

**UNITED STATES OF AMERICA  
BEFORE THE  
FEDERAL ENERGY REGULATORY COMMISSION**

|                                    |   |                              |
|------------------------------------|---|------------------------------|
| <b>Voltus, Inc., and</b>           | ) |                              |
| <b>Mission:data</b>                | ) |                              |
|                                    | ) | <b>Docket No. EL26-4-000</b> |
| <b>Complainants,</b>               | ) |                              |
|                                    | ) |                              |
| <b>v.</b>                          | ) |                              |
|                                    | ) |                              |
| <b>PJM Interconnection, L.L.C.</b> | ) |                              |
|                                    | ) |                              |
| <b>Respondent.</b>                 | ) |                              |

**INITIAL BRIEF  
OF PJM INTERCONNECTION, L.L.C.**

Pursuant to the Order Granting Complaint in Part and Establishing Paper Hearing Procedures issued by the Federal Energy Regulatory Commission (“FERC” or “Commission”) on July 29, 2026, in the above-captioned proceeding,<sup>1</sup> PJM submits this initial brief to answer the Commission’s Briefing Questions.<sup>2</sup> In the ELRP Order, the Commission found that complainants had provided compelling descriptions of certain potential barriers to PJM market participation and established paper hearing procedures to determine a just and reasonable replacement rate.<sup>3</sup> The Commission also found that it may be just and reasonable to place some limitations on the expanded use of statistical sampling for interval metered residential demand response customers whose interval metered data is not accessible. The Commission determined that such limitations may be reasonable to mitigate, for example, concerns that the cumulative error of load reductions approximated

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<sup>1</sup> *Voltus, Inc., et al. v. PJM Interconnection, L.L.C.*, 196 FERC ¶ 61,074, at P 76, Ordering Para (B) (July 29, 2026) (“ELRP Order”).

<sup>2</sup> *Id.* at P 76(1)-(8) (“Briefing Questions”).

<sup>3</sup> *Id.* at P 67, Ordering Para (B).

through statistical sampling could materially affect PJM’s ability to rely on load reductions from its Emergency Load Response Participants and Pre- Emergency Load Response Participants (collectively, “ELRP”).<sup>4</sup>

Accordingly, the ELRP Order established paper hearing procedures to develop a record regarding these issues.<sup>5</sup> This initial brief responds to the Commission’s Briefing Questions<sup>6</sup> and proposes revisions to the PJM Open Access Transmission Tariff (“Tariff”) and Amended and Restated Operating Agreement of PJM (“Operating Agreement”) as well as a plan for implementing a replacement rate pursuant to the Commission’s directives in the ELRP Order.

## **I. INTRODUCTION AND BACKGROUND**

PJM provides these responses to the Briefing Questions posed by the Commission in the ELRP Order to provide a framework and establish objective criteria to address the Commission’s concerns regarding potential barriers to PJM market participation<sup>7</sup> as well as concerns regarding the expanded use of statistical sampling.<sup>8</sup> Specifically, PJM’s responses establish three scenarios under which a Curtailment Service Provider (“CSP”) could utilize the statistical sampling methodology for any interval metered residential demand response customers upon providing an attestation that at least one of the three conditions exists. These objective criteria, described further in PJM’s response to Briefing Questions 1 and 2, address the Commission’s concerns with potential barriers to interval metered residential demand response customers’ PJM market participation.

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<sup>4</sup> *Id.* at P 76.

<sup>5</sup> *Id.* at P 76, Ordering Para (B).

<sup>6</sup> *Id.* at P 76(1-8).

<sup>7</sup> *Id.* at P 67.

<sup>8</sup> *Id.* at P 76.

PJM's responses also propose limitations on the expanded eligibility for the use of statistical sampling to mitigate the impact of this expansion on PJM's ability to rely on load reductions. These limitations will continue to require the use of interval metered data where available by limiting the use of statistical sampling to locations where interval metered data is not reasonably accessible. These limitations would also enhance the accuracy and rigor of the statistical sampling methodology to accommodate a potentially significant increase in its utilization.

The Commission has also expressed concern that the cumulative error of load reductions approximated through statistical sampling could materially affect PJM's ability to rely on load reductions from its Emergency Load Response Participants and Pre-Emergency Load Response Participants.<sup>9</sup> At this time and until impacts can be observed or analyzed, PJM cannot be certain what impact the cumulative error of load reductions approximated through statistical sampling could have on PJM's ability to rely on load reductions. Thus, PJM is also recommending against some of the more stringent limitations that were part of the Commission's inquiry where the need for such changes has not been made apparent.

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<sup>9</sup> *Id.* at P 76.

## II. RESPONSES TO BRIEFING QUESTIONS

### Question 1:

*What changes to the PJM Tariff Attach. K (App.), § 8.3 (Metering Requirements) are necessary to expand the use of statistical sampling to instances where a CSP does not have reasonable access to interval meter data?*

### **Response to Question 1:**

To allow for the limited exception the Commission has directed in the ELRP Order, PJM's Tariff, Attachment K-Appendix, section 8.3 and the parallel provisions of Operating Agreement, Schedule 1, section 8.3 should be modified to expand the use of statistical sampling to interval metered residential customers that have Direct Load Control with two-way switch communication where a Curtailment Service Provider ("CSP") has demonstrated to PJM that they cannot reasonably access interval meter load data for such customers, as shown below:

The Curtailment Service Provider is responsible to ensure that the Emergency Load Response Program and Pre-Emergency Load Response Program Participants have metering equipment that provides integrated hourly kWh values on an electric distribution company account basis. Non-interval metered residential customers that have Direct Load Control may use current statistical sampling of interval metering equipment on an electric distribution company account basis in accordance with the PJM Manuals and subject to PJM approval.

Interval metered residential customers for which a Curtailment Service Provider has attested to PJM that it is unable to reasonably access interval meter data that have Direct Load Control with two-way switch communication may use current statistical sampling of interval metering equipment on an electric distribution company account basis in accordance with the PJM Manuals. The inability to reasonably access interval meter data may be based on the following, and as further detailed in the PJM Manuals:

- State laws, Relevant Electric Retail Regulatory Authority ("RERRA") rules, and/or EDC tariffs that limit the provision of interval meter data to licensed suppliers or brokers, or otherwise excludes third-party Curtailment Service Providers;
- Electric Distributors can only provide access to interval meter data in impracticable ways that render the Curtailment Service

Providers unable to provide curtailment data to PJM within 40 days of a deployment event, such as in impractically small batch sizes, undue delay by the EDC, or requiring the use of data access security mechanisms that render the data not reasonably accessible; or

- Electric Distributor charges fees for data access that are economically prohibitive, in which case the CSP must attest that the fee per registrant outweighs the expected revenue per registrant.

PJM may request supporting information to substantiate the attestation, as necessary, and the CSP is required to provide such information in order to participate with a statistical sample.

The metering equipment shall either meet the electric distribution company requirements for accuracy or have a maximