that present operations have deteriorated such that a voltage reduction may be required.
- PJM also may deploy **Synchronized Reserves**, the reserve capability of generation resources that can be converted fully into energy or Demand Resources whose demand can be reduced within ten minutes from the PJM dispatcher's request, and is provided by equipment that is electrically synchronized to the Transmission System. Synchronized Reserves are supplied from 10-minute synchronized generating

[15] NERC Standard EOP-011-1, Attachment 1, Energy Emergency Alerts, section B(3).

resources (i.e., Spinning Reserves) and 10-minute demand-side response resources. Interruptible load resources cannot be part of the 10 minute synchronized generating reserves component of Synchronized Reserves.

ATTACHMENT B

TIMELINE

TIMELINE

* All dates noted in this chronology are in 2022 and all times are in 24-hour time.

Date	**Time**	**Event**	**Performance Assessment Interval Trigger?**
December 20	09:00	PJM issued a Cold Weather Advisory for the Western Region zones from 07:00 on December 23 through 23:00 on December 25.	
December 21	09:00	PJM issued a Cold Weather Alert for the Western Region zones from 07:00 on December 23 through 23:00 on December 25.	
	10:00	PJM extended the Cold Weather Advisory for the Western Region zones to last through 23:00 on December 26.	
December 22	17:30	PJM expanded the Cold Weather Advisory from 07:00 on December 23 through 23:00 on December 26 to the entire regional transmission organization ("RTO").	
December 23	10:14	PJM called a 100% RTO Synchronized Reserve Event.	
	11:00	PJM issued a Cold Weather Alert for the entire RTO from 00:00 on December 24 through 23:59 on December 25.	
	16:17	PJM called a 100% RTO Synchronized Reserve Event.	
	17:30	Issued the EEA2 with Pre-Emergency Load Management Reduction Action and Maximum Generation Action through 23:59 on December 23.	Yes
	23:00	Declared a Maximum Generation Alert/Load Management Alert, and an EEA1, starting Saturday, December 24, at 00:00. Cancelled the Maximum Generation Action issued at 17:30.	No
December 24	00:05	PJM called a 100% RTO Synchronized Reserve Event.	
	02:23	PJM called a 100% RTO Synchronized Reserve Event.	

Date	Time	Event	Performance Assessment Interval Trigger?
	04:00	PJM called for conservation through 10:00 on December 25, and curtailed exports.	
	04:20	Issued an EEA2-Pre-Emergency Load Management Reduction Action and Emergency Load Management Reduction Action.	Yes (to start at 06:20)
	04:23	PJM called a 100% RTO Synchronized Reserve Event.	
	04:27	Issued an EEA2-Maximum Generation Emergency Action.	Yes
	04:52	PJM issued a Voltage Reduction Alert.	
	06:00	Load management came into effect.	
	06:17	PJM encouraged Market Participants to submit bids to sell emergency energy into PJM.	
	06:30	PJM received first notification of emissions issues from generation and began working with the Department of Energy ("DOE") to obtain an emergency order pursuant to section 202(c) of the Federal Power Act ("FPA").	
	07:15	PJM issued a Voltage Reduction Warning and Reduction of Non-Critical Plant Load.	
	17:30	The DOE issues emergency order pursuant to section 202(c) of the FPA, which PJM received and implemented.	
	22:00	Ended the EEA2-Maximum Gen Emergency Action, ending the PAIs and returned to EEA0.	
	23:38	PJM issued a Maximum Generation Emergency/Load Management Alert for December 25.	No
December 25	11:10	PJM issued a Cold Weather Alert for only the Western Region zones from 07:00–23:00 on December 26.	
	22:00	Returned to EEA0.	
December 26	23:00	The Cold Weather Alert ended.	

ATTACHMENT C

Excerpts from Affidavits of Joseph Mulhern, Micheal E. Bryson, and Steven A. Naumann filed in Docket Nos. EL23-53-000, EL23-54-000, and EL23-55-000

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Essential Power OPP, LLC, *et al.*	)	
Complainants	)	
v.	)	**Docket No. EL23-53-000**
PJM Interconnection, L.L.C.	)	
Respondent	)	
	)	
Aurora Generation, LLC, *et al.*	)	
Complainants	)	
v.	)	**Docket No. EL23-54-000**
PJM Interconnection, L.L.C.	)	
Respondent	)	
	)	
Coalition of PJM Capacity Resources	)	
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PJM Interconnection, L.L.C.	)	
Respondent	)	

AFFIDAVIT OF JOSEPH MULHERN
ON BEHALF OF PJM INTERCONNECTION, L.L.C.

1. My name is Joseph Mulhern. My business address is 2750 Monroe Blvd., Audubon, Pennsylvania, 19403. I currently serve as Lead Engineer, Market Coordination for PJM Interconnection, L.L.C. (PJM). I am submitting this affidavit to support PJM's separate Answers to the complaints filed by the "Nautilus Entities,"[1] the "ComEd Zone Generators,"[2] and the Coalition of PJM Capacity Resources[3] that are being filed today in

[1] The Nautilus Entities are Essential Power OPP, LLC (OPP), Essential Power Rock Springs, LLC, and Lakewood Cogeneration, L.P..

[2] The ComEd Zone Generators are Aurora Generation, LLC, Elwood Energy, LLC, Jackson Generation, LLC, Lee County Generating Station LLC, Lincoln Generating Facility, LSP University Park, Rockford Power, LLC, Rockford Power II, LLC, and University Park Energy, LLC.

[3] The members of the Coalition of PJM Capacity Resources are: Ad Hoc Committee of Certain Noteholders of Talen Energy Corp.; Clean Energy Future – Lordstown, LLC Competitive Power Ventures Holdings, LP; Hickory Run Energy, LLC; Lanyard Power Holdings, LLC; Lightstone Marketing LLC; Orion Power Holdings, LLC; Parkway Generation Operating LLC; Brunner Island, LLC, H.A. Wagner LLC, Montour, LLC, Camden Plant Holding, L.L.C., MC Project Company LLC; Talen Energy Marketing, LLC; Red Oak Power, LLC; and South Field Energy LLC.

its load forecasting responsibilities in connection with Winter Storm Elliott. PJM used its state-of-the art load forecasting model and followed good forecasting practices.

8. I also think that it would be a serious mistake to conclude that the forecasts for December 23 and 24 indicate that there is some material defect in PJM's load forecasting overall. On the contrary, the weather and load conditions on December 23 and 24 could not have reasonably been anticipated because, by every objective measure, those conditions were extremely abnormal.

A. Introduction

9. Like other Regional Transmission Organizations (RTOs) and Independent System Operators (ISOs), PJM produces a load forecast for each of its transmission zones for the next several days. Load forecasting attempts to determine how much electricity demand there will be using weather forecast data and historical observations of load and weather. Uncertainty is inherent in any forecast. This is especially true of load forecasting because of its dependence on weather forecasts, which are famously uncertain, and on unpredictable human behavior patterns.

10. PJM uses sophisticated software, combined with informed human review and frequent human intervention, to forecast load as accurately as is practicable notwithstanding the innate fallibility of any human attempt to predict the future. PJM also reviews forecast performance on a daily basis, analyzes days with significant error, and actively participates in load forecasting working groups with other ISOs and RTOs.

11. PJM diligently maintains high quality forecast systems and produces well-developed forecasts. PJM continuously strives to meet a specified accuracy threshold. PJM reviews this load forecasting metric and performance with market participants on a monthly basis.

12. While the results of the load forecasting process can provide insight into how much generation might be required on a future day, the load forecast is not all that PJM uses to make generation commitments. Reserves, operator-entered case adjustments, and additional capacity commitments are used to account for uncertainty.

B. How PJM Load Forecasts Are Created

13. PJM's hourly load forecast covers the remainder of the current day as well as the next six days. The forecasting process begins with the hourly retrieval of weather forecast data from three separate private weather companies. PJM uses three reputable vendors, because of the strong benefits doing so has for reliability and accuracy. Using multiple vendors promotes redundancy in the event of failure of one or two vendors, and by averaging the vendor forecasts together, it allows for any significant error from any one vendor's forecast to be moderated by the other forecasts. PJM operations staff pay close attention to weather vendor performance, and use a daily report to monitor and compare performance on a daily

basis. Output of this report is used to inform decisions about how much weight is given to each weather vendor in the averaging process.

14. After the vendor forecasts are combined for 28 designated weather stations in the PJM footprint, the resultant forecasts become inputs into another weighted average calculation that determines a singular weather forecast value for each hour in 10 forecast zones for each hour.

15. The zonal weather forecast dataset is then used as input into the load forecast. For this, PJM uses a load forecasting algorithm that is widely used in the industry. The system runs on in-house computers and produces a series of outputs for each transmission zone for each hour in the outlook timeframe (remainder of current day plus next six days). There are multiple outputs because the system runs a wide suite of models, including the following:

- Models created by the algorithms designer are combined into an ensemble, where models with better recent performance are weighted higher, which then becomes PJM's default forecast before any manual adjustments are applied:
    - A neural network model that uses temperature as an input.
    - A neural network model that uses temperature as an input and is optimized for sudden changes in temperature.
    - A pattern matching algorithm that creates a load forecast by applying a weighted average to days with similar weather that occurred in the past.
- Models created internally by PJM:
    - A neural network model that uses effective temperature (which accounts for wind speed) as an input.
        - In the summer months, this model uses temperature humidity index instead of effective temperature.
    - A neural network that replaces recent historical load and weather data with forecasted values.

16. Output from all of these models are visualized in an in-house tool called LoadCast. LoadCast is prominently displayed in the control room on the desktop of the operator responsible for making manual adjustments to the published forecast, and also used extensively by support engineers who provide advice on how to make these manual adjustments.

17. The LoadCast tool also offers the ability to manually create a load forecast by plotting individual historical days with similar temperature profiles. This mimics a legacy load forecasting approach and provides a useful sanity check to verify the output of the models.

18. PJM uses multiple tools to visualize weather data. A custom in-house weather dashboard presents temperature, effective temperature, wind speed, cloud cover, and other parameters for weather stations and forecast zones for the current day and next six days. The dashboard features charts that compare vendor forecasts and show the 24 hour change in temperature; and daily written reports describing forecasted weather conditions in each of

three major zones in PJM. A dashboard with maps of the United States and parts of Canada shows real-time temperature, radar, dew point, and infrared and forecasted temperature deviations from normal for the current day and next 14 days. A custom Dispatch interactive mapping tool shows weather radar and satellite; temperature, wind speed, dew point, and relative humidity observations; local storm reports; National Weather Service bulletins; and a variety of severe conditions.

C. How PJM Optimizes Accuracy in Load Forecasting

19. PJM Operations staff closely monitor load forecast accuracy and model performance. A company forecast metric requires that 91% of days in the calendar year have a daily average load forecast error of less than 3%. The following table summarizes compliance with that goal. Forecast accuracy in 2021 and 2022 surpassed the three preceding years, and accuracy in 2023 is 97.16% as of May 22, 2023, which is better than the past five years.

Table 1: Percentages of Days with Load Forecast Error Under 3%

2023	N/A
2022	91.51%
2021	92.60%
2020	85.52%
2019	90.36%
2018	91.23%

20. Each morning, PJM operations staff and leadership review a report of forecast performance from the previous day. The report contains the day's load forecast score and a chart that depicts the contributions to load forecast error from weather forecast error, model error, and human adjustments. These contributions are quantified by running a backcast algorithm and computing the difference between various outputs. This information allows control room staff to observe trends, such as under- or over-forecasting that repeats at certain times of day, and correct for them in future forecasts.

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VERIFICATION

I, **Joseph Mulhern**, state, under penalty of perjury, that I am the Joseph Mulhern referred to in the foregoing document entitled "Affidavit of Joseph Mulhern on Behalf of PJM Interconnection, L.L.C.," that I have read the same and am familiar with the contents thereof, and that the facts set forth therein are true and correct to the best of my knowledge, information, and belief.

/s/ Joseph Mulhern
Joseph Mulhern

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AFFIDAVIT OF MICHAEL E. BRYSON
ON BEHALF OF PJM INTERCONNECTION, L.L.C.

A. Introduction

1. My name is Michael E. Bryson. My business address is 2750 Monroe Blvd., Audubon, Pennsylvania, 19403. I am the Senior Vice President of Operations for PJM Interconnection, L.L.C. (PJM). I am submitting this affidavit on behalf of PJM in support of PJM's Answers to the Complaints filed by the CZG and the Coalition of PJM Capacity Resources in the captioned proceedings.

2. I earned a Bachelor of Science in general engineering from the United States Military Academy at West Point, New York, focusing on computer science and electrical engineering, and have a Master of Business Administration from Saint Joseph's University in Philadelphia. I earned a graduate certificate in power engineering from the Worcester Polytechnic Institute.

3. Prior to my current position at PJM, I have held the positions of Executive Director of System Operations, General Manager of Dispatch Operations, and manager of the Transmission Department for the System Operations Division. I am the current chair of the Independent System Operator and Regional Transmission Organization Operating Committee. I also serve on the boards of directors of PJM Technologies, Inc., and PJM Repository Information Services, Inc. I previously served on the boards of directors of the ReliabilityFirst Corporation and Consortium for Electric Reliability Technology Solutions.

practicable. A pre-emergency event is implemented when economic resources are not adequate to serve load and maintain reserves or maintain system reliability, and prior to proceeding into *emergency procedures*."[39] Further, as the Commission stated in its order approving the Pre-Emergency Load Management Reduction Program, "it is reasonable for PJM to seek some added flexibility to dispatch these resources in response to system conditions, *without* the added step of declaring a system emergency."[40] Complainants' contention that there is a rigid prerequisite surrounding the use of this program is completely at odds with both the Tariff and the Commission's findings. Further, Manual 13 refers to the potential step of curtailing non-firm exports only in connection with "emergency procedures"[41] which, in the Tariff passage quoted above, comes *after* PJM has initiated "a pre-emergency event."

E. PJM Acted Properly During Winter Storm Elliott By Allowing Non-Firm Exports Following PJM's Declaration of Maximum Generation Emergency Actions and the Pre-Emergency and Emergency Load Management Reduction Actions

19. During Winter Storm Elliott, PJM acted consistently with its obligations by allowing non-firm transactions during periods in which Maximum Generation Emergency Actions and the Pre-Emergency and Emergency Load Management Reduction Actions were in effect. As I discussed above, PJM is obligated to provide assistance to other Balancing Areas when it can do so and when those regions are facing emergencies or potential emergency conditions.[42] During Winter Storm Elliott, PJM operators sought to help adjacent Balancing Areas to the extent feasible without shedding load in PJM. As I will detail below, PJM operators were successful in their efforts as PJM avoided load shedding and the assistance that PJM provided to other regions enabled them either to avoid or mitigate shedding their customers' load. Finally, while I disagree with the CZG Zone Complainants' claim that the reliability issues facing the ComEd Zone can be evaluated separately from the rest of PJM under the facts here, I will show that, accepting this premise, there was no impediment to the initiation of Pre-Emergency and Emergency Actions in the ComEd Zone even under Complainants' erroneous Tariff interpretation.

1. Curtailing All Non-Firm Exports Would Not Have Enabled PJM To Avoid Taking Pre-Emergency and Emergency Actions

Curtailing all non-firm transactions would not have alleviated the conditions that compelled the decision of the PJM operators to take Emergency Actions. As explained in greater detail in Mr. McGlynn's Affidavit, one of the reasons why the PJM operators took these steps related to the uncertainty of the load forecast—both in terms of the weather

[39] Tariff, Attach. K App., § 8.5 (emphasis added).

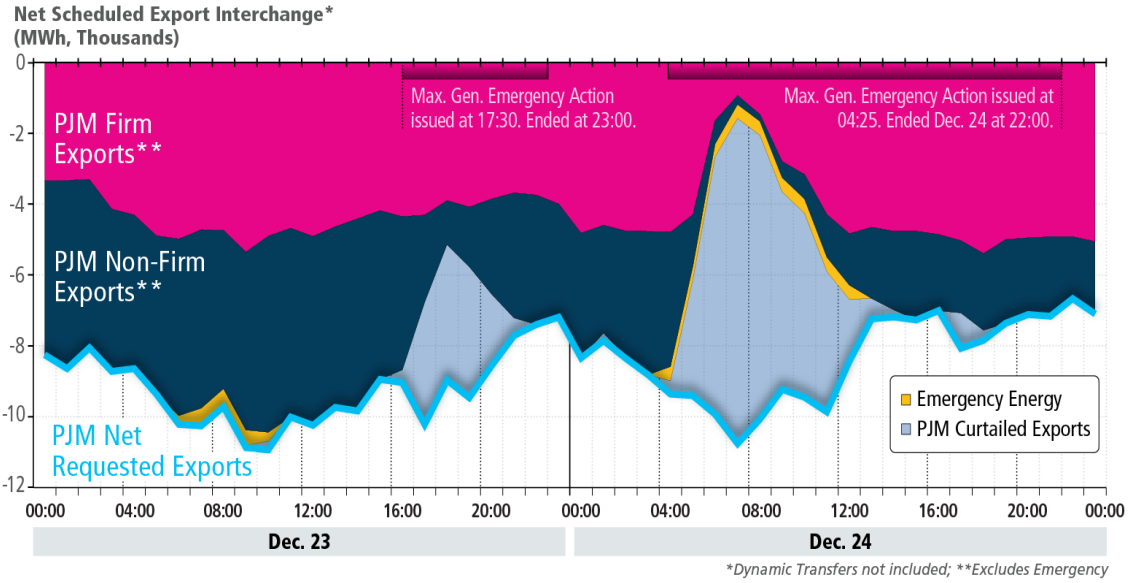
[40] *PJM Interconnection, L.L.C.*, 147 FERC ¶ 61,103 at P 38 (2014) (emphasis added).

[41] The term "emergency procedures" is sometimes capitalized in Manual 13 and sometimes in lower case. *See e.g.*, Manual 13, § 2.3 at 28.

[42] *See supra* at P 8.

forecast and uncertainty regarding how loads would respond to the weather conditions.[43] The most important reason, however, was the spectacular failure of generators to be available consistent with PJM's expectations of them as Capacity Resources subject to Capacity Performance obligations. As discussed by Mr. Pilong in his affidavit, "because of the poor generator performance, PJM was facing approximately 57,000 MW of generator unavailability for the morning peak on December 24."[44] Not only did many generators fail to produce power as expected but they also failed in many cases even to update their parameters so that operators had the information they needed to make the most effective dispatch decisions. In fact, about 24% of the PJM generation fleet was not available which actually was worse than PJM experienced during the 2014 Polar Vortex that was the precipitating event for adopting the Capacity Performance construct. Based upon these general considerations alone—the uncertainty of the load forecast and the shockingly poor performance of generators—the operators were justified in taking Emergency Actions instead of risking that PJM could avoid load-shedding by curtailing non-firm exports.

20. The operators' decisions to initiate Emergency Actions, moreover, are validated by the supply/demand conditions that were present. The graph below depicts the levels of exports from PJM during Winter Storm Elliott:



21. Comparing the values in this graph to the supply/demand conditions that PJM actually experienced confirms that PJM could not have met system demand only by cutting non-firm exports. On December 23, 2022, at 17:30, PJM issued a Pre-Emergency Load Management Reduction Action for the 30 minute and 60 minute Demand Resources that resulted in load reductions of about 1,100 MW. At the same time, PJM operators also

[43] McGlynn Aff. at P 56.

[44] Pilong Aff. at P 26.

issued a Maximum Generation Emergency Action that resulted in an average of 2,372 MW of additional generation.[45] In total, these actions had about 3,472 MW of impact. In comparison, for hour 18:00 non-firm exports were 1,241MW and for hour 19:00 non-firm exports were 1,683 MWs. Accordingly, even if the operators had cut all non-firm exports there would have been a deficit of at least 1,789 MW needed to satisfy PJM load and firm exports. Pre-Emergency and Emergency Actions thus would have been necessary to satisfy capacity needs even if all non-firm exports had been cut.

22. The situation for December 24, 2022 is similar. At 04:20 on December 24, 2022, PJM issued a Pre-Emergency Load Management Reduction Action and an Emergency Load Management Reduction Action that covered all Demand Resources and resulted in about 2,400 MW of load reduction. And at 04:28, PJM issued a Maximum Generation Emergency Action that it resulted in an average of about 2,879 MW in additional generation.[46] In total, these actions had 5,279 MW of impact. In comparison, for hour 05:00, non-firm exports were 1,820 MW falling to a low of 591 MW in hour 8:00 and increasing to a maximum level of 2,359 MW in hour 19:00 before the PAIs ended at 22:00. Accordingly, even if the operators had cut all non-firm exports there would have been a deficit between about 4,688 MW and 2,920 MW during this period needed to satisfy PJM load and firm exports. Pre-Emergency and Emergency Actions thus would have been necessary even if all non-firm exports had been cut.

23. These graphs also show that PJM prioritized meeting its own load by cutting exports—both firm and non-firm—when necessary. The graph shows a significant number of hours in which the assistance requested by other regions was not supplied. This correlates to the periods when PJM needed most of its generation for internal loads notwithstanding that during some these times other regions were seeking emergency supplies.

24. The Complainants also fail to acknowledge that PJM's operators were simultaneously considering PJM's potential needs over multiple time frames.[47] The ComEd Zone Complainants focus on the period after 06:00 on December 24, 2022, claiming that "there was no emergency in ComEd Zone beginning at least as of 06:00 on December 24 and thereafter"[48] and asserting that there was "excess generation" in the ComEd Zone.[49] Likewise, the Coalition faults PJM for issuing Maximum Generation Emergency Actions across the entire RTO and failing to distinguish generators in less-affected areas.[50] The

[45] This is hourly total MW operating above Ecomax for the Maximum Generation Emergency period.

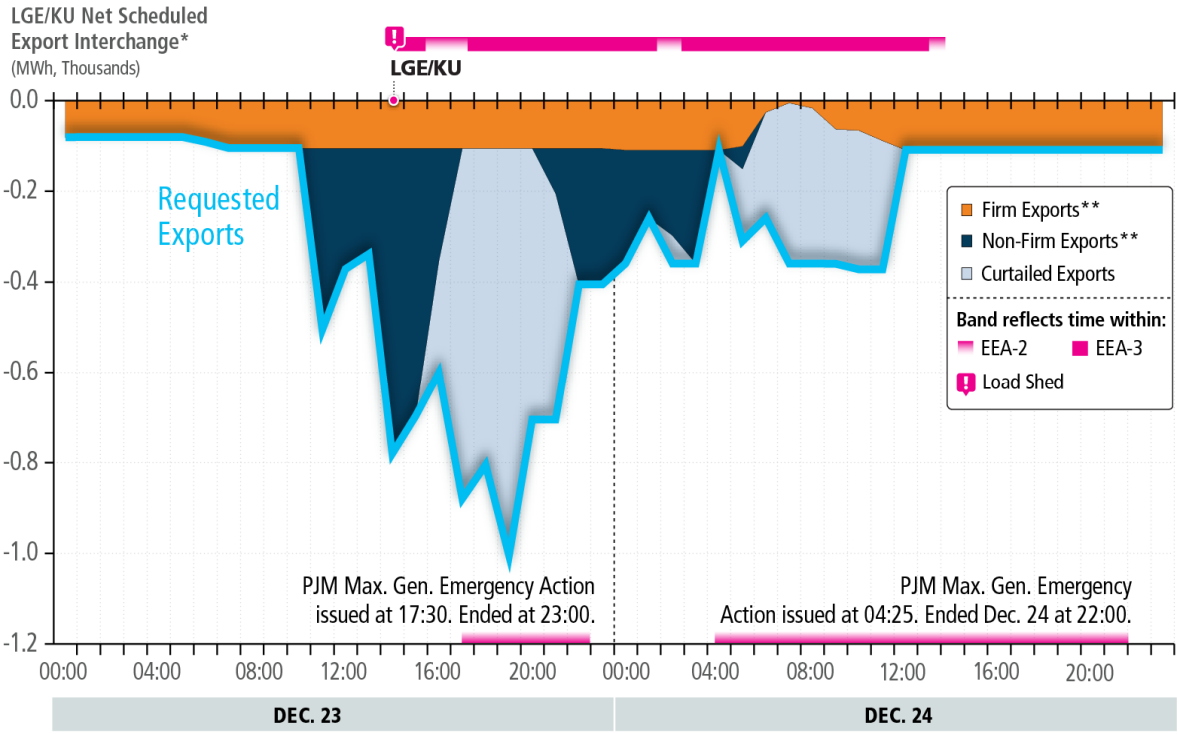
[46] This is hourly total MW operating above Ecomax for the Maximum Generation period.

[47] *See, e.g.*,Pilong Aff. at 21-22, 29.

[48] CZG Complaint at 34 (quoting Test. of Dr. Scott Harvey, Ex. CZG-0001, at P 70).

[49] *Id.* at 35.

[50] Coalition Complaint at 37.



*Dynamic Transfers not included; **Excludes Emergency

Once again, PJM made non-firm deliveries to LGE/KU when the region was shedding load. Had PJM not made these exports, additional load shedding would likely have been needed.

F. PJM Acted Properly By Providing Assistance to Adjoining Balancing Areas After It Initiated Load Management Actions

34. The CZG Complainants and the Coalition assert that PJM violated a provision in Section 2.5 of Manual 13 that prevents PJM from calling Load Management Actions for the purpose of providing assistance to another region. According to these Complainants, this violation occurred because PJM made non-firm exports after it implemented Load Managements Actions. The factual support for their claims consists of pointing to timelines for December 23, 2022 and December 24, 2022 showing that non-firm exports occurred after the Load Management events began. The CZG Complainants' and the Coalition's argument is a gross misreading of Manual 13 that is inconsistent with the text of the manual and which, if accepted, would prevent PJM from providing *any* assistance to other Balancing Areas during virtually any capacity shortage event that PJM might ever experience.

35. The obvious purpose of Section 2.5 of Manual 13 is to prohibit PJM from initiating Load Management *for the purpose* of providing assistance to another region. Section 2.5 provides: "When adjacent Balancing Areas are deficient in generation and are requesting assistance from the PJM RTO, actions are taken, provided the adjacent Balancing Area has

taken the same actions requested of PJM."[58] Subject to certain restrictions, actions may include "Maximum Emergency generation [and] a 5% Voltage Reduction to provide the required assistance . . . ." To be clear, this provision assumes that PJM is not itself experiencing an emergency condition when it is invoked. As stated in Manual 13, "PJM Dispatch prefaces these procedures [steps taken to assist other Balancing Areas under this provision] by the words 'due to PJM providing emergency assistance to an adjacent Control Area(s), PJM is issuing an (appropriate alert or action message).'"[59] The events that occurred during Winter Storm Elliott therefore do not fall within the scope of this section of Manual 13.

36. PJM *itself* needed Load Management Actions to meet its own needs. During Winter Storm Elliott, PJM never initiated a Load Management Action for the purpose of providing assistance to another region. Even assuming that Load Management might have had the incidental effect of facilitating some non-firm exports when PJM was experiencing emergency conditions, the Manual 13 guidance not to initiate Load Management Actions *for the purpose* of assisting other regions simply does not apply.

37. In fact, accepting the CZG Complainants' and the Coalition's interpretation, PJM could never provide emergency assistance of any sort to another Balancing Area if it previously called for Load Management Actions. There is nothing in Section 2.5 of Manual 13 that would limit the (claimed) prohibition of providing assistance to other regions after initiating Load Management Actions to non-firm exports. The sentence cited by these Complainants states: "PJM load management programs are not to be used to provide assistance to adjacent Balancing Areas."[60] If the CZG Complainants' and the Coalition's reading is correct, this limitation would mean that PJM could not provide firm exports or even emergency sales to another Balancing Area experiencing a capacity shortfall after PJM initiated a Load Management Action. The only time PJM could assist another region in any respect would be if no Load Management Actions were taken. Given that PJM would be expected to call for Load Management Action during any capacity shortage (including during pre-emergency conditions) PJM would be side-lined in virtually any wide-area capacity event that included its territory. Such an interpretation of this manual provision would be irrational.

G. Complainants' Arguments That PJM Failed to Properly Maintain Reserves in Certain Control Areas Do Not Support their Claims

38. The CZG Complainants and Coalition contend that PJM failed to properly maintain reserve levels and claim that PJM should have curtailed both non-firm and firm exports to do so. According to Dr. Sotkiewicz, PJM violated the Tariff and Operating Agreement because "PJM allowed reserve levels to fall below their requirements RTO-wide and within the

[58] Manual 13, § 2.5.

[59] *Id.* (emphasis omitted).

[60] *Id.*

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VERIFICATION

I, **Michael E. Bryson**, state, under penalty of perjury, that I am the Michael E. Bryson referred to in the foregoing document entitled "Affidavit of Michael E. Bryson on Behalf of PJM Interconnection, L.L.C.," that I have read the same and am familiar with the contents thereof, and that the facts set forth therein are true and correct to the best of my knowledge, information, and belief.

/s/ Michael E. Bryson
Michael E. Bryson

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AFFIDAVIT OF STEVEN T. NAUMANN, P.E.
ON BEHALF OF PJM INTERCONNECTION, L.L.C.

1. My name is Steven T. Naumann. My business address is 8210 Tripp Avenue, Skokie, Illinois 60076. I am a self-employed consultant. In 2019, I retired from Exelon Corporation (Exelon) where I served as Vice President, Transmission and NERC Policy for Exelon Business Services Company. In that role, I provided the electric delivery utilities owned by Exelon advice and guidance on regulatory questions relating to system planning, design, operation, and reliability, and rates, terms, and conditions of service that are subject to federal regulation or that concern boundaries and classifications of assets, services, and authority between federal and state jurisdiction. I also provided advice and guidance on reliability and security policy to Exelon Generation, then the generation subsidiary of Exelon.

2. I have over 40 years of experience in planning, operations, reliability and regulatory aspects of electric power systems. I was part of the Exelon executive team leading the integration of Commonwealth Edison Company (ComEd) into PJM. My knowledge of transmission and generation issues in PJM, particularly in the ComEd Zone, is directly relevant to the arguments advanced by the ComEd Zone Generators in this proceeding.

3. I am licensed in Illinois, both as a Professional Engineer and as an attorney, although I do not practice law. I hold a Bachelor of Science degree in Electric Power Engineering and a Master of Engineering degree in Electric Power Engineering, both from Rensselaer Polytechnic Institute in New York, as well as a Juris Doctor from Chicago-Kent College

cold weather preparations for extreme weather events to reliability."[20] Of the eight Essential Actions, six require responses by Generator Owners. These actions include (1) calculating the Extreme Cold Weather Temperature (ECWT), as defined in the Alert and in new standard EOP-12-1, for each plant; (2) identifying the cold weather preparedness plan the critical components and freeze protection measures to be implemented for the next winter season; (3) identifying which units are capable of operating at the ECWT, which units require additional freeze protection and which can be implemented prior to next winter; (4) identifying units that experienced a Generator Cold Weather Event during the 2022-2023 winter and (a) identify the cause; (b) determine applicability to similar units; (c) determine corrective actions that can be implemented prior to next winter; and (d) identify temporary operating limitations; and (5) providing information to the relevant Reliability Coordinators, Balancing Authorities and Transmission Operators. [21] While I am not implying that the PJM generators should have been in compliance with Reliability Standard EOP-012-1, which the Commission did not approve until after the events of Winter Storm Elliott,[22] generators certainly were aware of the requirements prior to the start of the 2022-2023 winter season.

14. The ComEd Zone Generators contend that PJM was required to curtail all non-firm exports prior to initiating capacity-related emergency procedures.[23] The Coalition of PJM Capacity Resources (Coalition) makes this same argument. [24] This is a faulty interpretation of the PJM OATT and PJM Manual 13. The ComEd Zone Generators and the Coalition are arguing that PJM has no flexibility in the steps it takes before a Performance Assessment Interval (PAI) is triggered. In the first instance, both Complainants come to this conclusion by misreading the PJM OATT and PJM Manual 13. While the ComEd Zone Generators correctly cite the definition of Emergency Action, which encompasses "*any* emergency action for locational or system-wide capacity shortages,"[25] the ComEd Zone Generators go on to argue that, because "PJM did not take *all* steps before taking Emergency Actions that triggered the PAIs," the penalties should not have been triggered.[26] For example, the

[20] NERC Board of Trustees Agenda, Agenda Item 6b (Mar. 11, 2023).

[21] NERC, Essential Actions to Industry, Cold Weather Preparations for Extreme Weather Events III (May 15, 2023), https://www.nerc.com/pa/rrm/bpsa/Alerts%20DL/Level%203%20Alert%20Essential%20Actions%20to%20Industry%20Cold%20Weather%20Preparations%20for%20Extreme%20Weather%20Events%20III.pdf.

[22] *See N. Am. Elec. Reliability Corp*., 182 FERC ¶ 61,094. A number of the Complainants voted against approval of EOP-12-1. *See* Ballot Name: 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination EOP-012-1, https://sbs.nerc.net/BallotResults/Index/649.

[23] Complaint of ComEd Zone Generators at 21-22, Docket No. EL23-54 (Apr. 4, 2023).

[24] Complaint of the Coalition of PJM Capacity Resources (Coalition Complaint) at 27-33, Docket No. EL23-55 (filed Apr. 4, 2023).

[25] Complaint of ComEd Zone Generators at 18, Docket No. EL23-54 (Apr. 4, 2023) (citing PJM OATT, § 1, Definitions, Definitions E – F) (emphasis added).

[26] Complaint of ComEd Zone Generators at 19 (emphasis added).

ComEd Zone Generators, the Coalition and the Nautilus Entities argue that Section 2.3.2 of PJM Manual 13 *requires* that "prior to entering into capacity related Emergency Procedures, PJM *must* 'curtail all non-Firm exports.'"[27] The Coalition repeats this argument and also claims, erroneously, that Section 2.3.2 requires PJM to issue an Energy Emergency Alert Level 1 (EEA 1).[28] But Section 2.3.2 says no such thing.

15. Inventing a requirement to take *all* steps prior to taking Emergency Actions is contrary to the express language of Section 2.3.2 of PJM Manual 13. First, Section 2.3.2 explicitly states, "[d]ue to system conditions and the time required to obtain results, PJM dispatchers may find it necessary to vary the order of application to achieve the best overall system reliability."[29] Section 2.3.2 goes on to state that the actions taken prior to entering into capacity related emergency procedures are "the most probable sequence" and, depending on the severity of the capacity deficiency, "it is unlikely that some Steps would be implemented."[30] Moreover, as I explain below, such a reading is inconsistent with the flexibility that PJM operators must have to deal with emergencies, especially those faced by PJM during Winter Storm Elliott.

16. The operators have to make decisions based on current conditions, expected conditions, and the uncertainty of various elements of the system with an eye to preventing loss of load. They must have flexibility. For example, given the quickly changing weather and the large amount of gas-fired generation then unavailable, inaccurate and untimely information provided by generators, the fact that neighboring regions did not have excess capacity to supply to PJM if additional PJM generation tripped, and the uncertainty of the level of load, maintaining non-firm exports when PJM had additional resources to do so must be considered Good Utility Practice.[31] If some generators that were delivering energy had tripped or were forced to derate, or load unexpectedly increased, PJM could then

[27] Complaint of ComEd Zone Generators at 21 (underlining in original, italics added); *see also* Complaint of Coalition Complaint at 25, 27, Docket No. EL23-55 (filed Apr. 4, 2023); Complaint of Nautilus Entities at 42, 56 and Affidavit of Christopher H. Jordan at P 42, Docket No. EL23-53 (filed Mar. 31, 2023).

[28] Coalition Complaint at 25, 27.

[29] PJM Manual 13, § 2.3.2, at 28.

[30] *Id*.

[31] The "Good Utility Practice" standard has been in place for decades and applies to all FERC-jurisdictional transmission providers. The PJM OATT includes the standard definition of "Good Utility Practice" as "any of the practices, methods and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period, or any of the practices, methods and acts which, *in the exercise of reasonable judgment in light of the facts known at the time the decision was made*, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather is intended to include acceptable practices, methods, or acts generally accepted in the region; including those practices required by Federal Power Act section 215(a)(4)." PJM OATT, § 1, Definitions, Definitions G – H (emphasis added).

interrupt non-firm exports and utilize the energy from the remaining generators that are on-line to maintain service to PJM load.[32] Similarly, PJM operators had to consider the probability that generators would not start when called upon or that start-up would be delayed. This concern was not theoretical. When PJM called for resources to support the peak the morning of December 24, approximately 6,000 MW of steam generation did not come on-line at the expected time to support the load.[33] Furthermore, PJM found numerous instances of generators either not providing accurate data on availability or not updating data. PJM only found out about generators inability to run, to start when needed, or derates when PJM called on those generators to operate. This lack of accurate information increased the difficulty for PJM to serve the load.[34] PJM was in a position of having to make critical operating decisions but could not trust the information provided by many generators. Having generation running and synchronized, as well as additional generation available for such contingencies is, by definition, Good Utility Practice.

17. The conditions in ERCOT during Winter Storm Uri are an example of what can happen under similar extreme cold conditions. During a three-hour period, the load in ERCOT increased and over 6,000 MW of generation was lost.[35] As stated in the February 2021 Cold Weather Report, "[d]ue to the unrelenting generating unit losses during this period, the actions ERCOT BA operators took to restore Physical Responsive Capability and maintain normal frequency (initially, calling on demand response, then ordering small blocks of firm load shed) could not keep up, and frequency continued to drop. ERCOT BA operators were forced to shed larger blocks of firm load, and within minutes of one another, to restore frequency."[36] PJM operators could not allow a similar situation to occur. They had to be proactive, not reactive.

18. Dr. Sotkiewicz's analogy to the airline safety instruction concerning putting on your mask before helping others is incorrect.[37] PJM operators did, in fact, keep the PJM system reliable and helped keep their neighbors reliable. Furthermore, to the extent reserve levels

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[32] As it turns out, the concerns of PJM operators were well founded. Between the evening of Friday, December 23, when 34,500 MW of generation were forced out, and the morning of Saturday, December 24, another 12,500 MW of generation were forced off line. Other generation issues raised the total amount of "missing" generation to 57,000 MW on the morning of December 24. *See* PJM, Winter Storm Elliott, Frequently Asked Question 3 (updated Apr. 12, 2023), https://www.pjm.com/-/media/markets-ops/winter-storm-elliott/faq-winter-storm-elliott.ashx.

[33] PJM Presentation to Market Implementation Committee "Winter Storm Elliott" at 12 (Jan. 11, 2023), https://www.pjm.com/-/media/committees-groups/committees/mic/2023/20230111/item-0x---winter-storm-elliott-overview.ashx; Christopher Pilong Aff., Ex. PJM-004 at PP 26.

[34] Pilong Aff. at PP 47-65.

[35] *See* February 2021 Cold Weather Report, Figs. 69-70, at 130-31.

[36] *Id*. at 133.

[37] Sotkiewicz Aff., Ex. CZG-0004, at PP 123-24; Coalition Complaint, Attach. 4, Aff. of Paul M. Sotkiewicz, Ph.D, at P 152.

in PJM were below what Dr. Sotkiewicz believes were required, PJM temporarily shared the oxygen in their masks with their neighbors when it was safe to do so, rather than allowing them to pass out.

19. Dr. Sotkiewicz's argument that PJM violated its tariff and NERC Standards by continuing with non-firm exports during Emergency Actions is incorrect for several reasons.

20. First, Dr. Sotkiewicz repeats the mistaken interpretation that section 2.3.2 of Manual 13 *requires* PJM to curtail *all* non-firm energy exports prior to initiating Emergency Action.[38] As I stated above,[39] this interpretation is incorrect.

21. Second, Dr. Sotkiewicz, in support of the ComEd Zone Generators, takes a similar inflexible reading of the PJM Operating Agreement and Tariff sections that state PJM "shall curtail deliveries to an External Market Buyer if necessary to maintain appropriate reserve levels."[40] The Coalition makes this same argument.[41] Again, Dr. Sotkiewicz and the Coalition assume that the term "appropriate reserve levels" leaves no room for PJM to assist its neighbors when it can while retaining the ability to recall non-firm transactions when necessary. In fact, PJM Manual 13 contemplates this situation stating that "[i]f the net result of cutting off-system capacity sales would put the sink Balancing Authority into load shed then PJM will not curtail the transactions unless it would prevent load shedding within PJM."[42]

22. Third, Dr. Sotkiewicz's claim that while PJM can "come to the aid of neighboring control areas [sic]" PJM put its system "in a jeopardized reliability situation . . . by extending PAIs through December 24"[43] ignores PJM's obligations to support other Reliability Coordinators. The Coalition goes further and contends that "PJM was *obligated, then, not to assist other zones* after it entered into its own emergency."[44] Complainants' arguments disregard Requirement R7 of NERC Reliability Standard IRO-014-3, which states that "[e]ach Reliability Coordinator *shall* assist Reliability Coordinators, if requested and able,

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[38] *Id*. at P 122. Dr. Sotkiewicz, in support of the Coalition goes further and claims that Section 2.3.2 of PJM Manual 13 "mandated" that PJM curtail all non-firm exports and "reasonably allowed" PJM to recall daily firm exports. *See* Coalition Complaint, Attach. 4: Sotkiewicz Aff., at P 72.

[39] *See supra* PP 15.

[40] Sotkiewicz Aff., Ex. CZG-0004, at P 100 (citing parallel provisions in PJM OATT, Attach. K – App'x § 1.10.6(c) and PJM Operating Agreement, Schedule 1, § 1.10.6(c)).

[41] Coalition Complaint at 32-33.

[42] Manual 13, § 2.3.2 at p. 32.

[43] Sotkiewicz Aff., Ex. CZG-0004, at P 99. Although Manual 13 uses the term "control areas," I assume Dr. Sotkiewicz is referring to neighboring Reliability Coordinators or possibly Reliability Balancing Authorities as NERC has assigned functions formerly performed by control area functions to specific registered entities to whom the standards are applicable.

[44] Coalition Complaint at 32 (italics added).

provided that the requesting Reliability Coordinator has implemented its emergency procedures, unless such actions cannot be physically implemented or would violate safety, equipment, regulatory, or statutory requirements."[45] This is exactly what PJM did – assisted TVA (the Reliability Coordinator for TVA and LGE/KU) and VACAR-South (the Reliability Coordinator for Duke Progress and Duke Carolinas).

23. There is no question that these neighboring systems were implementing emergency steps, up to and including firm load interruptions under Energy Emergency Alert Level 3 (EEA 3),[46] and that PJM was able to assist. These EEA 3 actions and load-shedding are well-documented by NERC,[47] the Department of Energy,[48] and the Reliability Coordinator Information System (RCIS).[49]

Emergency Energy Alerts Level 3[50]

[45] NERC Standard IRO-014-3 – Coordination Among Reliability Coordinators (2015).

[46] NERC defines EEA 3 to mean that "Firm Load Interruption is imminent or in progress." NERC, Attachment 1-EOP-011-1 (Energy Emergency Alerts) at 12, https://www.nerc.com/pa/Stand/Reliability%20Standards/EOP-011-1.pdf.

[47] *See* NERC, Winter Storm Elliott: Bulk Power System Awareness Observations, at 5-8 (Mar. 22, 2023) (listing preparatory actions, EEA 3 actions, and load shed quantities in neighboring Balancing Authorities), https://www.nerc.com/comm/RSTC/AgendaHighlightsandMinutes/RSTC_Meeting_Materials_Package_March_22_2023.pdf.

[48] U.S. Dep't of Energy, OE-417 Electric Emergency and Disturbance Report – Calendar Year 2022, at 37 (showing SERC (Tennessee) shedding 100 MW or more of firm load on Dec. 23 and SERC (South Carolina and North Carolina) shedding 1,960 MW of firm load on Dec. 24), https://www.oe.netl.doe.gov/download.aspx?type=OE417PDF&ID=83.

[49] *See* PJM, RCIS-EEA 12/20/2022 00:00 – 12/26/2022 00:00. Specifically, PJM's neighboring Reliability Coordinators—including TVA and VACAR South—declared EEA3 and lower levels of system emergencies during Winter Storm Elliott. Specifically, TVA declared EEA-3 for the TVA BA at 06:15 on 12/23; and for the LGE/KU BA at 1456 on 12/23. The TVA BA went down and then back to EEA3 at 17:21 on 12/23. Similarly, VACAR South declared EEA-3 for Dominion South Carolina at 05:59 on 12/24, for Duke Energy Carolinas at 06:17 on 12/24, for Duke Energy Progress at 06:40 on 12/24, and for South Carolina Public Service Authority at 07:20 on 12/24.

[50] NERC, Winter Storm Elliott, *supra* note 47, at 7.

avoided does not mean that PJM operators should not have had more generation available to deal with severe and changing conditions.

35. Third, ComEd Zone Generators ignore the fact that, had their units been available, PJM could have increased the generators on-line within the ComEd Zone. Doing so would have given PJM more assurance of avoiding start-up risk that it had already encountered.[80] Finally, had as much as 5,000 MW of generation in the ComEd Zone been available, PJM could, at various times, have utilized that generation to address the needs within PJM and could have redispatched generation within the ComEd Zone to relieve transmission constraints.[81]

36. I would make a final point in response to an argument made in a related Winter Storm Elliott complaint proceeding that I think is relevant here. Mr. Berardesco, on behalf of Lee County Generating Station, LLC, in Docket No. EL23-57-000, contends that PJM's Operating Instruction for Lee County to enter into a forced outage was inconsistent with NERC's definition. While Mr. Berardesco correctly states NERC's definition of Forced Outage in NERC's Glossary of Terms Used in NERC Reliability Standards,[82] he never explains why this definition applies to anything other than reliability standards. As the title of the Glossary explicitly states, these terms are for use in NERC Reliability Standards, not anything else.[83] However, PJM has not incorporated the NERC definition of Forced Outage as part of its Capacity Performance mechanism.

37. This concludes my affidavit.

38. I hereby certify under penalty of perjury that the foregoing statements are true and correct to the best of my knowledge, information, and belief:

Executed on: May 26, 2023

/s/ Steven T. Naumann
Steven T. Naumann

https://www.nrc.gov/reading-rm/doc-collections/event-status/event/2022/20221227en.html. As I stated in P 33, while the *post hoc* analysis by the ComEd Zone Generators had the luxury of knowing that these units performed, PJM operators could not make that assumption in real-time.

[80] *See supra*, note 32; Bryson Aff. at P 27.

[81] *See* McGlynn Aff. at PP 69-72. While the analysis detailed by Mr. McGlynn was performed after Winter Storm Elliott, it simply confirms the obvious – that having the additional generation within the ComEd Zone would have provided PJM operators with additional flexibility to mitigate transmission constraints and provide energy to PJM zones to the east.

[82] *See* Declaration of Charles A. Berardesco on Behalf of Lee County Generating Station, LLC at P 4, Docket No. EL23-57 (filed Apr. 5, 2023).

[83] Following immediately after the document title, NERC states "[t]his Glossary lists each term that was defined in one or more of NERC's continental-wide or Regional Reliability Standard."

ATTACHMENT D

Excerpts from PJM's Answer, Motion to Dismiss or Summarily Dispose Complaint, and Request for Confidential Treatment to Coalition of PJM Capacity Resources Complaint in Docket No. EL23-55-000

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Coalition of PJM Capacity Resources Complainant	)	
	)	
v.	)	**Docket No. EL23-55-000**
	)	
PJM Interconnection, L.L.C. Respondent	)	

ANSWER, MOTION TO DISMISS OR SUMMARILY DISPOSE COMPLAINT, AND REQUEST FOR CONFIDENTIAL TREATMENT OF PJM INTERCONNECTION, L.L.C.

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system conditions.[65] PJM also submits Annual Fuel Data Requests to collect information on generator fuel availability and gas supply and transportation contracts.[66] Between November and March, the PJM Gas Electric Coordination Team conducts daily reviews of the interstate pipeline bulletin boards to assess pipeline operating conditions and identify supply risks.[67]

4. Existing Arrangements With Other Reliability Coordinators

PJM engages with neighboring Reliability Coordinators regarding operations during emergency conditions, and has joint operating and or joint coordination agreements with Midcontinent Independent System Operator, Inc. (MISO), Tennessee Valley Authority (TVA), New York Independent System Operator, Inc. (NYISO), Duke Energy Progress, LLC (Duke), and VACAR South RC (VACAR).[68] PJM discusses a variety of metrics, including peak load estimates, reserve requirements, and estimated loads during daily conference calls with the neighboring Reliability Coordinators.[69] These calls took place in the period leading up to and during Winter Storm Elliott.[70]

5. Weather and Load Forecasting

PJM employs state of the art forecasting tools and processes. Three widely-used vendors send PJM hourly weather forecast data covering temperature, effective temperature, temperature humidity index, heat index, wind speed, wind direction, humidity, and cloud cover.[71] PJM systems

[65] *Id.* P 22.

[66] *Id.* P 24.

[67] *Id.*

[68] *Id.* P 26.

[69] *Id.* P 27.

[70] *See id.*

[71] Mulhern Aff., Ex. PJM-003, at PP 13, 18.

use a weighted average of the three vendor forecasts based on recent observed performance. Vendors also provide additional periodic weather reports on, among other things, wind turbine icing and high wind cut-out risks.[72] All reports are sent to control room staff, operations support staff, and Dispatch leadership, on either a daily or as needed basis determined by the vendor.

PJM uses multiple tools to visualize this weather data. A custom in-house weather dashboard presents temperature, effective temperature, wind speed, cloud cover, and other parameters for weather stations and forecast zones for the current and next six days.[73] The dashboard features charts that compare vendor forecasts and show the 24-hour temperature change, along with daily written reports on forecasted weather conditions in each major PJM zone.[74]

PJM forecasts load using a suite of neural network and pattern matching models.[75] Weather parameters such as temperature and effective temperature (which is based on temperature and wind speed) serve as direct inputs into the load models.[76] A custom in-house load forecast dashboard presents weather forecast data and load forecasts from multiple models and shows how weather and load behaved on similar days.[77] A dashboard with maps of the United States and parts of Canada shows real-time temperature, radar, dew point, and infrared and forecasted temperature deviations from normal for the current day and next 14 days.[78] A custom Dispatch interactive mapping tool shows weather radar and satellite; temperature, wind speed, dew point, and relative

[72] *Id.*

[73] *Id.*

[74] *Id.*

[75] *Id.* P 15.

[76] *Id.*

[77] *Id.* P 18.

[78] *Id.*

humidity observations; local storm reports; National Weather Service bulletins; and a variety of severe conditions.[79]

6. Cold Weather Advisories and Cold Weather Alerts

When winter emergency conditions appear imminent, PJM issues either a Cold Weather Advisory or a Cold Weather Alert. The Bielak Affidavit outlines the actions that generators and PJM are expected to take upon declaration of a Cold Weather Advisory.[80] An important component in PJM operators' decision-making process is the data supplied by generators in Markets Gateway and Dispatcher Application and Reporting (eDART), which generators are obligated to update upon issuance of the Cold Weather Advisory. PJM will compare the data to the forecasted temperatures, determine if there will be any limiting factors for the generation fleet, and prepare accordingly.

PJM issues Cold Weather Alerts when emergency conditions are more immediately expected.[81] Though PJM Manual 13 contains guidelines regarding when a Cold Weather Alert will be declared, PJM operators are ultimately vested with the authority to exercise judgment in light of the surrounding factors.[82] The Bielak Affidavit outlines the requirements for generators and PJM after PJM declares a Cold Weather alert.[83] Perhaps the most critical of these obligations is for generators to provide various information to PJM operators, who rely on it to make dispatch and scheduling decisions. If generators fail to provide accurate information, operators' ability to manage an emergency may be compromised, as occurred during Winter Storm Elliott.

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[79] *Id.*

[80] *See* Bielak Aff. PP 28-29.

[81] *Id.* P 30.

[82] *See id.* PP 30-31.

[83] *See id.*

7. PJM Staffing and Training

A crucial element of PJM's winter preparedness is the training of its staff. PJM staff participates in the drills and other training events held for generators.[84] In addition, PJM conducts annual training, monthly load shed drills, and pre-winter and summer Emergency Procedures drills to train operators on proper load shedding procedures and to maintain their load shedding skills.[85]

PJM took steps to assure that adequate staff was available during Winter Storm Elliott, notwithstanding the impending Christmas holiday. Beginning on December 23, PJM brought in additional control room, support, and management staff that remained on duty or available around the clock throughout the entirety of the cold weather event.[86] PJM also activated the Operations Event Response Team (OERT), a cross-divisional group of internal PJM employees (including participants from Dispatch Leadership and other PJM departments) formed to prepare for and respond to operational events.[87]

8. PJM's Status in the Period Leading Up to the Emergency Declarations on December 23 and December 24, 2022

Based on PJM's modeling and the data it received from generators, PJM entered the period before Winter Storm Elliott in the reasonable belief that it had more than enough capacity to serve customers during what was expected to be a severe storm. As became apparent as conditions worsened, however, the information PJM's operators received from generators regarding winter preparedness and unit operating parameters was often substantially inaccurate.[88] PJM issued a Cold Weather Advisory for Western PJM starting at 7:00 AM on December 20, and a Cold

[84] *Id.* P 32.

[85] *Id.*

[86] *Id.* P 33.

[87] *Id.* P 34.

[88] *Id.* P 35.

Weather Alert for Western PJM on December 21. PJM also issued an RTO-wide Cold Weather Advisory on December 22, 2022, and an RTO-wide Cold Weather Alert on December 23, 2022.[89] As discussed below in Part IV.B and the Pilong Affidavit, Capacity Resources should have been taking steps to update their unit operating parameters in response, but they often did not.

PJM operators lacked vital information needed to make dispatch decisions during Winter Storm Elliott because of the widespread failure of generators to provide accurate information regarding the operating parameters of their units.[90] In particular, many owners of gas-fired generators did not provide updates regarding the availability of natural gas needed for fuel.[91] The lack of accurate and timely information from many generators continued to be a problem throughout the entire cold weather period.

C. Widespread Generator Performance Failure Exacerbated Extraordinary System Conditions During Winter Storm Elliott

On December 23, 2022, the PJM region experienced the most rapid temperature drop it had seen in a decade, an abrupt 29°F decrease over 12 hours.[92] Although PJM correctly forecasted Winter Storm Elliott would bring freezing temperatures, the sudden temperature drop was more rapid than any other in the last decade. The rate at which temperatures fell, together with the fact that the drop occurred during what is normally the milder part of winter, distinguishes Winter Storm Elliott from other large storms.[93]

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[89] *Id.* P 35.

[90] *Id.* P 36.

[91] *Id.*

[92] Mulhern Aff., at P 27.

[93] *Id.*

PJM's algorithm-based load forecast model had never seen the conditions that occurred on December 23 with the confluence of unprecedented cold temperature drops, the holiday, and the weekend.[94] In some parts of PJM, the difference between the high and low temperature on December 23 was one of the greatest in recorded history.

Operators knew there was a great deal of uncertainty in the load forecast and, as a result, operated conservatively, making a conscious decision to carry a large amount of additional capacity.[95] Mindful of the potential for unpredictable impacts, PJM conducted a detailed review of its load forecast beforehand. Actual Winter Storm Elliott conditions were extreme, but within the outer bounds of what PJM prepared for.[96] The evening peak on December 23 and morning peak on December 24 were both underestimated by approximately 7%.[97] The under-forecasts for December 23 and 24 were attributable to a once-in-a-decade unfavorable combination of severe cold and blizzard conditions unusually early in the winter season and outlier holiday impacts.[98]

PJM's forecasted load for December 23 was 126,968 MW. PJM was confident in its operating plans given the approximately 158,000 MW showing available for PJM dispatch. This was based on the data provided by the generators themselves. PJM was confident it was guarding

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[94] *Id.* PP 26-27.

[95] *Id.* P 29; *see also* Winter Storm Elliott Frequently Asked Questions (Apr. 12, 2023), at 5, https://www.pjm.com/-/media/markets-ops/winter-storm-elliott/faq-winter-storm-elliott.ashx (WSE FAQs).

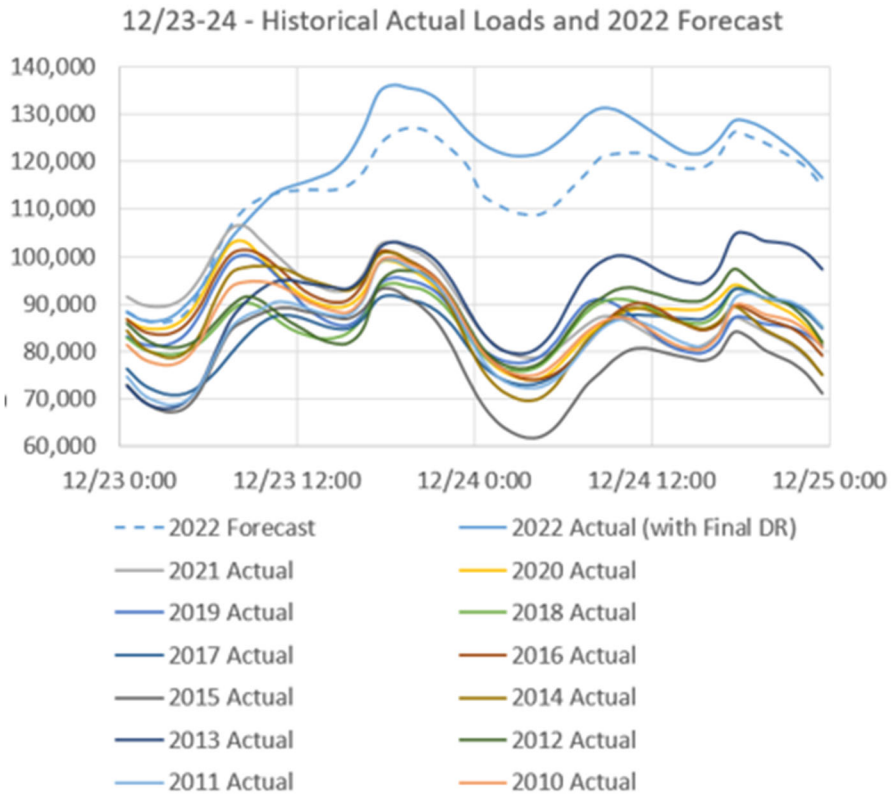
[96] *See* WSE FAQs, *supra* note 95 at 5.

[97] *See* Mulhern Aff. at P 28. These 7% estimates are the latest update to previous PJM estimates of forecast results. *See* WSE FAQs at 5 ("The PJM models under-forecast the peak load by about approximately 8% on Dec. 23, and 9% on Dec. 24, but Control Room operators had scheduled day-ahead what should have been more than enough generation for contingencies. NOTE: The original estimate was that load was under-forecast by 10%; totals were revised once all information on demand response performance was available.").

[98] Mulhern Aff. at PP 25-27.

against potential uncertainty by having substantially more capacity available than normally necessary. Based on submitted Generator Availability Data, PJM believed it had almost 29 GW of reserve capacity available to absorb load and generating contingencies and to support neighboring systems.[99]

At the same time, 2022 holiday weekend load proved to be an extreme outlier in both magnitude and timing.[100] The actual hourly load was 136,010 MW on December 23 and 131,113 MW on December 24.[101]

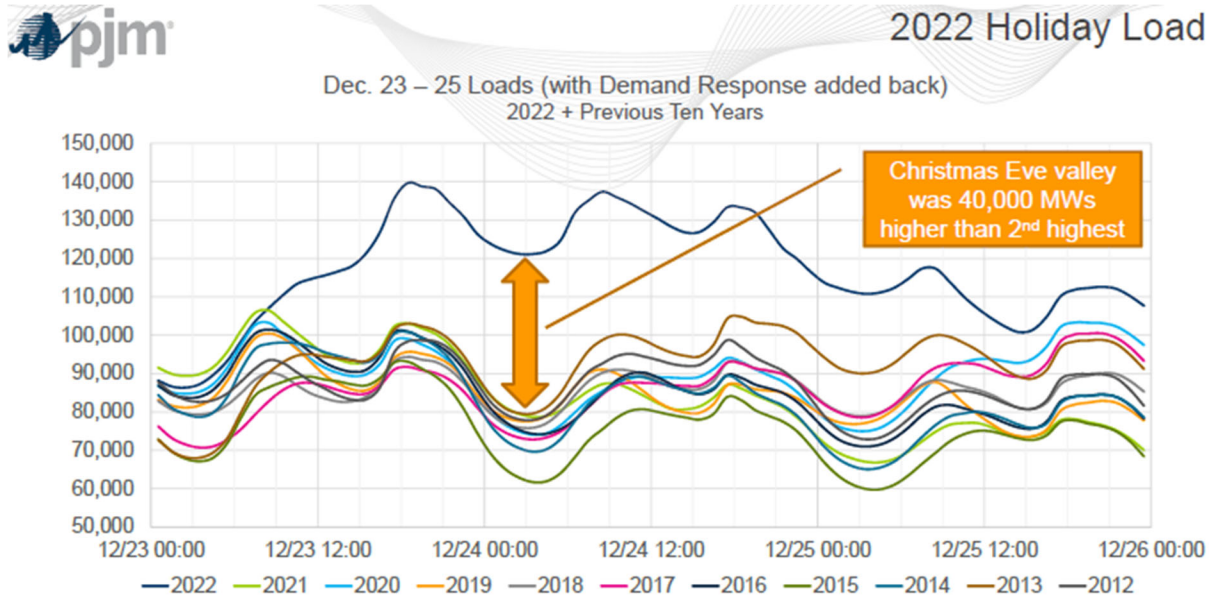


[99] Mulhern Aff. at P 27.

[100] *Id*. P 32.

[101] *Id.*

Load also stayed unusually high overnight and in the early morning of December 24.[102] The "Christmas Eve Valley" was 40,000 MW higher than the second highest over the last decade.[103] In fact, the Christmas Eve load "valley" was higher than any peak load on that date in a decade.[104]



It is also noteworthy that PJM load forecasts were back to their "normal" levels of accuracy immediately before and after Winter Storm Elliott.[105] This indicates that the Winter Storm Elliott forecast was an outlier attributable to the anomalous combination of record-breaking temperature drops and demand levels never before seen over the Christmas holiday.

Winter Storm Elliott also created serious reliability issues across the Eastern Interconnection. It is estimated that Winter Storm Elliott impacted two-thirds of the United States and "contributed to" millions of customer outages. Like PJM, neighboring systems experienced the rapid onset of freezing temperatures coupled with unprecedented high holiday loads that were

[102] *Id.*

[103] *Id.*

[104] *See* WSE FAQs, *supra* note 95, at 3; Mulhern Aff. at P 32.

[105] Mulhern Aff. at P 32.

not predicted by forecasting models. As NERC has stated, "utilities in parts of the southeast were forced to engage in rolling blackouts and the bulk power system in other regions was significantly stressed."[106] Furthermore, "[i]n addition to the load shedding in Tennessee and the Carolinas, multiple energy emergencies were declared and new demand records were set across the continent. And this was in the early weeks of a projected 'mild' winter."[107]

For example, the TVA and VACAR portion of the SERC Reliability Corporation (SERC) region experienced cold weather and heavy loads and faced various stages of energy emergencies.[108] TVA was forced to engage in load shedding on December 23 and 24 for the first time in its ninety year history. TVA set an all-time winter peak power demand record of 33,425 MW. A normal winter peak for TVA is around 24,000 MW. Duke had a load under-forecast that was in some respects larger than PJM. At times the forecast was off by approximately 10% for Duke Energy Carolinas LLC and about 5%-6% for Duke Energy Progress LLC.[109] Duke was also forced to resort to load shedding on December 24 that impacted 500,000 customers.[110]

Southwest Power Pool, Inc. (SPP) likewise had a 9% error rate in its Winter Storm Elliott forecast. SPP also set a winter peak demand record of 47,157 MW and, in SPP's own words,

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[106] *See* NERC, *FERC, NERC to Open Joint Inquiry into Winter Storm Elliott* (Dec. 28, 2022), https://www.nerc.com/news/Pages/FERC,-NERC-to-Open-Joint-Inquiry-into-Winter-Storm-Elliott.aspx.

[107] *Id*.

[108] *See id.*

[109] *See* S&P Global Market Intelligence, *Holiday 2022 Winter Storm Raises Reliability, Generation Diversity Questions* (Mar. 27, 2023), https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/holiday-2022-winter-storm-raises-reliability-generation-diversity-questions-74685081.

[110] *See* Robert Walton, *Duke Energy Apologizes for Winter Storm Outages as FERC, NERC Open Investigation Into Grid Failures*, UtilityDive (Jan. 4, 2023), https://www.utilitydive.com/news/duke-energy-apologizes-for-winter-storm-outages-as-ferc-nerc-open-investig/639583/.

"[t]he presence of extreme wind chill without adequate historical data impacted [SPP's] ability to determine its impact on load."[111] In MISO, "[a]bnormally high load forecasting errors occurred due to a lack of historical data for similar extreme conditions in December."[112] Peak load on December 23 was 105,916 MW compared to forecast peak of 100,033 MW, a 5.5% error.[113]

The Electric Reliability Council of Texas (ERCOT) has stated that its load forecasts were "too low going into [Winter Storm Elliott], cold weather intrusion was deeper and quicker than the national weather models were forecasting, load forecasting models overplayed the reduction in demand due to the holiday, and that there was a "[l]ack of comparable historic load data without loadshed . . . for the load forecast models to reference."[114] Actual demand was 8% higher than ERCOT's forecasted peak demand for December 22. ERCOT has estimated that 11 GW of thermal generation, 4 GW of wind, and 1.7 GW of other resources were out of service on December 23. Just as PJM would later do, ERCOT obtained an FPA section 202(c) emergency order from the Department of Energy to allow needed resources to exceed otherwise applicable environmental limits on December 23.[115] Lastly, Louisville Gas & Electric Co. and Kentucky Utilities were

[111] *See* S&P Global Market Intelligence, *How the Holiday 2022 Winter Storm Confounded Grid Operators' Forecast Models* (Apr. 6, 2023), https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/holiday-2022-winter-storm-raises-reliability-generation-diversity-questions-74685081.

[112] *See* MISO, *Overview of Winter Storm Elliott December 23, Maximum Generation Event* (Jan. 17, 2023), https://cdn.misoenergy.org/20230117%20RSC%20Item%2005%20Winter%20Storm%20Elliott%20Preliminary%20Report627535.pdf.

[113] *See* S&P Global Market Intelligence, *supra* note 109.

[114] *See* ERCOT, *Item 7: Review of Winter Storm Elliott* (Feb. 28, 2023), https://www.ercot.com/files/docs/2023/02/21/7-Review-of-Winter-Storm-Elliott.pdf.

[115] *See* U.S. Dep't Energy, *Federal Power Act Section 202(c): ERCOT December 2022*, https://www.energy.gov/ceser/federal-power-act-section-202c-ercot-december-2022.

forced to shed load to 53,000 customers on December 23 after underestimating peak load for that day by as much as 16%.[116]

D. Many Capacity Resources, Including Complainants, Failed to Fulfill Their Performance Obligations When PJM Most Needed Them

1. Capacity Performance Failures Were Widespread and Unexpected

PJM reasonably expected generators to operate at a much higher standard than they achieved even taking account of the difficult weather conditions. Under Capacity Performance, generators must be available to PJM for dispatch when called during emergencies. As explained above, generators are excused from performing only in very narrow circumstances. The onus is not on PJM to arrange dispatch to accommodate gas nomination practices or to agree to keep generators whole that acquire gas if they are not called; rather, generation owners decide what measures are needed to avoid Non-Performance Charges and to place themselves in a position to receive bonus payments.[117] This includes the option of self-scheduling resources if generation owners are unsure if PJM will call them but wish to be certain of being online if an emergency occurs. Further, based on the information provided to PJM by generators during the previous fall, most generators were ready for winter conditions. Notably, as discussed previously, the vast majority of generators indicated in the Checklist response required by Attachment N to Manual 14D concerning their winter preparedness that they were compliant. Managing the gas nomination cycles remains the responsibility of Capacity Resource unit owners. Challenges with the

[116] *See* Ryan Van Velzer, *LG&E/KU Underestimated Energy Demand Ahead of Winter Storm Elliott*, Louisville Public Media (Jan. 26, 2023), https://www.lpm.org/news/2023-01-26/lg-e-ku-underestimated-energy-demand-ahead-of-winter-storm-elliott.

[117] *See* Pilong Aff. at P 13 ("To be clear, under Capacity Performance, a unit is *not* excused from being assessed Non-Performance Charges because: (i) it lacks fuel; (ii) the cost of available fuel is very expensive; (iii) it cannot obtain natural gas in a timely manner because of pipeline nomination cycles; or (iv) the unit faces operational challenges due to cold weather conditions. These are not acceptable excuses under the Capacity Performance construct.").

to emergencies.[165] Moreover, PJM's emergency decisions are "binding on all Market Participants until [PJM] announces that the actual or threatened Emergency no longer exists."[166]

PJM's supporting witnesses explain how each of PJM's major actions during Winter Storm Elliott complied with all applicable requirements and was reasonable on the merits. In the face of "incredibly challenging" and rapidly-deteriorating conditions, PJM used this authority wisely and "did not shed a single megawatt of load on December 23 and December 24."[167] As PJM's witnesses explain, PJM operators "fully satisfied their compliance obligations in advance of, and for the entire duration of, Winter Storm Elliott."[168]

A. PJM Has Broad Discretion to Declare Emergencies and the Prudence of PJM's Real-Time Decisions During Emergencies Is Subject to Great Deference Under the Good Utility Practice Standard

The Coalition has a heavy burden of proof in this proceeding and fails to carry it. Complainants do not identify or demonstrate compliance with any standard of review. Good Utility Practice is the correct standard for evaluating the reasonableness of utility decisionmaking. That standard is explicitly set forth in the Tariff and Operating Agreement, but it is mentioned nowhere in the Complaint. Nor does the Complaint acknowledge or confront the Commission's specific application of the Good Utility Practice standard in the context of prudence challenges. The Complaint fails under both lines of precedent for several reasons.

- First, the Good Utility Practice standard is highly deferential on its face, and that deference is exceptionally broad in the context of emergency management.
- Second, where, as here, Complainants retroactively challenge the prudence of PJM's past decisions, they must do so "in light of the facts known at the time the

[165] *Id.* at PP 17-19, 23; *see also infra* Part IV.

[166] Tariff, Attach. K-App'x, § 1.7.11; OA, Sch. 1, § 1.7.11.

[167] McGlynn Aff. at PP 8, 13.

[168] *Id.* P 29.

decision was made."[169] That constraint is fatal because it renders the *post hoc* analysis offered by the Complainants' witnesses irrelevant as a matter of law.

- Third, PJM's flexibility to respond to emergencies under Good Utility Practice is powerfully reinforced in the Tariff, Operating Agreement, and Manuals.

- And fourth, Complainants' misapply FPA section 206 in their failed attempt to bypass the deference afforded PJM under the applicable standard of review.

Finally, in addition to the manifest legal flaws in the Complaint, it also undermines public policy. Complainants' request for retroactive invalidation of PJM's actions during emergencies is not only unprecedented, but also foreclosed by the Operating Agreement and Commission precedent for good reasons.[170] If operators are not accorded a high degree of flexibility to implement their best technical judgment in emergencies, they may avoid using available and effective tools that seem more vulnerable to *post hoc* legal challenges to the ultimate detriment of reliability. Emergency conditions require thoughtful concentrated action in response to fast moving events. Permitting retroactive challenges to specific operator decisions made in real time under stressed conditions can only work to chill the need for taking timely action in emergency conditions.

1. The Good Utility Practice Standard Affords Great Deference to Public Utilities, and Commission Precedent Broadens that Deference in Emergency Conditions

The Good Utility Practice standard was adopted by the Commission's *pro forma* Open Access Transmission Tariff in Order No. 888, and that definition is incorporated verbatim into the Tariff and Operating Agreement. It reads:

> "Good Utility Practice" shall mean any of the practices, methods and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was

[169] *E.g.*, Tariff § 1 (defining Good utility Practice); OA § 1 (same).

[170] *See supra*

> made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather is intended to include acceptable practices, methods, or acts generally accepted in the region; including those practices required by Federal Power Act, section 215(a)(4).[171]

This standard is highly deferential on its face: it does not require utilities to choose the best or most agreeable options;[172] and it does not overturn mistaken decisions based on erroneous information.[173] Commission precedent also confirms that system operators are accorded especially broad flexibility under the Good Utility Practice standard when making decisions in emergency conditions.[174]

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[171] Tariff § 1; OA § 1.

[172] *See Tenaska Clear Creek Wind, LLC*, 182 FERC ¶ 61,084, at P 41 (2023) ("[E]ven if Tenaska is correct that a less expensive alternative existed, Good Utility Practice affords SPP discretion in selecting among alternatives, and SPP was not obligated to adopt it under the terms of its Tariff."); *Sierra Pac. Power Co.*, 106 FERC ¶ 61,155, at P 23 (2004) ("[W]hile it is certainly preferable for utilities to reach agreement, the absence of agreement by itself does not constitute a violation of good utility practice."); *Metzenbaum v. Columbia Gas Transmission Corp*., 4 FERC ¶ 61,277 (1978) (agreeing "that courts in passing upon discretionary action should endeavor to put themselves in the position of the actors in the transaction, and not be ready to find that the course actually pursued was blameworthy because the results were unfortunate").

[173] *See Midwest Indep. Transmission Sys. Operator, Inc.*, 143 FERC ¶ 61,050, at P 44 (2013) (finding that "an error [in certain calculations required by the tariff] does not, by itself, demonstrate a violation of Good Utility Practice").

[174] *See, e.g.*, *Midcontinent Indep. Sys. Operator, Inc*., 164 FERC ¶ 61,129, at P 37 (2018) ("We find that it is appropriate for MISO to have discretion to respond to operational circumstances related to reliability concerns."); *Big Sandy Peaker Plant, LLC*, 154 FERC ¶ 61,216, at P 50 (2016) ("The Commission has recognized that it may be appropriate to provide operational and reliability-related discretion to independent system operators, and to not second-guess their decisions [to deselect a generator]."); *Cal. Indep. Sys. Operator Corp.*, 139 FERC ¶ 61,207, at PP 48-50 (2012) (finding good cause for *post hoc* waiver of CAISO tariff restrictions inconsistent with actions taken during an emergency where (1) "[t]he Commission believes that CAISO, in this emergency situation, took the actions it believed were necessary in order to ensure the reliability of the grid" and that (2) "CAISO set prices it thought necessary to encourage generation to be available to prevent the blackout from spreading further and to restore power in the SDG&E area as quickly as possible."); *N. Nat. Gas Co*., 103 FERC ¶ 61,083, at P 14 (2003) ("The Commission gives pipelines much discretion regarding when and how they respond to system emergencies."); *Equitrans, Inc*., 65 FERC ¶ 61,132, at P 4 (1993) ("[W]e have traditionally allowed pipelines

2. The Good Utility Practice Standard's and the Commission's Prudence Doctrine Require Past Decisions to be Reviewed "in light of the facts known at the time the decision was made"

A core feature of the Good Utility Practice standard is the requirement that past decisions are evaluated only "in light of the facts known at the time the decision was made."[175] The Commission's application of this principle is particularly strong in the context of prudence review, which is essentially what the Complaint demands. The Commission's prudence decisions underscore that it is inappropriate to second guess past decisions with the advantage of perfect hindsight.[176] The Coalition ignores this constraint by attempting to demonstrate, after the fact, that

considerable discretion in managing operational emergencies that threaten the integrity of the system."); *Re Consol. Gas Supply Corp*., 2 P.U.R.4th 202 (1973) ("We find that there was an emergency, and that what management did under the circumstances was reasonable."); *Mun. Light Bds. v. Bos. Edison Co.,* 53 F.P.C. 1545, 1565 (1975) ("Since emergencies usually allow no time for consultation or debate the judgment must be made by the electric utility involved. The judgment, however, must be one which a reasonable man acting in good faith might have made under the circumstances then known and within the time which appeared to be available for action."), *aff'd sub nom. Towns of Norwood v. F.P.C*., 546 F.2d 1036 (D.C. Cir. 1976).

[175] Tariff § 1 (defining Good utility Practice); OA § 1 (same); s*ee, e.g.*, *Salt Creek Solar, LLC*, 180 FERC ¶ 61,116, at P 68 (2022) ("The Tariff's definition of Good Utility Practice affords SPP discretion to exercise reasonable judgment in light of the facts known at the time it makes a business decision.").

[176] *See, e.g.*, *Pac. Gas & Elec. Co.,* 173 FERC ¶ 61,045, at P 179 (2020) (citation omitted) ("Even if a decision turns out to be incorrect in hindsight, the Commission's task is to review the prudence of a utility's actions and the costs resulting from the particular circumstances existing either at the time the costs were incurred or when the utility became committed to incur those expenses."); *J. William Foley Inc. v. United Illuminating Co.*, 142 FERC ¶ 61,125, at P 19 (2013) (quoting *New Eng. Power Co.*, 31 FERC ¶ 61,047, at 61,084 (1985)), *aff'd sub nom. Violet v. FERC*, 800 F.2d 280 (1st Cir. 1986)) ("Foley fails to provide any evidence bearing upon the prudence (or imprudence) of any specific costs . . ., such as whether they were 'costs which a reasonable utility management . . . would have made, in good faith, under the same circumstances, and at the relevant point in time.' . . . Foley must do more than, in hindsight, second-guess utility management decisions based on the resulting costs."); *Ind. Mun. Power Agency v. FERC*, 56 F.3d 247, 289 (D.C. Cir. 1995) (citing *Ohio Power Co.*, 39 FERC ¶ 61,098 (1987)) ("The Commission has long used its prudence and market rate tests to enforce the just and reasonable provision of section 205 . . . ."); *New Eng. Power Co.*, 31 FERC ¶ 61,047, at 61,086 (granting full cost recovery for a terminated nuclear generation project because the utility prudently considered, among other

PJM could have navigated the Winter Storm Elliott emergency in a different way that might have allowed them to avoid Non-Performance Charges. However, the potential for alternate outcomes is simply irrelevant under the Good Utility Practice standard.

PJM took timely and necessary actions to address volatile and extreme conditions during Winter Storm Elliott. The reasonableness of PJM's actions must be evaluated in light of what was known at the time the decisions were made and not based upon a *post hoc* determination of what PJM might have decided had its operators possessed perfect knowledge and an extended period to deliberate. Mr. Naumann explains why the Coalition's approach is "fundamentally misguided":

> [P]ost hoc economic analyses and other varieties of "Monday morning quarterbacking" are irrelevant to the question of whether operators acted reasonably and in accordance with Good Utility practice with the knowledge they had at the time they had to make decisions. While post event analyses are useful to better understand the event, and can be used to improve rules and processes going forward, they cannot upset real-time decisions.[177]

In short, the Coalition fails to meet the standard of review because it is not enough for them to point to information that operators might have weighed differently, or to devise an alternative set of actions or dispatch decisions that might have addressed an emergency situation more efficiently. Even if those arguments had merit—and they do not—they are simply not relevant under Good Utility Practice or prudence review.

3. The Tariff, Operating Agreement, and Manuals Expressly Provide PJM With Enhanced Flexibility to Respond to Emergencies

The Operating Agreement affords PJM an extraordinary, but necessary and justified, degree of operational flexibility to manage Emergencies.[178] Section 1.7.11 grants PJM the

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things, the best interests of its customers at that time to reduce dependence on imported oil during an oil shortage).

[177] Naumann Aff., Ex. PJM-007, at P 29 (citations omitted).

[178] The Operating Agreement defines an "Emergency" as "(i) an abnormal system condition requiring manual or automatic action to maintain system frequency, or to prevent loss

exclusive responsibility "for declaring the existence of an Emergency, and for directing the operations of Market Participants as necessary to manage, alleviate or end an Emergency," and it further instructs that PJM's directives "shall be binding on all Market Participants until [PJM] announces that the actual or threatened Emergency no longer exists."[179] Section 1.7.15 similarly provides that "[c]onsistent with Good Utility Practice, [PJM] shall be authorized to direct or coordinate corrective action, *whether or not specified in the PJM Manuals*, as necessary to alleviate unusual conditions that threaten the integrity or reliability of the PJM Region, or the regional power system."[180] Moreover, the Commission has specifically held that "PJM, as the independent transmission operator, needs to have discretion to dispatch resources as necessary to meet load and ensure reliability depending on the circumstances affecting the grid at a particular point in time."[181]

Moreover, Manual 13, the principal source for PJM's emergency procedures, advises that "[t]he policy of PJM is to maintain, at all times, the integrity of the PJM RTO transmission systems *and the Eastern Interconnection* and to *give maximum reasonable assistance to adjacent systems when a disturbance that is external to the PJM RTO occurs*."[182] Manual 13 section 2.3.2 thus

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of firm load, equipment damage, or tripping of system elements that could adversely affect the reliability of an electric system or the safety of persons or property; or (ii) a fuel shortage requiring departure from normal operating procedures in order to minimize the use of such scarce fuel; or (iii) a condition that requires implementation of emergency procedures as defined in the PJM Manuals." OA § 1.

[179] OA, Sch. 1, § 1.7.11. As discussed *supra* in Part III.C, this section recognizes a hierarchy of authority, stating that PJM's actions during Emergencies "shall be carried out in accordance with this [Operating] Agreement, the NERC Operating Policies, Applicable Regional Entity reliability principles and standards, *Good Utility Practice*, and the PJM Manuals." *Id.* § 1.7.11 (emphasis added).

[180] OA, Attachment K-Appendix, Schedule 1, § 1.7.15 (emphasis added).

[181] *PPL EnergyPlus*, 117 FERC ¶ 61,338, at P 33; *see supra* Part II.B (detailing this precedent).

[182] Manual 13, § 1.1 (Policy Statements) (emphasis added).

provides that PJM must be able "tak[e] actions it determines are consistent with Good Utility Practice and are necessary to maintain the operational integrity of the PJM RTO *and the Eastern Interconnection*."[183] Manual 13 vests with PJM the responsibility for "[d]eclaring an emergency exists or ceases to exist,"[184] and it expressly preserves PJM's broad operational flexibility during emergencies, including the ability to modify or skip the sequence of emergency procedures as necessary to address emergency situations.[185]

PJM recognizes that it is not infallible and is not suggesting that emergency operating decisions may never be challenged. But, consistent with the broad discretion PJM has to manage emergencies under the Good Utility Practice standard, the Operating Agreement and Tariff Attachment DD also grant PJM broad discretion to declare and manage Emergencies with binding effect on Market Participants. The Coalition's claim that Manual 13 imposes rigid mandates "that PJM *must* satisfy before declaring an Emergency Action"[186] grossly misreads Manual 13 and also runs counter to the Good Utility Practice standard. The Complaint does not even attempt to make the kind of evidentiary showing required to challenge PJM's actions during Winter Storm Elliott on Good Utility Practice or prudence grounds.

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[183] *Id.* § 2.3.2 (emphasis added).

[184] *Id.*

[185] *See id.* § 2.3.2 (Real-Time Emergency Procedures (Warnings and Actions)) (noting that "[d]ue to system conditions and the time required to obtain results, PJM dispatchers may find it necessary to vary the order of application" of measures outlined in Manual 13 "to achieve the best overall system reliability"); *id.* ("The Real-Time Emergency Procedures section combines Warnings and Actions in their most probable sequence based on notification requirements during extreme peak conditions. Depending on the severity of the capacity deficiency, it is unlikely that some Steps would be implemented.").

[186] Complaint at 25 (emphasis added).

4. Declining to Afford System Operators Appropriate Deference Under the Good Utility Practice Standard Would Undermine Public Policy

It would undermine public policy to enable Capacity Performance Resources to concoct *post hoc* objections to PJM's real-time emergency management decisions without regard for the Good Utility Practice standard or PJM's explicit authority under the Tariff and Operating Agreement. Capacity Resources would be encouraged to under-perform if they thought that future litigation presented a too-easy avenue to evade Non-Performance Charges. Making the prospect of bonus payments for over-performance less probable would likewise discourage over-performance. Creating these kinds of incentives would be particularly problematic when operators are seeking to optimize available resources to harmonize potentially competing goals such as serving internal load while providing assistance to neighboring areas experiencing difficulties – a situation faced by PJM's operators during Winter Storm Elliott. The Commission should avoid these outcomes by following its precedent and denying the Complaint.

B. The Coalition is Wrong to Blame Alleged Failures by PJM for its Members' Failures to Meet their Capacity Performance Obligations

A recurring theme in the Complaint is the notion that "PJM's preparations were inadequate in meeting the requirements of PJM's Tariff and these actions—and *inactions*—violate PJM's [Tariff] and were not those of a responsible Reliability Coordinator."[187] Subsection 1 below explains why it is simply wrong to suggest that PJM was unprepared for Winter Storm Elliott. Subsection 2 emphasizes how the Coalition is trying to impermissibly shift the non-performance risks that the Capacity Performance reforms placed squarely on generators back on to PJM, and thus indirectly on consumers. The Commission should reject both the Coalition's unfounded attacks on PJM's preparations and its broader attempt to transform the Capacity Performance rules

[187] *See, e.g.,* Complaint at 1-2 (emphasis in original).

into a paternalistic system in which generators escape consequences if PJM is unable to rescue them from the results of their own risky decisions.

1. PJM Was Well Prepared for Winter Storm Elliott, Took Reasonable Actions to Address the Emergency, and Did Not Lack Situational Awareness

The Coalition and Dr. Sotkiewicz argue that PJM's preparations for, and actions during, Winter Storm Elliott reveal a lack of "situational awareness" that resulted in the Coalition's members being subjected to Non-Performance Charges.[188] Dr. Sotkiewicz spends many pages constructing a narrative in which PJM's supposed lack of situational awareness is the root cause of all of the difficulties that arose during Winter Storm Elliott, including the charges that the Coalition's members have incurred.

But the truth is that every accusation that the Coalition and Dr. Sotkiewicz fling at PJM lands far from the mark. As the Bielak Affidavit explains, PJM was well aware of the potential reliability dangers posed by cold weather storms and had thoroughly prepared for the arrival of Winter Storm Elliot.[189] The Mulhern Affidavit's description of the sophistication and track record of PJM's load forecasting procedures leaves no doubt that it is the Coalition, not PJM, that misunderstands the relationship between weather and load forecasts.[190] Mr. Pilong makes it plain that the Capacity Performance rules are designed to prevent the Coalition's various rationalizations for its members' shortcomings from excusing their failure,[191] He also highlights how Capacity Resources' not meeting their obligations to timely report their availability and operational

[188] This Answer addresses the Coalition's baseless claim that PJM's situational awareness failure was so defective as to violate PJM's obligations as a NERC-registered Reliability Coordinator *infra* in Part IV.C.3.

[189] *See* Bielak Aff. at PP 7-27, 36-39.

[190] *See* Mulhern Aff. at PP 13-23.

[191] *See* Pilong Aff. at PP 7-15.

parameters exacerbated the reliability challenges that PJM faced.[192] Mr. McGlynn shows how operators worked around the clock to guide the PJM region through a crisis, communicated with neighboring systems, evaluated and reacted to all available information, and sought timely assistance from a neighboring system, from the general public, and even the federal government. PJM made full use of its situational awareness.[193]

At the outset, the Coalition focuses a great deal of attention on what Dr. Sotkiewicz mischaracterizes as a "massive load forecast error."[194] The Coalition claims that PJM mistakes "set in motion a series of cascading events, leading directly to PJM's unjust and unreasonable imposition of billions of dollars in Non-Performance Charges."[195] The theory is that Winter Storm Elliott was essentially a typical winter storm, that PJM accurately predicted the storm's impact on temperatures, but that PJM then somehow inexplicably and unjustifiably generated a "massively" inaccurate load forecast.[196]

The Complaint's statements regarding Winter Storm Elliott, the reasonableness of PJM's load forecasts for December 23 and 24, and the level of accuracy that those forecasts could reasonably have been expected to achieve are all deeply flawed. Winter Storm Elliott was not a storm that "played out as forecast."[197] The fact that "temperatures did not break the top ten winter peak load weather events in PJM's history"[198] is a red herring. As explained above and in the

[192] *See id.* at PP 29-35, 41.

[193] *See* McGlynn Aff. at PP 29-63.

[194] Sotkiewicz Aff. at P 147.

[195] Complaint at 2.

[196] *Id.* at 21.

[197] Complaint at 8.

[198] *Id.* at 8.

Mulhern Affidavit,[199] Winter Storm Elliott was an abnormal weather event because it featured not just cold weather, but the most rapid temperature drop during what is normally a mild part of winter in most of the PJM region.[200]

The Complaint grossly oversimplifies the relationship between temperature and load forecasts when it claims that PJM's accurate temperature forecasts for December 23 and 24 should have allowed PJM to precisely predict load based on temperature and load data for previous weather events.[201] There is more to predicting load than simply making direct extrapolations from temperature data. Patterns of human activity levels that can vary not just with the temperature, but the season, the day of the week, holidays, and myriad other factors also drive load forecasting.[202] In particular, loads in PJM traditionally are lower than normal, and thus historically have tended to be over-, not under-forecasted, during the run-up to Christmas.[203]

As noted above and in the Mulhern Affidavit, PJM in fact had predicted that loads would come in high for December 23 and 24.[204] PJM therefore developed a conservative operating plan and reasonably believed that it was ready for the impending storm. The fact that PJM had made these preparations is an important reason why it was not pursuing other scheduling measures in advance of Winter Storm Elliott,[205] or early on December 23,[206] that the Coalition now says PJM

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[199] Mulhern Aff. at P 7.

[200] *Id.* P 28.

[201] Complaint 10-11; Sotkiewicz Aff. at Parts B and C.

[202] *See* Mulhern Affidavit at PP 9, 23.

[203] *Id.* P 27.

[204] *See* Mulhern Aff. at P 26 ("PJM realized that Winter Storm Elliott could deviate from historic trends and established a higher-than-usual load forecast for early Winter. But actual load unexpectedly came in much higher than even PJM's atypically high projection.").

[205] *See, e.g.,* Complaint 17-18, 20-21.

[206] *See* Complaint at 16-17.

should have undertaken. Of course, Coalition offers these criticism with the advantage of perfect hindsight and without regard for the real world factors and uncertainties.

In fact, Winter Storm Elliott arrived at the same time that PJM was experiencing unprecedented high loads on December 23. Loads stayed abnormally high through the morning of December 24. Indeed, the "Christmas Eve Valley," i.e. the period of low loads in the early morning, was 40,000 MW higher than the second highest over the last decade.

PJM acknowledges that its approximately 7% under-forecast of peak load on December 22 and 23 was beyond the 3% accuracy threshold that PJM normally strives to meet. But the under-forecast was reasonable given the circumstances and was comparable in scale to what occurred in neighboring regions.[207] The Complaint greatly exaggerates the magnitude of the under-forecast by calling it "massive."

According to the Coalition, under-forecasting by PJM "produced too-low-for-the-circumstances Day-ahead power prices that were, unsurprisingly, too low to bring sufficient generation online through the market."[208] These supposedly "misleadingly low power prices" did not give gas-fired generators "the support" they needed to buy natural gas at a time when gas market prices were increasing rapidly in advance of the storm.[209] The Coalition goes so far to suggest that PJM's errors and alleged lack of situational awareness "inhibited" generators' ability to procure natural gas for fuel.[210] None of these claims are defensible because PJM is not responsible for making gas scheduling decisions for generators. Nor would Capacity Resources be entitled to escape Non-Performance Charges even if a PJM forecasting error truly "inhibited"

[207] *See supra* Part II.C.

[208] Complaint at 2.

[209] *Id.*

[210] *Id.* at 16-17.

their ability to procure gas immediately before the operating day. Capacity Resources receive capacity payments for taking the steps necessary to ensure that they will be available.

Although it is true that securing natural gas may sometimes be difficult or expensive, it is the generators' responsibility to make their own fuel arrangements. Capacity Resources bear the risk that an under-forecast or other unexpected complication might prevent them from securing fuel immediately before an operating day when they are needed. The Coalition's members "chose not to take the steps needed to make their units available in circumstances such as those that occurred during Winter Storm Elliott notwithstanding that other generating units, i.e., Complainants' competitors, did.[211] In particular, "nothing stopped Complainants from including the costs of enhancing the fuel security of their units in their capacity market bids.[212]

Similarly, Resources also have the ability to avoid potential Non-Performance Charges by self-scheduling in advance of potential pre-emergency or Emergency Actions resulting in PAIs, or during PAIs. In such cases, the self-scheduling unit may propose an operating schedule and the PJM operators will attempt to accommodate the request.[213]

The Coalition argues that "PJM's communication with generators was confusing and ineffectual," failed to meet "industry standards" for dispatches, did not give "clear instructions to generators" regarding which generation was needed.[214] But the Coalition provides just a few hand-picked examples of allegedly "confusing" communications.[215] The Coalition does not come close to meeting its burden of proof to show that PJM's communications were inconsistent with the

[211] Pilong Aff. at P 43.

[212] *Id*.

[213] *Id*. at P 15.

[214] *Id.* at 2.

[215] *Id.*

Good Utility Practice or prudence standards. Nor as demonstrated *infra* at Part IV.C has it shown that PJM's supposed failure to meet "industry standards" for dispatches actually constituted a violation of NERC's Reliability Standards or PJM's communication protocols. It is not PJM's burden in this proceeding to demonstrate that there were no imperfections in its communications or that Capacity Resources that failed to perform would have met their obligations with better communications from PJM. And as the Pilong Affidavit explains,[216] it was communications failures *by* Capacity Resources *to* PJM that greatly exacerbated the Winter Storm Elliott emergency.

The Coalition suggests that PJM let Capacity Resources down by failing to conduct more Reliability Assessment and Commitment (RAC) runs on December 22 and 23.[217] But this ignores the fact, addressed in the McGlynn Affidavit, that PJM did not know that it needed more resources until the morning of December 23. Until then, PJM believed that it had more than enough resources available to meet load that day based on the information provided by the generators. PJM's need was precipitated by the widespread failures of Capacity Resources to perform. The Coalition's argument is an unhappy paradox. It cannot reasonably condemn PJM for lacking situational awareness for not calling for additional resources before it could have known that the resources it was counting on would fail.

Finally, the Coalition complains that "[w]hen PJM did take action, it was far too little and far too late."[218] The specific example offered, i.e., that PJM acted too slowly to obtain the Emergency Order from DOE[219] verges on absurdity, even setting aside its obvious inconsistency

[216] Pilong Aff., Ex. PJM-004, at PP 34-36.

[217] Complaint at 17-18.

[218] *Id.* at 42-43.

[219] *See id.* at 15, 42-43.

with the Coalition's separate claim that there was no emergency in the first place.[220] PJM was informed on December 24 that certain Capacity Resources would come offline the same day because of emissions limits. PJM promptly sought an emergency order from DOE to avoid losing those resources and obtained it by 5:30 p.m. on Christmas Eve Saturday. PJM could not practicably have obtained an order any faster in light of when it learned of the need. In addition, PJM seeks DOE emergency orders not for itself but on behalf of generators that need them. PJM is not responsible for anticipating generators' need for relief from emission limitations and it would not have been practicable for PJM to seek an emergency order simply because PJM was facing major capacity shortages on December 23. Generators certainly are not entitled under the Capacity Performance construct to avoid Non-Performance Charges if PJM "fails" to seek emergency relief under section 202(c) of the FPA before they inform PJM that they need it.

2. Even If There Were Flaws in PJM's Preparations for Winter Storm Elliott, That Would Not Excuse Coalition Members' Non-Performance

The Coalition presents a narrative in which its members and other generators in PJM were unjustly penalized "despite being operationally available—having done what they should have done to winterize their facilities and to be ready to operate in an emergency" because of the alleged "missteps of PJM."[221] The Commission should not accept this narrative. It should hold the Coalition's members accountable for their own economic decisions and not allow them to get away with vague excuses that seek to shift responsibility for their failures to PJM.

As discussed above and in the Mulhern Affidavit,[222] PJM diligently maintains high quality forecast systems, produces well-developed forecasts, and continuously strives to meet a specified

[220] *See infra* Part IV.D.

[221] Complaint at 2.

[222] Mulhern Aff. at P 10.

accuracy threshold. Nevertheless, PJM makes no guarantees concerning the accuracy of its forecasts. To do so would be irresponsible given the complexities of load behavior and its sensitivity to the weather, especially during periods of extreme conditions. Because these risks are universally understood, it is unreasonable for the third parties to assume that PJM's forecasts were guaranteed to always come within a certain percentage of actual load. This should be especially true for sophisticated market participants such as the Coalition's members.

Furthermore, the PJM's load forecast is entirely disconnected from any Capacity Resource's ability to perform. The PJM load forecast does not dictate to generators whether they will be needed, whether they should procure fuel, or whether other generators will experience forced outages. As PJM has publicly stated regarding Winter Strom Elliot, "the forecasting and the poor generation performance are not directly related; the load forecast did not make the generators perform poorly.[223]

PJM's forecasts are also an important source of information, but it would hardly be reasonable for Capacity Resources to rely on them exclusively.

Accordingly, there is no basis for the Coalition to claim that its members were materially "misled" by PJM's load forecasts in a way that would justify reducing or excusing their Non-Performance Charges. If the Commission were to adopt the Complaint's logic it would be effectively creating a kind of detrimental reliance interest in PJM's load forecasts by enabling Capacity Resources to escape their performance obligations whenever the forecasts were inaccurate to some unspecified degree.

The Commission should not be swayed by claims that the Non-Performance Charges required under the Tariff would not "enhance reliability or further the objectives of the Capacity

[223] *See* WSE FAQs, *supra* note 95, at 7.

Performance rules."[224] In fact, applying Attachment DD as it was designed, and as market participants reasonably should have expected it to be applied, will do exactly that. Enforcing the rules by holding Capacity Resources accountable for their failures will hardly, "send the message that no amount of preparation or investment on the part of generators can protect them from devastating penalties"[225] when generators themselves are responsible for being prepared to perform.

C. PJM's Emergency Actions—Including Its Load Management Decisions and Support to Neighboring Systems in Distress—Complied with the Tariff, Operating Agreement, NERC Requirements, Manuals, and Good Utility Practice

PJM is required under the Tariff, Operating Agreement, Manual 37, Manual 13, NERC reliability standards, and agreements with other Balancing Authorities to provide emergency assistance to neighboring regions when possible.[226] PJM met these obligations and satisfied Good Utility Practice by "help[ing] adjacent Balancing Areas to the extent feasible without shedding load in PJM."[227] If PJM had done otherwise it would have been acting contrary to such requirements and contrary to how PJM operators are trained to act in emergency situations. In the face of an uncertain load forecast and "shockingly poor" generator performance, PJM operators appropriately took pre-emergency and emergency actions and avoided "risking that PJM could avoid load-shedding by curtailing non-firm exports."[228] As Mr. Bryson explains, "PJM prioritized meeting its own load when by cutting exports—both firm and non-firm—when necessary."[229] But

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[224] Complaint at 3.

[225] *Id.*

[226] *See* Bryson Aff. at PP 7-19.

[227] *Id.* P 19.

[228] *Id.* P 20.

[229] *Id.* P 23.

"once PJM had sufficient capacity to provide assistance to other Balancing Areas, it was obligated to do so."[230] For example, after the morning peak on December 24, 2022, "PJM took pre-emergency and emergency actions to meet its own needs, which created more capacity than it needed on a minute-by-minute basis, and it supplied some of that capacity to other areas that needed it through non-firm exports (as well as firm exports and emergency sales)."[231] On both December 23 and 24, 2022, even if PJM had curtailed all non-firm exports, pre-emergency and emergency actions would still have been necessary.[232]

The Complaint nonetheless alleges PJM must curtail non-firm exports before taking capacity-related Emergency Actions" because Manual 13 section 2.3.2 of Manual 13 supposedly requires that "prior to entering into capacity related Emergency Procedures," PJM must "[c]urtail all non-Firm exports and issue an [Energy Emergency Alert 1]' ('EEA1')."[233] Manual 13 section 2.3.2 indicates that PJM's normal procedure will be to "curtail all non-firm exports" prior to entering into capacity related Emergency Procedure.[234] They also invoke section 2.3.2 for the proposition that "PJM RTO Load Management Reductions are not to be used to provide assistance to adjacent Control Areas" and contend that PJM was inappropriately "calling Pre-Emergency and Emergency Load Management Reduction Actions during Winter Storm Elliott during periods when PJM was a net exporter, especially to TVA/SERC."[235] In the same vein, Complainants

[230] *Id.* P 30.

[231] *Id.* P 29.

[232] *Id.* PP 21, 22.

[233] Complaint at 4. *See also id.* at 3 (asserting that PJM "exacerbated any system challenges, and in some cases may have created those challenges, by failing to curtail non-firm exports and instead exporting power to support neighboring control areas.").

[234] *See id.* at 27-28.

[235] *See id.*

suggest that section 2.5 "reiterates" section 2.3.2 by specifying that "PJM load management programs are not to be used to provide assistance to adjacent Balancing Areas."[236]

As discussed below, and in the McGlynn, Bryson, and Naumann Affidavits, PJM had ample authority to allow non-firm exports during Winter Storm Elliott when PJM believed it could assist neighboring systems without jeopardizing PJM. In addition, PJM "did not initiate Load Management procedures for the purpose of assisting other regions and thus was not constrained from providing exports regions experiencing or attempting to avoid capacity deficient conditions."[237] PJM committed no Manual 13, Tariff, or Operating Agreement violations.

1. PJM's Decisions to Support Neighboring Systems in Distress When Feasible Complied With the Tariff, Operating Agreement, NERC Requirements, Manual 13, and Good Utility Practice

a. Manual 13 Does Not and Cannot Prohibit Exports to Neighboring Systems During Emergencies

As discussed *supra* in Part IV.A and in multiple PJM Exhibits,[238] Manual 13 is replete with statements confirming that operators have broad discretion to deviate from the Manual 13 procedure when necessary to preserve reliability. Complainants overlook that language and focus solely on isolated excerpts to offer an interpretation of Manual 13 that imposes binding prerequisites on PJM's operational flexibility. The Commission must reject this attempt to handcuff PJM's operational flexibility during emergencies.

Manual 13 unambiguously recognizes that reliability is PJM's paramount obligation. Section 1.1 of Manual 13 begins by declaring that "the policy of PJM is to maintain, at all times, the integrity of the PJM RTO transmission systems and the Eastern Interconnection and to give

[236] *Id.* at 15.

[237] Bryson Aff. at P 6.

[238] *See id.* P 17; Naumann Aff. P 15.

Performance Charges. Of course, PJM has no ability to unilaterally "expand" a NERC reliability requirement or to combine it with a manual provision to create a Tariff obligation as the Coalition suggests. The Coalition's NERC arguments are therefore foreclosed and should be rejected for that reason alone.

D. PJM Reasonably Determined that a PJM-Wide Emergency Existed Notwithstanding Complainants' *Post Hoc* Claims

The Complaint contends that "PJM issued Maximum Generation Emergency Actions for the entire RTO for the full 277 intervals of the December 23 PAIs and the December 24 PAIs—even though large portions of the grid faced minimal or no capacity constraints and even though PJM had never issued an RTO-wide PAI in the history of its emergency procedures."[303] The Coalition also observes that PJM implemented these Emergency Actions for the entire RTO instead of individual zones, even though the Tariff allowed PJM to call actions for individual control zones.[304]

At the outset, the Coalition's notion that there was no emergency is belied by DOE Order No. 202-22-4, which expressly held as a matter of law on that same day that "an emergency exists in the electricity grid operated by [PJM] due to a shortage of electric energy, a shortage of facilities for the generation of electric energy, and other causes, and that issuance of this Order will meet the emergency and serve the public interest."[305] That finding was based, in part, on concern that PJM had experienced approximately 45,000 MW of outages and derates as of early December 24, that PJM feared the relevant resources would not soon return to service, and that "in the event PJM

[303] Complaint at 37.

[304] *Id*. (citing Manual 13 at § 2.3.2).

[305] U.S. Dep't Energy, *Federal Power Act Section 202(c): PJM December 2022* at 1, https://www.energy.gov/ceser/federal-power-act-section-202c-pjm-december-2022 (DOE Order No. 202-22-4).

experiences additional generating unit outages, PJM states that it may need to curtail some amount of firm load on December 24, December 25, or December 26, 2022 in order to maintain the security and reliability of the PJM system."[306] DOE Order No. 202-22-4 was in effect from 17:30 on December 24 through December 26. DOE did not exclude any part of PJM from the regional emergency.

More generally, the Coalition's and Dr. Sotkiewicz's claims represent after-the-fact *economic* arguments that are wholly detached from the *operational* realities that PJM faced during Winter Storm Elliot. Their arguments are rooted in 20/20 hindsight that was obviously not available to PJM's operators confronting real world problems.[307]

Mr. Naumann points out the fundamental flaws in the Coalition's approach. As detailed above in Section IV.A.2, "[t]his type of *post hoc* economic analyses and other varieties of "Monday morning quarterbacking" are irrelevant to the question of whether operators acted reasonably and in accordance with Good Utility practice."[308] The Coalition and Dr. Sotkiewicz also completely ignore that PJM is generally operated as a single integrated region and it's the relevant reliability requirements presume that this will be the case. Manual 13 sections 2.2 and 2.3.2 both provide PJM with broad flexibility. Section 2.2 incorporates a presumption that "PJM issues capacity emergencies across the entire PJM RTO."[309] It also creates express exceptions "for PJM Load Dump Warnings/Actions, which are solely issued on a Control Zone basis" and notes that "transmission constraints may force Emergency Procedure warnings/actions to be issued on a

[306] *Id*.

[307] *See* Sotkiewicz Aff. at P

[308] Naumann Aff. at P 29 (citations omitted).

[309] Manual 13, § 2.2.

Control Zone or a subset of a Control Zone."[310] But the important thing is that section 2.2 reflects a prevailing understanding that capacity shortages are to be addressed regionally, not locally.

As Mr. Bryson explains, "the general criteria for generation interconnection in PJM and for transmission planning are that all generation resources in aggregate should be deliverable to all loads in aggregate during peak conditions."[311] PJM Manual 14B establishes that, "within an area experiencing a localized capacity emergency, or deficiency, energy must be deliverable from the aggregate of the available Capacity Resources to load."[312] Also, "Capacity Resources within a given electrical area must, in aggregate, be able to be exported to other areas of PJM." Taken together, "[t]hese deliverability tests ensure that the PJM Transmission System is adequate for delivery of energy from the aggregate of Capacity Resources to the aggregate of PJM load."[313] Thus, "a capacity shortage will almost always be a PJM system-wide event because generation in any PJM zone can be used to support loads in any zone."[314]

But even to the extent that the Coalition's claims are true, they do not make PJM's real-time operational decisions unreasonable, especially under the Good Utility Practice standard. "PJM's operators were not concerned just with the minute-by-minute situation on the system. They were also considering longer time frames.[315]

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[310] *Id.*

[311] Bryson Aff. at P 37.

[312] Manual 14B: PJM Regional Transmission Planning Process (Dec. 15, 2021), Attach. C § C.1.2 (Types of Deliverability Requirements), https://www.pjm.com/-/media/documents/manuals/archive/m14b/m14bv51-pjm-regional-transmission-planning-process-12-15-2021.ashx.

[313] Bryson Aff. at P 37.

[314] *Id.*

[315] *See id.* P 25.

After 06:00 on December 24 PJM operators continued to be very concerned about the state of the PJM system. They reasonably feared based on events on December 23 and the morning of December 24 that PJM might not be able to meet the RTO-wide evening peak PJM operators were also concerned that if the Maximum Generation Emergency Action and the Pre-Emergency/Emergency Load Management Reduction Action were rescinded and PJM then tried to reinstate them to meet a potentially high evening peak on December 24, there could be a significantly lower response rate. If allowed to go offline, some generators might not restart due to the cold weather conditions or units running on gas might resell their gas supply. In addition, if Demand Resources were released and allowed to resume normal power consumption, PJM operators were concerned that those resources might not be willing or able to redeploy if called again prior to the evening peak. These concerns were well grounded in PJM's practical experience with demand response.[316]

Thus, the fact that the evening peak came in at a relatively lower level does not undermine the validity of the operators' decisions under the Good Utility Practice standard based on the information they had when those decisions were made.[317]

PJM is under no obligation to avoid declaring regional emergencies solely because emergency conditions might not exist at that moment in a particular zone. Nor must it end regional emergencies as soon as it appears that an emergency might have ceased in a particular zone. Instead, PJM's operators have discretion to exercise their judgment in the face of uncertainty. They must have the ability to exercise that discretion without being distracted by economic arguments such as those in the Complaint.

[316] *See id.* P 27.

[317] *See id.* P 28.

The reality is that PJM faced a dire reliability emergency during Winter Storm Elliott that extended well beyond PJM's own boundaries. Large portions of the Eastern Interconnection and ERCOT were impacted by record-breaking temperature drops and unprecedented holiday loads. Neighboring systems were shedding load or declaring emergencies. PJM itself was struggling to maintain reliability in the face of widespread non-performance by generators. At times PJM was relying on emergency imports from the Northeast Power Coordinating Council to avoid load shedding in PJM. Heading into December 24, PJM had valid reasons to fear that non-performance issues would become even worse. The Department of Energy endorsed PJM's view that there was a region-wide emergency by issuing an FPA section 202(c) emergency order, just as it had a day before in ERCOT.

E. Refunds or Other Forms of Relief Are Not Available Under Section 309 of the FPA Because PJM Did Not Violate its Tariff

The Complaint argues that the Commission is authorized to order refunds under section 309 of the FPA and should do so here because the application of Non-Performance Charges on the Coalition's members was allegedly unjust on the facts of this case.[318] They also claim that the Commission should act under section 309 because allowing Non-Performance Charges for Winter Storm Elliott PAIs to stand would ostensibly have negative consequences for markets, reliability, and consumers.[319]

These arguments must fail because the Commission's remedial discretion under FPA section 309 authority only comes into play if there is a tariff violation to remedy. As this Answer comprehensively demonstrates, however, PJM's Emergency Actions during Winter Storm Elliott fully complied with all applicable Tariff, Operating Agreement, Manual, and NERC requirements.

[318] *See* Complaint at 44-51.

[319] *Id*. at 47-51.

Respectfully Submitted,

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ATTACHMENT E

Excerpts from PJM's Answer, Motion to Dismiss or Summarily Dispose Complaint, and Request for Confidential Treatment to ComEd Generator's Complaint in Docket No. EL23-54-000

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Aurora Generation, LLC	)	
Elwood Energy, LLC	)	
Jackson Generation, LLC	)	
Lee County Generating Station, LLC	)	
LSP University Park, LLC	)	**Docket No. EL23-54-000**
Rockford Power, LLC	)	
Rockford Power II, LLC	)	
University Park Energy, LLC	)	
Complainants	)	
	)	
v.	)	
	)	
PJM Interconnection, L.L.C.	)	
Respondent	)	

ANSWER, MOTION TO DISMISS OR SUMMARILY DISPOSE COMPLAINT, AND REQUEST FOR CONFIDENTIAL TREATMENT OF PJM INTERCONNECTION, L.L.C.

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generator fuel availability and gas supply and transportation contracts.[69] Between November and March, the PJM Gas Electric Coordination Team conducts daily reviews of the interstate pipeline bulletin boards to assess pipeline operating conditions and identify supply risks.[70]

4. Existing Arrangements With Other Reliability Coordinators

PJM engages with neighboring Reliability Coordinators regarding operations during emergency conditions, and has joint operating and or joint coordination agreements with Midcontinent Independent System Operator, Inc. (MISO), Tennessee Valley Authority (TVA), New York Independent System Operator, Inc. (NYISO), Duke Energy Progress, LLC (Duke), and VACAR South RC (VACAR).[71] PJM discusses a variety of metrics, including peak load estimates, reserve requirements, and estimated loads during daily conference calls with the neighboring Reliability Coordinators.[72] These calls took place in the period leading up to and during Winter Storm Elliott.[73]

5. Weather and Load Forecasting

PJM employs state of the art forecasting tools and processes. Three widely-used vendors send PJM hourly weather forecast data covering temperature, effective temperature, temperature humidity index, heat index, wind speed, wind direction, humidity, and cloud cover.[74] PJM systems use a weighted average of the three vendor forecasts based on recent observed performance.[75] Vendors also provide additional periodic weather reports on, among other things, wind turbine

[69] *Id.* P 24.

[70] *Id.*

[71] *Id.* P 26.

[72] *Id.* P 27.

[73] *See id.*

[74] Mulhern Aff., Ex. PJM-003, at P 13.

[75] *Id.* P 14.

icing and high wind cut-out risks. All reports are sent to control room staff, operations support staff, and Dispatch leadership, on either a daily or as needed basis determined by the vendor.

PJM uses multiple tools to visualize this weather data. A custom in-house weather dashboard presents temperature, effective temperature, wind speed, cloud cover, and other parameters for weather stations and forecast zones for the current and next six days.[76] The dashboard features charts that compare vendor forecasts and show the 24-hour temperature change, along with daily written reports on forecasted weather conditions in each major PJM zone.[77]

PJM forecasts load using a suite of neural network and pattern matching models.[78] Weather parameters such as temperature and effective temperature (which is based on temperature and wind speed) serve as direct inputs into the load models.[79] A custom in-house load forecast dashboard presents weather forecast data and load forecasts from multiple models and shows how weather and load behaved on similar days.[80] A dashboard with maps of the United States and parts of Canada shows real-time temperature, radar, dew point, and infrared and forecasted temperature deviations from normal for the current day and next 14 days.[81] A custom Dispatch interactive mapping tool shows weather radar and satellite; temperature, wind speed, dew point, and relative humidity observations; local storm reports; National Weather Service bulletins; and a variety of severe conditions.[82]

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[76] *Id.*

[77] *Id.*

[78] *Id.* P 15.

[79] *Id.*

[80] *Id.* P 18.

[81] *Id.*

[82] *Id.*

6. Cold Weather Advisories and Cold Weather Alerts

When winter emergency conditions appear imminent, PJM issues either a Cold Weather Advisory or a Cold Weather Alert. The Bielak Affidavit outlines the actions that generators and PJM are expected to take upon declaration of a Cold Weather Advisory.[83] An important component in PJM operators' decision-making process is the data supplied by generators in Markets Gateway and Dispatcher Application and Reporting Tool (eDART), which generators are obligated to update upon issuance of the Cold Weather Advisory. PJM will compare the data to the forecasted temperatures, determine if there will be any limiting factors for the generation fleet, and prepare accordingly.

PJM issues Cold Weather Alerts when emergency conditions are more immediately expected.[84] Though PJM Manual 13 contains guidelines regarding when a Cold Weather Alert will be declared, PJM operators are ultimately vested with the authority to exercise judgment in light of the surrounding factors.[85] The Bielak Affidavit outlines the requirements for generators and PJM after PJM declares a Cold Weather alert.[86] Perhaps the most critical of these obligations is for generators to provide various information to PJM operators, who rely on it to make dispatch and scheduling decisions. If generators fail to provide accurate information, operators' ability to manage an emergency may be compromised, as occurred during Winter Storm Elliott.

[83] *See* Bielak Aff. PP 28-29.

[84] *Id.* P 30.

[85] *See id.* PP 30-31.

[86] *See id.*

7. PJM Staffing and Training

A crucial element of PJM's winter preparedness is the training of its staff. PJM staff participates in the drills and other training events held for generators.[87] In addition, PJM conducts annual training, monthly load shed drills, and pre-winter and summer Emergency Procedures drills to train operators on proper load shedding procedures and to maintain their load shedding skills.[88]

PJM took steps to assure that adequate staff was available during Winter Storm Elliott, notwithstanding the impending Christmas holiday. Beginning on December 23, PJM brought in additional control room, support, and management staff that remained on duty or available around the clock throughout the entirety of the cold weather event.[89] PJM also activated the Operations Event Response Team (OERT), a cross-divisional group of internal PJM employees (including participants from Dispatch Leadership and other PJM departments) formed to prepare for and respond to operational events.[90]

8. PJM's Status in the Period Leading Up to the Emergency Declarations on December 23 and December 24, 2022

Based on PJM's modeling and the data it received from generators, PJM entered the period before Winter Storm Elliott in the reasonable belief that it had more than enough capacity to serve customers during what was expected to be a severe storm. As became apparent as conditions worsened, however, the information PJM's operators received from generators regarding winter preparedness and unit operating parameters was often substantially inaccurate.[91] PJM issued a Cold Weather Advisory for Western PJM starting at 7:00 AM on December 20, and a Cold

[87] *Id.* P 32.

[88] *Id.*

[89] *Id.* P 33.

[90] *Id.* P 34.

[91] *Id.* P 36.

Weather Alert for Western PJM on December 21. PJM also issued an RTO-wide Cold Weather Advisory on December 22, 2022, and an RTO-wide Cold Weather Alert on December 23, 2022.[92] As discussed below in Part IV.B and in the Pilong Affidavit, Capacity Resources should have been taking steps to update their unit operating parameters in response, but they often did not.

PJM operators lacked vital information needed to make dispatch decisions during Winter Storm Elliott because of the widespread failure of generators to provide accurate information regarding the operating parameters of their units.[93] In particular, many owners of gas-fired generators did not provide updates regarding the availability of natural gas needed for fuel.[94] The lack of accurate and timely information from many generators continued to be a problem throughout the entire cold weather period.

C. Widespread Generator Performance Failure Exacerbated Extraordinary System Conditions During Winter Storm Elliott

On December 23, 2022, the PJM region experienced the most rapid temperature drop it had seen in a decade, an abrupt 29°F decrease over 12 hours.[95] Although PJM correctly forecasted Winter Storm Elliott would bring freezing temperatures, the sudden temperature drop was more rapid than any other in the last decade. The rate at which temperatures fell, together with the fact that the drop occurred during what is normally the milder part of winter, distinguishes Winter Storm Elliott from other large storms.[96]

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[92] *Id.* P 35.

[93] *Id.* P 36.

[94] *Id.*

[95] Mulhern Aff., Ex. PJM-003, at P 27.

[96] *Id.*

PJM's algorithm-based load forecast model had never seen the conditions that occurred on December 23 with the confluence of unprecedented cold temperature drops, the holiday, and the weekend.[97] In some parts of PJM, the difference between the high and low temperature on December 23 was one of the greatest in recorded history.

Operators knew there was a great deal of uncertainty in the load forecast and, as a result, operated conservatively, making a conscious decision to carry a large amount of additional capacity.[98] Mindful of the potential for unpredictable impacts, PJM conducted a detailed review of its load forecast beforehand. Actual Winter Storm Elliott conditions were extreme, but within the outer bounds of what PJM prepared for.[99] The under-forecasts for December 23 and 24 were attributable to a once-in-a-decade unfavorable combination of severe cold and blizzard conditions unusually early in the winter season and outlier holiday impacts.[100]

PJM's forecasted load for December 23 was 126,968 MW. PJM was confident in its operating plans given the approximately 158,000 MW showing available for PJM dispatch. This was based on the data provided by the generators themselves. PJM was confident it was guarding against potential uncertainty by having substantially more capacity available than normally necessary. Based on submitted Generator Availability Data, PJM believed it had almost 29 GW of reserve capacity available to absorb load and generating contingencies and to support neighboring systems.[101]

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[97] *Id.* PP 26-27.

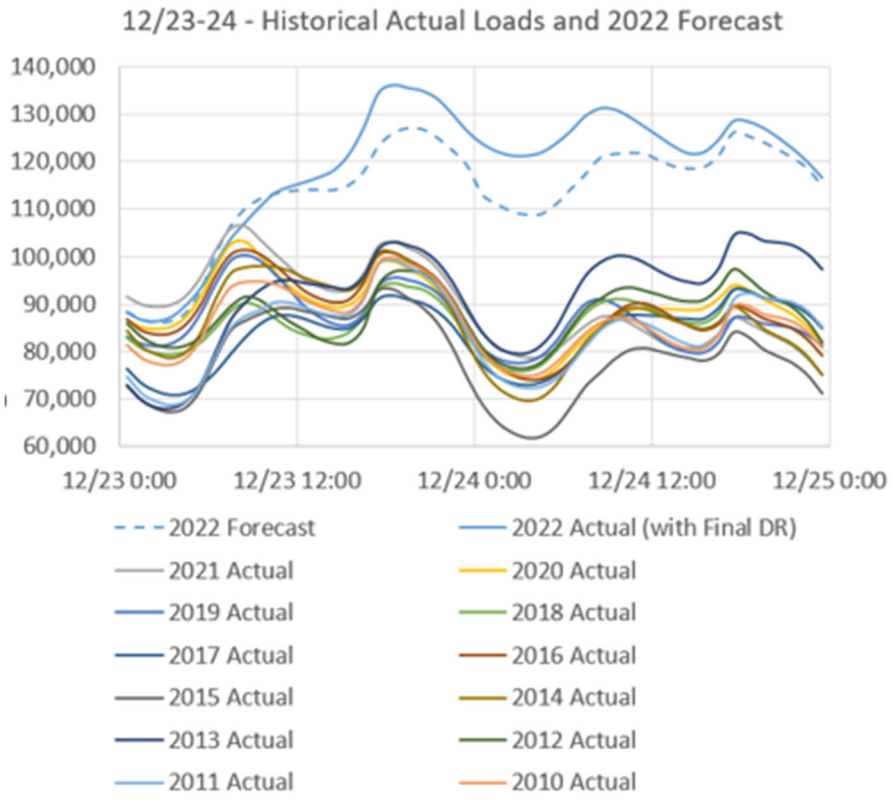
[98] *Id.* P 29; *see also* Winter Storm Elliott Frequently Asked Questions (Apr. 12, 2023), at 5, https://www.pjm.com/-/media/markets-ops/winter-storm-elliott/faq-winter-storm-elliott.ashx (WSE FAQs).

[99] *See* WSE FAQs, *supra* note 98, at 5.

[100] Mulhern Aff. at PP 25-27.

[101] Bielak Aff. at P 30.

At the same time, 2022 holiday weekend load proved to be an extreme outlier in both magnitude and timing.[102] The actual hourly load was 136,010 MW on December 23 and 131,113 MW on December 24.[103]



Load also stayed unusually high overnight and in the early morning of December 24.[104] The "Christmas Eve Valley" was 40,000 MW higher than the second highest over the last decade.[105] In fact, the Christmas Eve load "valley" was higher than any peak load on that date in a decade.[106]

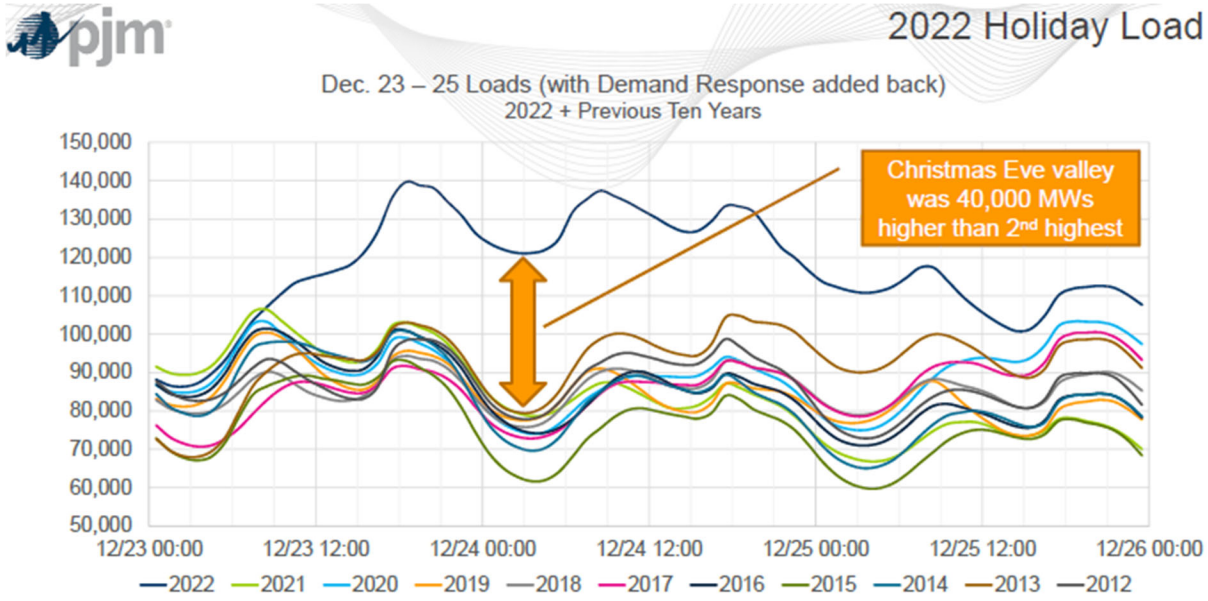
[102] Mulhern Aff. at P 32.

[103] *Id.*

[104] *Id.*

[105] *Id.*

[106] *See* WSE FAQs, *supra* note 98, at 3; Mulhern Aff. at P 32.



It is also noteworthy that PJM load forecasts were back to their "normal" levels of accuracy immediately before and after Winter Storm Elliott.[107] This indicates that the Winter Storm Elliott forecast was an outlier attributable to the anomalous combination of record-breaking temperature drops and demand levels never before seen over the Christmas holiday.

Winter Storm Elliott also created serious reliability issues across the Eastern Interconnection. It is estimated that Winter Storm Elliott impacted two-thirds of the United States and "contributed to" millions of customer outages. Like PJM, neighboring systems experienced the rapid onset of freezing temperatures coupled with unprecedented high holiday loads that were not predicted by forecasting models. As NERC has stated, "utilities in parts of the southeast were forced to engage in rolling blackouts and the bulk power system in other regions was significantly stressed."[108] Furthermore, "[i]n addition to the load shedding in Tennessee and the Carolinas,

[107] Mulhern Aff. at P 42.

[108] *See* NERC, *FERC, NERC to Open Joint Inquiry into Winter Storm Elliott* (Dec. 28, 2022), https://www.nerc.com/news/Pages/FERC,-NERC-to-Open-Joint-Inquiry-into-Winter-Storm-Elliott.aspx.

multiple energy emergencies were declared and new demand records were set across the continent. And this was in the early weeks of a projected 'mild' winter."[109]

For example, the TVA and VACAR portion of the SERC Reliability Corporation (SERC) region experienced cold weather and heavy loads and faced various stages of energy emergencies.[110] TVA was forced to engage in load shedding on December 23 and 24 for the first time in its ninety-year history. TVA set an all-time winter peak power demand record of 33,425 MW. A normal winter peak for TVA is around 24,000 MW. Duke had a load under-forecast that was in some respects larger than PJM. At times the forecast was off by approximately 10% for Duke Energy Carolinas LLC and about 5%-6% for Duke Energy Progress LLC.[111] Duke was also forced to resort to load shedding on December 24 that impacted 500,000 customers.[112]

Southwest Power Pool, Inc. (SPP) likewise had a 9% error rate in its Winter Storm Elliott forecast. SPP also set a winter peak demand record of 47,157 MW and, in SPP's own words, "[t]he presence of extreme wind chill without adequate historical data impacted [SPP's] ability to determine its impact on load."[113] In MISO, "[a]bnormally high load forecasting errors occurred

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[109] *Id*.

[110] *See id.*

[111] *See* S&P Global Market Intelligence, *Holiday 2022 Winter Storm Raises Reliability, Generation Diversity Questions* (Mar. 27, 2023), https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/holiday-2022-winter-storm-raises-reliability-generation-diversity-questions-74685081.

[112] *See* Robert Walton, *Duke Energy Apologizes for Winter Storm Outages as FERC, NERC Open Investigation Into Grid Failures*, UtilityDive (Jan. 4, 2023), https://www.utilitydive.com/news/duke-energy-apologizes-for-winter-storm-outages-as-ferc-nerc-open-investig/639583/.

[113] *See* S&P Global Market Intelligence, *How the Holiday 2022 Winter Storm Confounded Grid Operators' Forecast Models* (Apr. 6, 2023), https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/holiday-2022-winter-storm-raises-reliability-generation-diversity-questions-74685081.

due to a lack of historical data for similar extreme conditions in December."[114] Peak load on December 23 was 105,916 MW compared to forecast peak of 100,033 MW, a 5.5% error.[115]

The Electric Reliability Council of Texas (ERCOT) has stated that its load forecasts were "too low going into [Winter Storm Elliott], cold weather intrusion was deeper and quicker than the national weather models were forecasting, load forecasting models overplayed the reduction in demand due to the holiday, and that there was a "[l]ack of comparable historic load data without loadshed . . . for the load forecast models to reference."[116] Actual demand was 8% higher than ERCOT's forecasted peak demand for December 22. ERCOT has estimated that 11 GW of thermal generation, 4 GW of wind, and 1.7 GW of other resources were out of service on December 23. Just as PJM would later do, ERCOT obtained an FPA section 202(c) emergency order from the Department of Energy to allow needed resources to exceed otherwise applicable environmental limits on December 23.[117] Lastly, Louisville Gas & Electric Co. and Kentucky Utilities were forced to shed load to 53,000 customers on December 23 after underestimating peak load for that day by as much as 16%.[118]

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[114] *See* MISO, *Overview of Winter Storm Elliott December 23, Maximum Generation Event* (Jan. 17, 2023), https://cdn.misoenergy.org/20230117%20RSC%20Item%2005%20Winter%20Storm%20Elliott%20Preliminary%20Report627535.pdf.

[115] *See* S&P Global Market Intelligence, *supra* note 113.

[116] *See* ERCOT, *Item 7: Review of Winter Storm Elliott* (Feb. 28, 2023), https://www.ercot.com/files/docs/2023/02/21/7-Review-of-Winter-Storm-Elliott.pdf.

[117] *See* U.S. Dep't Energy, *Federal Power Act Section 202(c): ERCOT December 2022*, https://www.energy.gov/ceser/federal-power-act-section-202c-ercot-december-2022.

[118] *See* Ryan Van Velzer, *LG&E/KU Underestimated Energy Demand Ahead of Winter Storm Elliott*, Louisville Public Media (Jan. 26, 2023), https://www.lpm.org/news/2023-01-26/lg-e-ku-underestimated-energy-demand-ahead-of-winter-storm-elliott.

faced approximately 57 GW of generator unavailability for the morning peak on December 24. PJM operators could not have reasonably anticipated this level of failure by Capacity Resources.[130]

2. Capacity Resources' Poor Performance Was a Major Factor in PJM's Decision to Extend Emergency Actions Through the Evening Peak on December 24, 2022

The performance failures of the generator sector generally and the failures of Complainants individually had a profound impact on PJM's decision-making during the period following the December 24 morning peak. This was especially so because PJM was facing many other uncertainties including that: (i) the load forecast had significantly understated the last two peaks and the reasons why the usually reliable forecast process was not working were unclear; (ii) production area freeze-offs and gas pipeline curtailments had occurred and it was uncertain when natural gas operations would return to normal; and (iii) PJM reasonably believed that the morning peak it had just experienced would have been about 7,000 MW higher without Load Management. As explained in detail below and in the affidavit of Mr. Bryson, considering the totality of the circumstances, extending the Pre-Emergency/Emergency Load Management Actions and Maximum Generation Emergency Action was prudent and consistent with the Good Utility Practice Standard.

PJM will not speculate as to whether its operators might have ended the Emergency Actions sooner if generator performance had been better over the previous 24 to 36 hours. It is clear, however, that the generator sector's, including Complainants', poor performance was a major driving factor behind the decision to extend those procedures and was a factor that PJM would have been reckless to ignore. Some generators performed well during Winter Storm Elliott. But the performance of generators such as Complainants that appear not to have taken their

[130] *Id.* P 27.

precedent for good reasons.[176] If operators are not accorded a high degree of flexibility to implement their best technical judgment in emergencies, they may avoid using available and effective tools that seem more vulnerable to *post hoc* legal challenges to the ultimate detriment of reliability.

1. The Good Utility Practice Standard Affords Great Deference to Public Utilities, and Commission Precedent Broadens that Deference in Emergency Conditions

The Good Utility Practice standard was adopted by the Commission's *pro forma* Open Access Transmission Tariff in Order No. 888, and that definition is incorporated verbatim into the Tariff and Operating Agreement. It reads:

> "Good Utility Practice" shall mean any of the practices, methods and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather is intended to include acceptable practices, methods, or acts generally accepted in the region; including those practices required by Federal Power Act, section 215(a)(4).[177]

This standard is highly deferential on its face: it does not require utilities to choose the best or most agreeable options;[178] and it does not overturn mistaken decisions based on erroneous

[176] *See supra* Part III.A.

[177] Tariff § 1; OA § 1.

[178] *See Tenaska Clear Creek Wind, LLC*, 182 FERC ¶ 61,084, at P 41 (2023) ("[E]ven if Tenaska is correct that a less expensive alternative existed, Good Utility Practice affords SPP discretion in selecting among alternatives, and SPP was not obligated to adopt it under the terms of its Tariff."); *Sierra Pac. Power Co.*, 106 FERC ¶ 61,155, at P 23 (2004) ("[W]hile it is certainly preferable for utilities to reach agreement, the absence of agreement by itself does not constitute a violation of good utility practice."); *Metzenbaum v. Columbia Gas Transmission Corp*., 4 FERC ¶ 61,277 (1978) (agreeing "that courts in passing upon discretionary action should endeavor to put themselves in the position of the actors in the transaction, and not be ready to find that the course actually pursued was blameworthy because the results were unfortunate").

information.[179] Commission precedent also confirms that system operators are accorded especially broad flexibility under the Good Utility Practice standard when making decisions in emergency conditions.[180]

2. The Good Utility Practice Standard's and the Commission's Prudence Doctrine Require Past Decisions to be Reviewed "in light of the facts known at the time the decision was made"

A core feature of the Good Utility Practice standard is the requirement that past decisions are evaluated only "in light of the facts known at the time the decision was made."[181] The

[179] *See Midwest Indep. Transmission Sys. Operator, Inc.*, 143 FERC ¶ 61,050, at P 44 (2013) (finding that "an error [in certain calculations required by the tariff] does not, by itself, demonstrate a violation of Good Utility Practice").

[180] *See, e.g.*, *Midcontinent Indep. Sys. Operator, Inc*., 164 FERC ¶ 61,129, at P 37 (2018) ("We find that it is appropriate for MISO to have discretion to respond to operational circumstances related to reliability concerns."); *Big Sandy Peaker Plant, LLC*, 154 FERC ¶ 61,216, at P 50 (2016) ("The Commission has recognized that it may be appropriate to provide operational and reliability-related discretion to independent system operators, and to not second-guess their decisions [to deselect a generator]."); *Cal. Indep. Sys. Operator Corp.*, 139 FERC ¶ 61,207, at PP 48-50 (2012) (finding good cause for *post hoc* waiver of CAISO tariff restrictions inconsistent with actions taken during an emergency where (1) "[t]he Commission believes that CAISO, in this emergency situation, took the actions it believed were necessary in order to ensure the reliability of the grid" and that (2) "CAISO set prices it thought necessary to encourage generation to be available to prevent the blackout from spreading further and to restore power in the SDG&E area as quickly as possible."); *N. Nat. Gas Co*., 103 FERC ¶ 61,083, at P 14 (2003) ("The Commission gives pipelines much discretion regarding when and how they respond to system emergencies."); *Equitrans, Inc*., 65 FERC ¶ 61,132, at P 4 (1993) ("[W]e have traditionally allowed pipelines considerable discretion in managing operational emergencies that threaten the integrity of the system."); *Re Consol. Gas Supply Corp*., 2 P.U.R.4th 202 (1973) ("We find that there was an emergency, and that what management did under the circumstances was reasonable."); *Mun. Light Bds. v. Bos. Edison Co.,* 53 F.P.C. 1545, 1565 (1975) ("Since emergencies usually allow no time for consultation or debate the judgment must be made by the electric utility involved. The judgment, however, must be one which a reasonable man acting in good faith might have made under the circumstances then known and within the time which appeared to be available for action."), *aff'd sub nom. Towns of Norwood v. F.P.C*., 546 F.2d 1036 (D.C. Cir. 1976).

[181] Tariff § 1 (defining Good utility Practice); OA § 1 (same); s*ee, e.g.*, *Salt Creek Solar, LLC*, 180 FERC ¶ 61,116, at P 68 (2022) ("The Tariff's definition of Good Utility Practice affords SPP discretion to exercise reasonable judgment in light of the facts known at the time it makes a business decision.").

Commission's application of this principle is particularly strong in the context of prudence review, which is essentially what the Complaint demands. The Commission's prudence decisions underscore that it is inappropriate to second guess past decisions with the advantage of perfect hindsight.[182] Complainants ignore this constraint by attempting to demonstrate, after the fact, that PJM could have navigated the Winter Storm Elliott emergency in a different way that might have allowed them to avoid Non-Performance charges. However, the potential for alternate outcomes is simply irrelevant under the Good Utility Practice standard.

PJM took timely and necessary actions to address volatile and extreme conditions during Winter Storm Elliott. The reasonableness of PJM's actions must be evaluated in light of what was known at the time the decisions were made and not based upon a *post hoc* determination of what PJM might have decided had its operators possessed perfect knowledge and an extended period to deliberate. As Mr. Naumann explains:

> The ComEd Zone Generators argue that PJM did not operate in a reasonable manner based on their own *post hoc* economic analysis months after Winter Storm Elliott has passed. The essence of their argument is that, because not enough bad things actually happened, the actions of PJM's operators to be prepared for

[182] *See, e.g.*, *Pac. Gas & Elec. Co.,* 173 FERC ¶ 61,045, at P 179 (2020) (citation omitted) ("Even if a decision turns out to be incorrect in hindsight, the Commission's task is to review the prudence of a utility's actions and the costs resulting from the particular circumstances existing either at the time the costs were incurred or when the utility became committed to incur those expenses."); *J. William Foley Inc. v. United Illuminating Co.*, 142 FERC ¶ 61,125, at P 19 (2013) (quoting *New Eng. Power Co.*, 31 FERC ¶ 61,047, at 61,084 (1985)), *aff'd sub nom. Violet v. FERC*, 800 F.2d 280 (1st Cir. 1986)) ("Foley fails to provide any evidence bearing upon the prudence (or imprudence) of any specific costs . . ., such as whether they were 'costs which a reasonable utility management . . . would have made, in good faith, under the same circumstances, and at the relevant point in time.' . . . Foley must do more than, in hindsight, second-guess utility management decisions based on the resulting costs."); *Ind. Mun. Power Agency v. FERC*, 56 F.3d 247, 289 (D.C. Cir. 1995) (citing *Ohio Power Co.*, 39 FERC ¶ 61,098 (1987)) ("The Commission has long used its prudence and market rate tests to enforce the just and reasonable provision of section 205 . . . ."); *New Eng. Power Co.*, 31 FERC ¶ 61,047, at 61,086 (granting full cost recovery for terminated nuclear generation project because utility prudently considered, among other things, the best interests of its customers at that time to reduce dependence on imported oil during an oil shortage).

> foreseeable contingencies were not only wrong, but also a violation of PJM's tariffs and manuals. This type of *post hoc* economic analyses and other varieties of "Monday morning quarterbacking" are irrelevant to the question of whether operators acted reasonably and in accordance with Good Utility practice with the knowledge they had at the time they had to make decisions. While post event analyses are useful to better understand the event, and can be used to improve rules and processes going forward, they cannot upset real-time decisions.[183]

In short, Complainants fail to meet the standard of review because it is not enough for them to point to information that operators might have weighed differently, or to devise an alternative set of actions or dispatch decisions that might have addressed an emergency situation more efficiently. Even if those arguments had merit—and they do not—they are simply not relevant under Good Utility Practice or prudence review.

3. The Tariff, Operating Agreement, and Manuals Expressly Provide PJM With Enhanced Flexibility to Respond to Emergencies

The Operating Agreement affords PJM an extraordinary degree of operational flexibility to manage Emergencies.[184] Section 1.7.11 grants PJM the exclusive responsibility "for declaring the existence of an Emergency, and for directing the operations of Market Participants as necessary to manage, alleviate or end an Emergency," and it further instructs that PJM's directives "shall be binding on all Market Participants until [PJM] announces that the actual or threatened Emergency no longer exists." [185] Section 1.7.15 similarly provides that "[c]onsistent with Good Utility

[183] Naumann Aff., Ex. PMG-007 at P 29 (citations omitted).

[184] The Operating Agreement defines an "Emergency" as "(i) an abnormal system condition requiring manual or automatic action to maintain system frequency, or to prevent loss of firm load, equipment damage, or tripping of system elements that could adversely affect the reliability of an electric system or the safety of persons or property; or (ii) a fuel shortage requiring departure from normal operating procedures in order to minimize the use of such scarce fuel; or (iii) a condition that requires implementation of emergency procedures as defined in the PJM Manuals." OA § 1.

[185] OA, Sch. 1, § 1.7.11; *see id.* (stating that PJM's actions during Emergencies "shall be carried out in accordance with this [Operating] Agreement, the NERC Operating Policies,

Practice, [PJM] shall be authorized to direct or coordinate corrective action, whether or not specified in the PJM Manuals, as necessary to alleviate unusual conditions that threaten the integrity or reliability of the PJM Region, or the regional power system."[186] Moreover, the Commission has specifically held that "PJM, as the independent transmission operator, needs to have discretion to dispatch resources as necessary to meet load and ensure reliability depending on the circumstances affecting the grid at a particular point in time."[187]

Moreover, Manual 13, the principal source for PJM's emergency procedures, advises that "[t]he policy of PJM is to maintain, at all times, the integrity of the PJM RTO transmission systems *and the Eastern Interconnection* and to *give maximum reasonable assistance to adjacent systems when a disturbance that is external to the PJM RTO occurs*."[188] Manual 13 section 2.3.2 thus provides that PJM must be able "tak[e] actions it determines are consistent with Good Utility Practice and are necessary to maintain the operational integrity of the PJM RTO *and the Eastern Interconnection*."[189] Manual 13 vests with PJM the responsibility for "[d]eclaring an emergency exists or ceases to exist,"[190] and it expressly preserves PJM's broad operational flexibility during emergencies, including the ability to modify or skip the sequence of emergency procedures as necessary to address emergency situations.[191]

Applicable Regional Entity reliability principles and standards, *Good Utility Practice*, and the PJM Manuals") (emphasis added).

[186] OA, Attach. K-App'x, § 1.7.15.

[187] *PPL EnergyPlus*, 117 FERC ¶ 61,338, at P 33; *see supra* Part II.B (detailing this precedent).

[188] Manual 13, § 1.1 (Policy Statements) (emphasis added).

[189] *Id.* § 2.3.2 (emphasis added).

[190] *Id.*

[191] *See id.* § 2.3.2 (Real-Time Emergency Procedures (Warnings and Actions)) (noting that "[d]ue to system conditions and the time required to obtain results, PJM dispatchers may find it necessary to vary the order of application" of measures outlined in Manual 13 "to achieve the best

The Complaint concedes, as it must, that the "PJM Tariff, OA, and Manual 13 permit PJM to take *operational* Emergency Actions in cases of emergency."[192] However, while conceding that "PJM has operational discretion," the Complaint argues that PJM "does not have discretion to simply violate the terms of its Tariff in administering the penalty provisions."[193] PJM agrees, of course, that the Tariff does not authorize violations of itself. But the Complaint alleges violations of specific language in Manual 13 and, as PJM has already explained, Operating Agreement section 1.7.15 clearly states that PJM "shall be authorized to direct or coordinate corrective action, *whether or not specified in the PJM Manuals*, as necessary" to manage emergencies.[194]

4. Complainants' Misplaced Reliance on FPA Section 206 Does Not Evade the Constraints of the Good Utility Practice Standard or PJM's Authority Under the Tariff and Operating Agreement

Complainants admit that the Commission could find that "PJM has discretion to administer certain Tariff provisions," but they insist that FPA section 206 requires consideration of the economic consequences of reliability decisions. Specifically, they claim that "[t]o the extent the Commission finds that PJM has discretion to administer certain Tariff provisions, it has to exercise such discretion in a manner that is reasonable and leads to just and reasonable results."[195] That

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overall system reliability"); *id.* ("The Real-Time Emergency Procedures section combines Warnings and Actions in their most probable sequence based on notification requirements during extreme peak conditions. Depending on the severity of the capacity deficiency, it is unlikely that some Steps would be implemented.").

[192] Complaint at 19.

[193] *Id.* at 20.

[194] OA, Attach. K-App'x, § 1.7.15 (emphasis added).

[195] *See* Complaint at 20. The *Astoria* case Complainants cite is inapposite. *See* Complaint at 6 n.10 (citing *Astoria Generating Co., L.P. v. N.Y. Indep. Sys. Operator, Inc.*, 151 FERC ¶ 61,044, at P 30 (*Astoria*), *reh'g denied*, 153 FERC ¶ 61,274 (2015)). *Astoria* held that NYISO had not properly followed certain provisions of NYISO's version of capacity market Minimum Offer Price Rules. Those provisions prescribed how NYISO was to conduct analyses of whether potential new entrants into the NYISO-administered capacity market would have the ability to prospectively exercise buyer-side market power. The dispute had nothing to do with real-time

theory is a straightforward invitation to violate the filed rate doctrine and the rule against retroactive ratemaking.[196]

PJM is not infallible and is not suggesting that emergency operating decisions may never be challenged. But, consistent with the broad discretion PJM has to manage emergencies under the Good Utility Practice standard, the Operating Agreement and Attachment DD also grant PJM broad discretion to declare and manage Emergencies with binding effect on Market Participants. The Complaint does not even attempt to make the kind of evidentiary showing required to challenge PJM's actions during Winter Storm Elliott on Good Utility Practice or prudence grounds.

Complainants warn of the supposed dangers of deferring to PJM's operational decisions.[197] Dr. Harvey says that "[i]f [the Commission] finds that PJM has the discretion to declare a performance event in order to maintain a higher level of reserves, then there will be almost no limits on PJM's discretion and large unmanageable risks for market participants."[198] The Commission should disregard Complainants' false alarm because PJM's operational discretion is subject to review under the Good Utility Practice standard as informed by prudence principles. Showing reasonable deference to PJM does not mean that it is subject to "almost no limits."

Dr. Harvey also frames the issue inaccurately. PJM does not seek new authority to "declare a performance event in order to maintain a higher level of reserves." PJM is simply defending the discretion that it, and other utility operators, traditionally have had to make real-time operational

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operations or with reliability. *Astoria* therefore provides no support for Complainants' attempt to second guess valid operational decisions made in the midst of a major emergency.

[196] *See supra* Part III.B.

[197] Complaint at 21.

[198] Harvey Aff., Ex. CZG-0001, at P 85.

decisions without worrying about contrived *post hoc* challenges. If those reliability decisions trigger PAIs, that is a function of a Capacity Performance regime that Complainants knew beforehand was in place and a part of the filed rate.

5. Declining to Afford System Operators Appropriate Deference Under the Good Utility Practice Standard Would Undermine Public Policy

It would undermine public policy to enable Capacity Performance Resources to concoct *post hoc* objections to PJM's real-time emergency management decisions without regard for the Good Utility Practice standard or PJM's explicit authority under the Tariff and Operating Agreement. Capacity Resources would be encouraged to under-perform if they thought that future litigation presented a too-easy avenue to evade Non-Performance Charges. Making the prospect of bonus payments for over-performance less probable would likewise discourage over-performance. Creating these kinds of incentives would be particularly problematic when operators are seeking to optimize available resources to harmonize potentially competing goals such as serving internal load while providing assistance to neighboring areas experiencing difficulties – a situation faced by PJM's operators during Winter Storm Elliott. The Commission should avoid these outcomes by following its precedent and denying the Complaint.

B. PJM's Emergency Actions—Including Its Load Management Decisions and Support to Neighboring Systems in Distress—Complied with the Tariff, Operating Agreement, NERC Requirements, Manuals, and Good Utility Practice

PJM is required under the Tariff, Operating Agreement, Manual 37, Manual 13, NERC reliability standards, and agreements with other Balancing Authorities to provide emergency assistance to neighboring regions when possible.[199] PJM met these obligations and satisfied Good Utility Practice by "help[ing] adjacent Balancing Areas to the extent feasible without shedding

[199] *See* Bryson Aff. at PP 7-19.

load in PJM."[200] If PJM had done otherwise it would have been acting contrary to such requirements and contrary to how PJM operators are trained to act in emergency situations. In the face of an uncertain load forecast and "shockingly poor" generator performance, PJM operators appropriately took pre-emergency and emergency actions and avoided "risking that PJM could avoid load-shedding by curtailing non-firm exports."[201] As Mr. Bryson explains, "PJM prioritized meeting its own load when by cutting exports—both firm and non-firm—when necessary."[202] But "once PJM had sufficient capacity to provide assistance to other Balancing Areas, it was obligated to do so."[203] For example, after the morning peak on December 24, 2022, "PJM took pre-emergency and emergency actions to meet its own needs, which created more capacity than it needed on a minute-by-minute basis, and it supplied some of that capacity to other areas that needed it through non-firm exports (as well as firm exports and emergency sales)."[204] On both December 23 and 24, 2022, even if PJM had curtailed all non-firm exports, pre-emergency and emergency actions would still have been necessary.[205]

The Complaint nonetheless alleges PJM did not follow all required "prerequisites" before taking the Emergency Actions that triggered PAIs.[206] Specifically, Complainants reference section 2.3.2 of Manual 13, which indicates that PJM's normal procedure will be to "curtail all non-firm exports" prior to entering into capacity related Emergency Procedure.[207] They also invoke section

[200] *Id.* P 19.

[201] *Id.* P 20.

[202] *Id.* P 23.

[203] *Id.* P 30.

[204] *Id.* P 29.

[205] *Id.* PP 21, 22.

[206] Complaint at 1.

[207] *See id.* at 21; *see also id.* at 3, 4, 5, 16, 23.

2.3.2 for the proposition that "PJM RTO Load Management Reductions are not to be used to provide assistance to adjacent Control Areas" and contend that PJM was inappropriately "calling Pre-Emergency and Emergency Load Management Reduction Actions during Winter Storm Elliott during periods when PJM was a net exporter, especially to TVA/SERC."[208] In the same vein, Complainants suggest that section 2.5 "reiterates" section 2.3.2 by specifying that "PJM load management programs are not to be used to provide assistance to adjacent Balancing Areas."[209] Dr. Harvey and Dr. Sotkiewicz devote substantial attention to confirming the existence of certain exports, deducing whether other exports were allowed to flow during Winter Storm Elliott, and suggesting that PJM improperly initiated Load Reductions to support such exports.

As discussed below, and in the McGlynn, Bryson, and Naumann Affidavits, PJM had ample authority to allow non-firm exports during Winter Storm Elliott when PJM believed it could assist neighboring systems without jeopardizing PJM. In addition, PJM "did not initiate Load Management procedures for the purpose of assisting other regions and thus was not constrained from providing exports regions experiencing or attempting to avoid capacity deficient conditions."[210] PJM committed no Manual 13, Tariff, or Operating Agreement violations.

1. PJM's Decisions to Support Neighboring Systems in Distress When Feasible Complied With the Tariff, Operating Agreement, NERC Requirements, Manual 13, and Good Utility Practice

a. Manual 13 Does Not and Cannot Prohibit Exports to Neighboring Systems During Emergencies

Complainants assert that Manual 13 section 2.3.2 prohibits PJM from declaring emergency actions without first terminating all exports from PJM to neighboring Balancing Authorities. That

[208] *See id.* at 27-28.

[209] *Id.* at 15.

[210] Bryson Aff. at P 6.

claim has no merit. Manual 13 does not and cannot prohibit exports to neighboring systems during emergencies. As discussed *supra* at Part IV.**Error! Reference source not found.** and in multiple PJM Exhibits,[211] Manual 13 is replete with statements confirming that operators have broad discretion to deviate from the Manual 13 procedure when necessary to preserve reliability. Complainants overlook that language and focus solely on isolated excerpts to offer an interpretation of Manual 13 that imposes binding prerequisites on PJM's operational flexibility. The Commission must reject this attempt to handcuff PJM's operational flexibility during emergencies.

Manual 13 unambiguously recognizes that reliability is PJM's paramount obligation. Section 1.1 of Manual 13 begins by declaring that "the policy of PJM is to maintain, at all times, the integrity of the PJM RTO transmission systems and the Eastern Interconnection and to give maximum reasonable assistance to adjacent systems when a disturbance that is external to the PJM RTO occurs."[212] PJM must take actions "it determines are consistent with Good Utility Practice and are necessary to maintain the operational integrity of the PJM RTO and the Eastern Interconnection."[213]

Manual 13 states that "[t]he PJM Manuals are the instructions, rules, procedures, and guidelines established by PJM for the operation, planning, and accounting requirements of PJM and the PJM Energy Market."[214] Manual 13 refers to "expected" behaviors, not compulsory conduct, and it affirms that "PJM dispatchers have the flexibility of implementing the emergency procedures in whatever order is required to ensure overall system reliability. PJM dispatchers have

[211] *See id.* P 17; Naumann Aff. PP 14-15.

[212] Manual 13, § 1.1.

[213] *Id.*

[214] *Id.* at 9.

the flexibility to exit the emergency procedures in a different order than they are implemented when conditions necessitate."[215]

Similarly, section 2.3.2, which addresses "Real-Time Emergency Procedures (Warnings and Actions)," preserves PJM's operational flexibility during emergencies. Section 2.3.2 provides that "[d]ue to system conditions and the time required to obtain results, PJM dispatchers may find it necessary to vary the order of application [of Warnings and Actions in real time] to achieve the best overall system reliability."[216] PJM can therefore "deviate from or change the order of the above actions [pertaining to Maximum Generation Emergency Action] as/if necessary."[217] A specially highlighted "Note" in section 2.3.2 emphasizes that "[t]he Real-Time Emergency Procedures section combines Warnings and Actions in their most probable sequence based on notification requirements during extreme peak conditions. Depending on the severity of the capacity deficiency, it is unlikely that some Steps would be implemented."[218]

In addition, Manual 13 repeatedly states that, "[a] NERC EEA2 is issued when the following has occurred: Public appeals to reduce demand, voltage reduction, interruption of non-firm load in accordance with applicable contracts, demand side management/active load management, *or* utility load conservation measures."[219] PJM Michael Bryson attests that this

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[215] *Id.* § 2.3.

[216] *Id.* § 2.3.2.

[217] *Id.*

[218] *Id*.

[219] Manual 13, § 2.3.2 (Step 2 - Emergency Load Management Reduction Action) at 30 (emphasis added); *id*. (Step 7 - Deploy All Resources) at 37; *id*. (Step 9 - Voltage Reduction Action) at 40; *id*. § 2.5 (Transmission Security Emergency Procedures) (Step 2 - Emergency Load Management Reduction Action) at 90; *id*. (Step 7 - Deploy All Resources) at 98; *id*. (Step 9 - Voltage Reduction Action) at 100 (emphasis added); *see also id.* § 2.3.2 (Step 2 - Emergency Load Management Reduction Action) (Note 4, EEA Levels) at 30 (stating that a NEARC EEA2 "may

language in particular must mean that Manual 13 "does not mandate that Maximum Generation Emergency Action or a Pre-Emergency/Emergency Load Management Reduction Action may be taken only when all non-firm exports are curtailed."[220] He adds that section 2.3.2 has a specific procedure for determining whether to cut transactions to other Balancing Authorities if PJM has declared a Maximum Emergency Action. This provision gives such transactions a priority almost as high as native load which, contrary to Complainants' reading, must mean that "there cannot be a mandatory requirement that PJM must cut all non-firm exports before taking an Emergency Action."[221]

As for cold weather events, Manual 13 advises that "PJM confers with generator owners [during Cold Weather Alerts] and if appropriate, directs them to call in or schedule personnel in sufficient time to ensure that all combustion turbines and diesel generators that are expected to operate are started and available for loading when needed for the morning pick up."[222] Other PJM Manuals likewise reflect the broad range of PJM's discretion to take appropriate actions during emergencies. PJM Manual 37 states that "PJM Members are responsible for . . . [t]aking any action, as requested or directed by PJM, to manage, alleviate, or end an Emergency or other reliability issue."[223]

Complainant witnesses Dr. Harvey and Dr. Sotkiewiecz also assert that NERC reliability standard EOP-011-1 provides an independent basis for denying PJM needed operational flexibility

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be issued," rather than "is issued"); *id*. § 2.5 (Transmission Security Emergency Procedures) (Note 4, EEA Levels) at 91 (same).

[220] Bryson Aff. at P 14.

[221] Bryson Aff. at P 15.

[222] Manual 13, § 3.3.2 (Cold Weather Alert).

[223] PJM Manual 37: Reliability Coordination (Mar. 23, 2022), https://www.pjm.com/-/media/documents/manuals/archive/m37/m37v19-reliability-coordination-03-23-2022.ashx

during emergencies.[224] Mr. Bryson explains why this argument is misplaced.[225] It is true that EOP-011-1 provides that curtailing "[n]on-firm wholesale energy sales (other than those that are recallable to meet reserve requirements)" may be a typical step before declaring an EEA-1 alert. However, EOP-011-1 also specifies that "[t]he Reliability Coordinator may declare whatever alert level is necessary, and need not proceed through the alerts sequentially." Therefore, declaring an EEA-1 alert is not a prerequisite for declaring an EEA-2 event such the Maximum Generation Emergency Actions or the Pre-Emergency Load Management Reduction Actions that triggered PAIs during Winter Storm Elliott.

Mr. Bryson identifies another flaw in Dr. Sotkiewicz's attempt to treat the guidance provided by EOP-011-1 as a "mindless mandate."[226] Dr. Sotkiewicz interprets "the reference to curtailing non-firm load prior to declaring an EEA-1 alert in Attachment 1-EOP-011-1, to mean that non-firm load should be curtailed when the operators have a reasonable expectation that doing so will address the emergency or potential emergency."[227]

Given the foregoing, there is no plausible way to read Manual 13 or EOP-011-1 as making the recall of all non-firm exports a binding "prerequisite" of calling a Maximum Generation

[224] *See* Sotkiewicz Aff. at P 4. Dr. Sotkiewicz's expertise concerns economics, not utility operations. He likewise is not, and does not claim to be, a legal expert. Consequently, his professed "expert opinion" concerning the interpretation of the Operating Agreement at P 101 of his affidavit should not be treated as expert testimony. *See, e.g.*, *Entergy Servs., Inc.*, 128 FERC ¶ 63,015 at P 12 (2009) (Silverstein, ALJ) (noting that "a witness's testimony is limited to factual statements and expert opinion based on those facts" and that "legal arguments . . . are not considered to be evidence").

[225] Bryson Aff. at PP 16-17.

[226] Bryson Aff. at P 17. As Mr. Bryson explains, "Complainants insistence that it is a strict rule regardless of its impact is unreasonable." *Id.*

[227] *Id*.

Emergency Action or a Pre-Emergency or Emergency Load Management Reduction Action. As Mr. Bryson states,

> Complainants' assertions misstate the terms of the controlling documents, misrepresent or misunderstand the relevant facts, and ignore mutual assistance policies established by this Commission and [NERC]. Specifically, Complainants misread the Tariff, OA, and Manual 13 to impose irrational and counter-productive constraints on emergency operations that are entirely alien to my understanding of those documents and contrary to the manner our operators are trained to respond in emergency conditions.[228]

Or, as the Affidavit of Paul McGlynn states, "I also feel certain that if [Complainants'] restrictive and unrealistic interpretation of Manual 13 was adopted it would seriously inhibit PJM operators' ability to keep the lights on."[229]

There are good and obvious reasons for the Tariff, Operating Agreement, and Manual 13 to give PJM broad flexibility during emergencies. As Mr. Naumann explains, preserving reliability can be extremely challenging "when system operators face severe conditions, especially where decisions need to be made within a short period of time and circumstances are rapidly changing."[230] It therefore, "should be no surprise that operators may take actions in real-time to address difficult problems that others may question after the fact as being overly conservative or uneconomic."[231] That is exactly what Complainants seek to do here. But it is critical to remember that during emergencies, "delaying actions can result in unnecessary loss of load" and it is vitally "important for operators to be proactive—i.e., stay ahead of potential problems, not reactive after problems occur—to ensure reliability, especially during periods of severe stress."[232] Simply

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[228] *Id.* P 6.

[229] McGlynn Aff. at P 28.

[230] Naumann Aff. at P 6.

[231] *Id*.

[232] *Id*.

stated, "operators have to make decisions based on current conditions, expected conditions, and the uncertainty of various elements of the system with an eye to preventing loss of load. They must have flexibility."[233] Manual 13 expressly provides PJM with this flexibility. The Commission should reject Complainants' attempt to radically re-interpret Manual 13 to take PJM's flexibility away.

Finally, Complainants anticipate PJM will rely on Manual 13 language stating that if the "net result of cutting off-system capacity sales would put the Sink Balancing Authority into load shed then PJM will not curtail the transactions unless it would prevent load shedding in PJM."[234] Complainants argue this provision is inapplicable because it somehow conflicts with section 1.10.6(c) of Schedule 1 of the Operating Agreement, which provides that PJM "shall curtail deliveries to an External Market Buyer if necessary to maintain appropriate reserve levels for a Control Zone as defined in the PJM Manuals, or to avoid shedding load in such Control Zone."[235]

Complainants again ignore that the Tariff, the Operating Agreement, and Manual 13 establish a framework of guidelines to inform operators confronting emergencies. That framework does not impose absolute prescriptions that deprive operators of the flexibility to address emergencies by, for example, prohibiting PJM from assisting a neighbor on the brink of shedding load solely because of concerns about reserve levels in PJM.

This flexibility is reflected in the fact that section 1.10.1(d) describes the content of section 1.10 as a set of "scheduling procedures and principles." Flexibility is further embedded in section 1.10.6(c), which empowers PJM to determine what constitutes "appropriate reserve levels" during

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[233] *Id.* P 15.

[234] Complaint at 30 (citing Manual 13, § 2.3.2).

[235] *Id.*; *see also* Sotkiewicz Aff., Ex. CZG-0004, at P 100.

an emergency with reference to the PJM Manuals. Reserve levels are addressed in Manual 13 which, as described above, does not contain absolute requirements. Consequently, Dr. Sotkiewicz misses the mark in arguing PJM violated section 1.10.6(c) because it "allowed reserves levels fall [sic] below their requirements RTO-wide and within the Mid-Atlantic-Dominion ('MAD') reserve sub-zone frequently while supporting exports."[236]

In fact, PJM exercised its discretion to let reserve levels fall below normal requirements for a series of relatively brief periods in order to help struggling neighbors. PJM maintained what it believed were appropriate reserve levels at all times and did not support exports to neighbors when its operators judged that doing so would threaten PJM's ability "to avoid shedding load" within PJM.

b. NERC Reliability Standards Require PJM to Assist Neighboring Systems in Emergencies When it Can Do So

It is not mere charity for neighboring systems to help each other during emergencies. Assistance by neighboring grid operators provides mutual benefits to consumers within interconnected control areas. This is a primary benefit of pooled and interconnected utility operations. As Mr. Bryson states, "[i]t would waste the Eastern Interconnection's capabilities to accept the Complainants' artificial, needlessly formalistic, and counter-productive constraints on providing mutual assistance."[237]

Moreover, assisting neighbors is not simply good policy or an honored industry tradition. In many instances, including this case, assistance *must* be provided to a neighbor facing load shedding whenever possible without causing load shedding in the assisting region.[238] Specifically,

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[236] *Id.* P 100; *see also id.* at PP 101-115.

[237] Bryson Aff. at P 6.

[238] *See* Naumann Aff. at P 25.

as a NERC-registered Reliability Coordinator, PJM is legally required by Reliability Standard IRO-014-3 to assist neighboring Reliability Coordinators that request help after implementing their emergency procedures. Reliability Standard IRO-014-3, R7 mandates that "[e]ach Reliability Coordinator *shall* assist Reliability Coordinators, if requested and able, provided that the requesting Reliability Coordinator has implemented its emergency procedures, unless such actions cannot be physically implemented or would violate safety, equipment, regulatory, or statutory requirements."[239] By its own terms, IRO-014-3 explicitly designates a failure to comply with R7 as a "High" Violation Risk Factor, and a "Severe" Violation Severity Level, indicating the extraordinary importance of strict compliance and the extraordinary risk of non-compliance.[240]

Furthermore, when reviewing compliance with IRO-014-3, R7, the applicable Reliability Standard Audit Worksheet (RSAW) specifies that the Compliance Enforcement Authority must "verify the entity provided such assistance," and "[i]f assistance was available and not provided, review evidence to verify that such actions could not be physically implemented or would violate safety, equipment, regulatory, or statutory requirements."[241] Separate and apart from its requirements as a Reliability Coordinator, PJM is also a NERC-registered Transmission Operator, and independently bound by an identical requirement to assist fellow TOPs within its Reliability Coordinator Area under TOP-001-5, R7. PJM's Tariff and Operating Agreement also incorporate mutual assistance principles. The Tariff establishes that PJM "shall . . . [a]dminister . . . agreements for the transfer of energy in conditions constituting an Emergency in the PJM Region or in an

[239] NERC Standard IRO-014-3 – Coordination Among Reliability Coordinators, https://www.nerc.com/pa/Stand/Technical%20Rationale%20fro%20Reliability%20Standards/IRO-014-3.pdf (emphasis added).

[240] *Id.*

[241] *Id*.

interconnected Control Area, and the mutual provision of other support in such Emergency conditions with other interconnected Control Areas . . . ."[242] Further, the Operating Agreement specifies that PJM "shall . . . [c]oordinate the curtailment or shedding of load, or other measures appropriate to alleviate an Emergency, in order to preserve reliability in accordance with NERC, or Applicable Regional Entity principles, guidelines and standards, and to ensure the operation of the PJM Region in accordance with Good Utility Practice and this Agreement."[243] Additional mutual assistance provisions are set forth in PJM's coordination agreements with its neighbors and in Manual 13 itself.[244]

In short, Complainants' interpretation of Manual 13 section 2.3.2 is not just contrary to multiple provisions of Manual 13, the Tariff, and the Operating Agreement. Their interpretation is also inconsistent with mandatory and enforceable NERC reliability standards and with Tariff and Operating Agreement requirements. As Mr. Naumann says, "the standard is clear – help your neighbors if you can without endangering your system."[245] That is yet another reason for the Commission not to accept Complainants' interpretation.

[242] Tariff § 1.6.2.

[243] OA, Sch. 1, § 1.6.2.

[244] *See* Bryson Aff. at PP 10-12.

[245] Naumann Aff. at P 25; *see also id.* P 18 ("Dr. Sotkiewicz's analogy to the airline safety instruction concerning putting on your mask before helping others is incorrect. PJM operators did in-fact keep the PJM system reliable and helped keep their neighbors reliable. Furthermore, to the extent reserve levels in PJM were below what Dr. Sotkiewicz believes were required, PJM temporarily shared the oxygen in their masks with their neighbors when it was safe to do so, rather than allowing them to pass out.") (citing Sotkiewicz Aff., Ex. CZG-0004, at PP 123-24)).

c. Complainants Wrongly Assert the Balancing Ratio Formula Shows that Non-Performance Charges were Not Contemplated for Periods in Which PJM is a Net Exporter

Complainants wrongly claim that the formula in the Tariff for the Balancing Ratio shows that Non-Performance Charges were not contemplated when PJM is a net exporter of power to other regions. Complainants base this misguided assertion on the fact that the Balancing Ratio includes Net Energy Imports and that the "Net Energy Imports" definition states that the value used in the calculation shall be "not less than zero,"[246] *i.e.*, net *exports* are not included.

The language Complainants rely on merely reflects the self-evident fact that it would not make sense for PJM generators to be assessed Non-Performance Charges related to incidental support provided to other regions during an emergency given that the goal of the Capacity Performance mechanism is to provide sufficient capacity for PJM. Understood properly in this light, the referenced Tariff language simply serves an accounting function. The exclusion of net exports from the Balancing Ratio reflects that the nominator of the Balancing Ratio should be based on production supporting PJM. As PJM explained in the transmittal letter submitted in the Capacity Performance docket:

> For the hourly load and reserves part of this calculation, PJM will simply look at the energy output of all generation and storage resources that are satisfying that need for energy and reserves in that hour, plus all imports (which also help meet that need), and plus any net over-performance by Demand Resources (which reduces the energy and reserve *PJM requires from generators and storage resources*.").[247]

Net energy exports do not support what "PJM requires from generators and storage resources." Therefore, as an accounting matter, they should not be included in the Balancing Ratio.

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[246] Complaint at 29 (quoting Tariff, Attach. DD, § 10A(c)).

[247] *See PJM Interconnection, L.L.C*, Docket No. ER15-623-000, Transmittal Letter at 50, n.140 (Dec.12, 2014) (emphasis added).

Moreover, the Tariff provision Complainants rely on itself supports this interpretation. It provides: "Net Energy Imports = the sum of interchange transactions importing energy into PJM (not including those associated with external Generation Capacity Resources and therefore included in All Actual Generation Performance) minus the sum of *interchange transactions exporting energy out of PJM*, but not less than zero."[248] This undermines Complainants' claim that "PJM assumed that during PAIs in which PJM assesses penalties for non-performance, PJM would be a net exporter because Net Energy Imports would not be negative."[249] The provision shows that "interchange transactions exporting energy out of PJM" were contemplated during emergencies. Accepting Complainants' cribbed reading would mean that PJM could call an emergency when PJM was a net importer but, if during the emergency, ongoing exports (which are expressly contemplated) increased so that PJM became a *net* exporter the emergency would automatically dissolve. That is an absurd reading of the Tariff.

Ultimately, Complainants read too much into five words in the Tariff. If the Tariff intended that there could not be an emergency whenever PJM was a net exporter—or slipped into becoming one after an emergency was called—it would have said so expressly. The only reasonable reading of the provision is that it performs an accounting function.

d. Granting Complainant's Arguments Would Have a Chilling Effect on the Provision of Mutual Support

The Commission should also be wary of the policy implications of Complainant's request. Mutual support has been a bedrock of electric utility operations since the industry started. Good faith efforts to provide support to neighbors in distress will inevitably be chilled if system operators face the spectre of depositions and cross-examination whenever they provide such mutual support.

[248] Tariff, Attach. DD, § 10A(c).

[249] Complaint at 29-30.

2. PJM's Decisions regarding Load Management Reductions Complied with the Tariff, Manuals, NERC Requirements, and Good Utility Practice

Mr. Bryson thoroughly disposes of Complainants' assertion that PJM violated section 2.5 by allowing non-firm exports after it had implemented Load Management Actions.[250] Section 2.5 prevents PJM from calling Load Management Actions for the purpose of providing assistance to another region. PJM's actions during Winter Storm Elliot were never inconsistent with section 2.5 because PJM called Load Management Actions *because PJM itself* needed them to address its own needs. Even if the Load Management Actions had the incidental effect of facilitating some non-firm exports when PJM was experiencing emergency conditions, the Manual 13 guidance not to initiate Load Management Actions for the purpose of assisting other regions simply was not implicated during Winter Storm Elliott.[251] Mr. Bryson also explains that Complainants ignore that PJM has "added flexibility to dispatch . . . resources [that qualify for the Pre-Emergency Load Reduction Program] in response to system conditions, *without* the added step of declaring a system emergency."[252]

In fact, if Complainants' interpretation was adopted, PJM could effectively never provide any form of emergency assistance to neighboring systems if PJM previously called for Load Management Actions. Nothing in Section 2.5 of Manual 13 would limit the (claimed) prohibition of providing assistance to other regions after initiating Load Management Actions to non-firm exports. As Mr. Bryson warns, "[g]iven that PJM would be expected to call for Load Management Action during any capacity shortage (including during pre-emergency conditions) PJM would be

[250] Bryson Aff. at PP 33-36.

[251] *See id.* P 35.

[252] *Id.* P 37; *see also PJM Interconnection, L.L.C.*, 147 FERC ¶ 61,103, at P 38 (2014).

side-lined in virtually any wide-area capacity event that included its territory. Such an interpretation of this manual provision would be irrational."[253]

PJM's decisions with respect to non-firm exports and Load Management were also entirely reasonable on their merits. Indeed, Mr. Naumann testifies:

> For example, given the quickly changing weather and the large amount of gas-fired generation unavailable, the fact that neighboring regions did not have excess capacity to supply to PJM if additional PJM generation tripped, and uncertainty of the level of load, maintaining non-firm exports when PJM had additional resources to do so must be considered Good Utility Practice. If some generators that were delivering energy had tripped or were forced to derate, or load unexpectedly increased, PJM could then interrupt non-firm exports and utilize the energy from the remaining generators that are on-line to maintain service to PJM load. Similarly, PJM operators had to consider the probability that generators would not start when called upon, or start-up would be delayed. . . . Having generation running and synchronized, as well as additional generation available for such contingencies is by definition Good Utility Practice.[254]

Mr. Bryson shows that PJM's decisions to initiate various actions were validated by the supply and demand conditions that existed in real-time. On both December 23 and 24 PJM could not have met system demand only by cutting non-firm exports.[255] Pre-emergency and Emergency Actions would have been necessary on both days even if all non-firm exports had been cut.[256]

Mr. Bryson also emphasizes what is ultimately the most important point. "PJM operators were successful in their efforts as PJM avoided load shedding and the assistance that PJM provided to other regions enabled them either to avoid or mitigate shedding their customers' load."[257] It will never be known to what extent PJM's assistance saved lives and avoided economic harm in

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[253] *See* Bryson Aff. at P 36.

[254] Naumann Aff. at P 16.

[255] *See* Bryson Aff. at PP 20-23.

[256] *See id.* P 23.

[257] *Id.* P 19.

neighboring regions. But the Commission should keep in mind that PJM was acting at all times to the best of its ability given the information available to avert such consequences. Mr. Bryson's analysis shows that PJM did so while prioritizing its own load and by cutting both firm and non-firm exports when necessary.[258]

The Commission should recognize the adverse consequences if it were to agree with the Complainants on this issue. Just as PJM's responsibility is to reliability in its region, the Commission has responsibility to oversee the reliability of the grid in the entire nation. Yet Complainants argument would significantly diminish the role of mutual support that has been a bedrock principle of reliability throughout the Interconnection. The Commission's adoption of those arguments would be sending a signal for each region to de-value the need to assist its neighbors by curtailing certain transactions even if such action would have significant reliability impacts to neighboring regions. In effect, the Commission would be encouraging a balkanization of operations and discounting the obligations each region has to its neighbors at the very time that the entire Interconnection is evolving and facing potential future reliability challenges. As a result, the Complainant's argument is not just an incorrect reading of the Manual provisions but represents a poor public policy solution going forward.

3. Contrary to Complainants' Position, PJM is Not Required to Ensure LMPs are Reflective of System Conditions Before Addressing Emergencies

The Complaint cites section 2.3.2 of Manual 13 for the proposition that PJM must "[e]nsure LMPs are reflective of system conditions" before entering into "capacity-related Emergency Procedures."[259] The Complaint avers that PJM should not have scheduled ComEd Zone generation

[258] *Id.* P 23.

[259] Complaint at 15, 37.

consistent with security-constrained economic dispatch (SCED), or should have scheduled down self-scheduled units, and thus that ComEd Zone generators should not be penalized.[260] According to Complainants, units were scheduled that were "hopelessly uneconomic based on intraday gas prices"[261] and "that the Day-Ahead price signal [on December 24, 2022] did not signal a need for more ComEd zone generation."[262]

This argument is another fundamentally flawed attempt to transform precatory Manual 13 language into a mandate that would tie PJM operators' hands during emergencies. Just like Complainants' argument that all non-firm exports must be recalled before PJM could take Emergency Actions, the language about PJM ensuring that LMPs are reflective of system conditions is not a required step. The quoted language appears in a list of four bullet items immediately after the previously mentioned "Note" in section 2.3.2 clarifying that "[t]he Real-Time Emergency Procedures section combines Warnings and Actions in their most probable sequence based on notification requirements during extreme peak conditions. Depending on the severity of the capacity deficiency, it is unlikely that some Steps would be implemented."[263] Thus, PJM did not "violate" Manual 13, let alone the Tariff, by failing to ensure that LMPs were reflective of system conditions before acting. This is consistent with Good Utility Practice.[264]

Moreover, Complainants' arguments that PJM's dispatch decisions were faulty because they were supposedly "uneconomic" and inconstant with the "security-constrained economic dispatch" ignores that a Maximum Generation Emergency Action was in effect during this period.

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[260] *Id.* at 36-38.

[261] *Id.* at 36 (quoting Harvey Aff. P 78).

[262] *Id.* at 37.

[263] Manual 13, § 2.3.2, at 28.

[264] *See supra* Section III.C.

If a Maximum Generation Emergency Action has been declared, PJM will not solely be dispatching resources under the typical "security constrained economic dispatch" algorithm. As stated in Manual 13, "[t]he purpose of the Maximum Generation Emergency Action is to increase the PJM RTO generation *above the maximum economic level*. It is implemented whenever generation is needed that is greater than the highest incremental cost level."[265] The two dispatch mechanisms thus are very different. For this additional reason, Complainants' claim also falls flat.

Finally, PJM's dispatch decisions were reasonable given the circumstances PJM faced on December 24, 2022. Consistent with Good Utility Practice, PJM sought to bring additional generation on line and to retain generation that was operating because of the operators' legitimate concern regarding PJM's ability to meet the evening peak on December 24, 2022. Uncertain weather conditions, poor generator performance that fell far below PJM's expectations, and growing concerns about production area problems and pipeline disruptions all contributed to the need for actions taken by the PJM operators.

C. Complainants Bizarrely Contend No Emergency Existed in the ComEd Zone Zone and That Bringing Their Resources Online Would Have Exacerbated Emergency Conditions in Elsewhere in PJM

The Complaint contends PJM took Emergency Actions or failed to cancel them when there was allegedly no emergency in the ComEd Zone and when the ComEd Zone was not short of supply but was actually exporting energy to the rest of PJM.[266] According to Complainants:

> [B]eginning at 06:00 on December 24, there was no emergency in the ComEd Zone that permitted PJM to take Emergency Actions. After this time there was persistent transmission congestion that did not allow resources in ComEd to increase output to serve the rest of PJM. In fact there was excess generation in ComEd, and generation could not be dispatched up to meet PJM load in other regions because the transmission lines from ComEd to the rest of PJM were constrained. As Dr. Harvey states, "incremental supply in ComEd (including MISO imports) could not

[265] Manual 13, § 5.2 (emphasis added).

[266] *See* Complaint at 31-32 (alteration in original).

> be used to meet load in eastern PJM without further overloading the PJM transmission system.[267]

Dr. Harvey elaborately extrapolates his way from ComEd Zone constraint, shadow price, and LMP data to his conclusion that "there was no emergency in ComEd beginning at least as of 06:00 on December 24 and thereafter."[268] Dr. Harvey even insinuates that PJM *knew* "that there was no emergency" and was acting solely out of a desire "to go short on PJM reserves relative to the reliability requirement in order to export more power to adjacent balancing areas."[269] Dr. Sotkiewicz "fully support[s] and endorse[s]" Dr. Harvey's conclusions and what Dr. Sotkiewicz describes as Dr. Harvey's "technical *tour de force* showing why additional ComEd generation would only exacerbate transmission reliability issues."[270]

At the outset, Complainant's notion that there was no emergency in the ComEd Zone after 06:00 on December 24 is belied by DOE Order No. 202-22-4, which expressly held as a matter of law on that same day that "an emergency exists in the electricity grid operated by PJM Interconnection, LLC (PJM) due to a shortage of electric energy, a shortage of facilities for the generation of electric energy, and other causes, and that issuance of this Order will meet the emergency and serve the public interest."[271] That finding was based, in part, on concern that PJM had experienced approximately 45,000 MW of outages and derates as of early December 24, that

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[267] *Id.* at 32-33.

[268] *Id.* at 34 (citing Harvey Aff. at P 70). As explained below, the notion that the ComEd Zone can be carved out in this way is fundamentally inaccurate. The ComEd Zone is not an electrical island.

[269] Harvey Aff. at P 69 n.70.

[270] Sotkiewicz Aff. at PP 2, 41.

[271] U.S. Dep't Energy, *Federal Power Act Section 202(c): PJM December 2022* at 1, https://www.energy.gov/ceser/federal-power-act-section-202c-pjm-december-2022 (DOE Order No. 202-22-4).

PJM feared the relevant resources would not soon return to service, and that "in the event PJM experiences additional generating unit outages, PJM states that it may need to curtail some amount of firm load on December 24, December 25, or December 26, 2022 in order to maintain the security and reliability of the PJM system."[272] DOE Order No. 202-22-4 was in effect from 17:30 on December 24 through December 26. DOE did not exclude the ComEd Zone from the PJM-wide emergency.

Dr. Harvey's claim that PJM made a deliberate choice to support exports in order to short reserves is patently absurd, and Complainants offer no explanation why PJM might do so.

More generally, Dr. Harvey's and Dr. Sotkiewicz's claims represent after-the-fact *economic* arguments that are wholly detached from the *operational* realities that PJM faced during Winter Storm Elliot. Their arguments are rooted in 20/20 hindsight that was obviously not available to PJM's operators confronting real world problems. For example, Dr. Harvey asserts that "[t]ermination of the PAI event for the ComEd region beginning at 06:00 in the morning of December 24 would have helped transmission system reliability by reducing flows on transmission elements that were overloaded either in the base case or in contingency cases."[273] Even if Dr. Harvey's assumptions were correct—which they are not—they are not based on how events actually transpired. If PJM had done what Dr. Harvey says it should have then subsequent events could have gone differently and outcomes may have changed.

Mr. Naumann points out the fundamental flaws in the approach taken by Dr. Harvey and Dr. Sotkiewicz approach. As detailed above in Part IV.A, "[t]his type of *post hoc* economic analyses and other varieties of "Monday morning quarterbacking" are irrelevant to the question of

[272] *Id*.

[273] Harvey Aff. at P 72.

whether operators acted reasonably and in accordance with Good Utility practice."[274] Complainants effectively claim that "PJM should have rolled the dice, wagering that generation from their units would not be needed for the duration of the emergency because the Complainants' *post hoc* analysis suggests those units were not arguably needed to supply load to the ComEd Zone."[275] The critical flaw in Complainants' *post hoc* reasoning is that, it treats the successful performance by other generators as a given" while "PJM operators had no such luxury when they were managing the emergency in real-time."[276] Complainants overlook the fact that outcomes could have been much different if one or more additional resources had tripped. The argument that transmission constraints east of the ComEd Zone meant that bringing the ComEd Zone Generators on line could not have helped to increase the supply of energy available to other PJM zones suffers from the same flaw.[277] It is yet another *post hoc* claim that presents an incomplete and misleading view of the operating situation.

As Mr. Naumann explains, "even if transmission was constrained east of ComEd at particular times, PJM operators had to be prepared to have sufficient generation available in other time periods and also in the event of foreseeable contingencies that would have required increases in generation in the ComEd Zone."[278]

Furthermore, although Dr. Harvey is literally correct to suggest that "from the standpoint of transmission flows from ComEd to eastern PJM, a load reduction in [the] ComEd [zone] has the same effect on net exports from the zone as an increase in ComEd [zone] generation

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[274] Naumann Aff. at P 29 (citations omitted).

[275] *Id.*

[276] *Id*.

[277] *See* Harvey Aff. at P 65.

[278] Naumann Aff. at P 34.

output.'"[279] In reality, PJM operators had to be concerned about the opposite situation, i.e., "an unexpected increase in load in the ComEd Zone, which, to use Dr. Harvey's language, would have the same effect on net exports from the ComEd Zone as a decrease in generation in the ComEd Zone, which would relieve the constraints."[280] Similarly, "PJM system operators had to be concerned that more generation, possibly even large nuclear units, would trip, causing the same impact. The fact that those contingencies were avoided does not mean that PJM operators should not have had more generation available to deal with severe and changing conditions."[281]

Complainants' economists also completely ignore the context that the ComEd Zone is not an electrical island, but is an integrated part of the PJM region. Manual 13 sections 2.2 and 2.3.2 both provide PJM with broad flexibility. Section 2.2 incorporates a presumption that "PJM issues capacity emergencies across the entire PJM RTO."[282] It also creates express exceptions "for PJM Load Dump Warnings/Actions, which are solely issued on a Control Zone basis" and notes that "transmission constraints may force Emergency Procedure warnings/actions to be issued on a Control Zone or a subset of a Control Zone."[283] Most important, section 2.2 reflects a prevailing understanding that capacity shortages are to be addressed regionally, not locally.

As Mr. Bryson explains, "the general criteria for generation interconnection in PJM and for transmission planning are that all generation resources in aggregate should be deliverable to all loads in aggregate during peak conditions."[284] PJM Manual 14B establishes that, "within an area

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[279] Harvey Aff. at P 64.

[280] *Id*.

[281] *Id*.

[282] Manual 13, Section 2.2.

[283] Manual 13, Section 2.2.

[284] Bryson Aff. at P 37.

experiencing a localized capacity emergency, or deficiency, energy must be deliverable from the aggregate of the available Capacity Resources to load."[285] Also, "Capacity Resources within a given electrical area must, in aggregate, be able to be exported to other areas of PJM." Taken together, "[t]hese deliverability tests ensure that the PJM Transmission System is adequate for delivery of energy from the aggregate of Capacity Resources to the aggregate of PJM load."[286] Thus, "a capacity shortage will almost always be a PJM system-wide event because generation in any PJM zone can be used to support loads in any zone."[287]

Mr. Bryson recognizes that Complainants argue the ComEd Zone during Winter Storm Elliott was an exceptional case "at various times because the lines connecting ComEd to the rest of PJM could not carry more power."[288] But even to the extent that Complainants' claims are true, they do not make PJM's real-time operational decisions unreasonable, especially under the Good Utility Practice standard. "PJM's operators were not concerned just with the minute-by-minute situation on the system. They were also considering longer time frames.[289]

After 06:00 on December 24 PJM operators continued to be very concerned about the state of the PJM system. They reasonably feared based on events on December 23 and the morning of December 24 that PJM might not be able to meet the RTO-wide evening peak Contrary to Complainants' claims, retaining the pre-emergency and Emergency Actions in ComEd during December 24 served an important purpose. It increased the probability that sufficient ComEd

[285] Manual 14B: PJM Regional Transmission Planning Process (Dec. 15, 2021), Attach. C § C.1.2 (Types of Deliverability Requirements), https://www.pjm.com/-/media/documents/manuals/archive/m14b/m14bv51-pjm-regional-transmission-planning-process-12-15-2021.ashx.

[286] Bryson Aff. at P 37.

[287] *Id.*

[288] *Id.* P 38.

[289] *See id.* P 25.

Zone generation would be available for the evening peak. At that point in time, ComEd Zone generators might have been needed to serve load in the ComEd Zone or, with changing system conditions, additional ComEd Zone generation may have deliverable to the rest of PJM consistent with the planning criteria.[290]

PJM operators were also concerned that if the Maximum Generation Emergency Action and the Pre-Emergency/Emergency Load Management Reduction Action were rescinded and PJM then tried to reinstate them to meet a potentially high evening peak on December 24, there could be a significantly lower response rate. If allowed to go offline, some generators might not restart due to the cold weather conditions or units running on gas might resell their gas supply. In addition, if Demand Resources were released and allowed to resume normal power consumption, PJM operators were concerned that those resources might not be willing or able to redeploy if called again prior to the evening peak. These concerns were well grounded in PJM's practical experience with demand response.[291]

Thus, the fact that the evening peak came in at a relatively lower level does not undermine the validity of the operators' decisions under the Good Utility Practice standard based on the information they had when those decisions were made.[292]

PJM is under no obligation to avoid declaring regional emergencies solely because emergency conditions might not exist at that moment in a particular zone. Nor must it end regional emergencies as soon as it appears that an emergency might have ceased in a particular zone. Instead, PJM's operators have discretion to exercise their judgment in the face of uncertainty.

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[290] *See id.* P 26.

[291] *See id.* P 27.

[292] *See* Bryson Aff. at P 28.

They must have the ability to exercise that discretion without being distracted by economic arguments such as those in the Complaint.

Dr. Harvey implicitly acknowledges the breadth of PJM's discretion when he refers to an example of PJM's operational flexibility found in the Maximum Generation Alert discussion in section 2.3 of Manual 13.[293] That provision states that, "[a]n Action can be issued for the entire PJM RTO, specific Control Zone(s) or a subset of a Control Zone if transmission limitations exist." Dr. Harvey tries to use this language to support his *post hoc* theory that PJM should have acted as if the Winter Storm Elliott emergency did not encompass the ComEd Zone. Dr. Harvey notes that "for all previous performance events PJM declared an event for a subset or previous zones," and that this was "generally" PJM's practice before the Capacity Performance reforms.[294]

Dr. Harvey effectively claims that PJM should not have exercised its discretion to treat Winter Storm Elliott as a regional threat because it was not necessary to do so in the past. As Mr. Naumann explains, this is an attempt to use history to handcuff PJM operators confronting extreme system conditions that did not have historic antecedents. During Winter Storm Elliott, PJM faced "unprecedented operating conditions in the form of rapidly failing generators, fuel supply problems, increasing load, and continuing uncertainty. It is absurd to suggest that because PJM had not issued an RTO-wide PAI in the past, it was unreasonable to do so under the conditions presented in Winter Storm Elliott."[295] Just because "PJM *may* limit Emergency Actions to specific zones does not mean that under every and all conditions PJM *must* tie its hands and take risks to the reliability of the rest of PJM."[296] In addition, Dr. Harvey's observation that PJM had not

[293] *Id.* P 74 n.75.

[294] *See id.* P 92.

[295] Naumann Aff. at P 31.

[296] *Id*.

declared a regional performance event in a decade overlooks the fact that the 2014 Polar Vortex, the most recent analogue for Winter Storm Elliot, prompted PJM to declare a region-wide Emergency Generation Action.[297]

The reality is that PJM faced a dire reliability emergency during Winter Storm Elliott that extended well beyond PJM's own boundaries. Large portions of the Eastern Interconnection and ERCOT were impacted by record-breaking temperature drops and unprecedented holiday loads. Neighboring systems were shedding load or declaring emergencies. PJM itself was struggling to maintain reliability in the face of widespread non-performance by generators, including Complainants and others in the ComEd Zone. At times PJM was relying on emergency imports from the Northeast Power Coordinating Council to avoid load shedding in PJM. Heading into December 24, PJM had valid reasons to fear that non-performance issues would become even worse, including in the ComEd Zone. The Department of Energy endorsed PJM's view that there was a region-wide emergency by issuing an FPA section 202(c) emergency order, just as it had a day before in ERCOT.

D. Dr. Harvey is Wrong to Suggest PJM Improperly Set Up the December 23 Operating Day

Dr. Harvey disputes PJM's statements that PJM took a cautious approach to the December 23 operating day with approximately 158,000 MW of generation available.[298] He suggests there are two main flaws in PJM's statements. First, Dr. Harvey asserts that calling so many MWs into the operating capacity for the December 23, 2022 operating day was excessive because PJM "did

[297] PJM declared an Emergency Generation Action during the 2014 Polar Vortex. *See* Ex. CZG-0003 at 6-7; *see also* Harvey Aff. at P 92 ("[B]efore the establishment of PJM's capacity performance rules [emergency declarations] were also *generally* limited to a subset of PJM zones.") (emphasis added).

[298] *See* Harvey Aff. at PP 15-21.

IX. COMMUNICATIONS

PJM requests that the Commission place the individuals listed on the signature block below on the official service list for this proceeding.[314]

X. CONCLUSION

For the reasons set forth above, the Commission should deny the Complaint and provide no relief, interim or otherwise.

Respectfully Submitted,

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[314] To the extent necessary, PJM requests a waiver of Commission Rule 203(b)(3), 18 C.F.R. § 385.203(b)(3) to permit more than two persons to be listed in the official service list for this proceeding.

CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing document upon each person designated on the official service list compiled by the Secretary in this proceeding.

Dated at Washington, D.C., this 2nd day of June 2023.

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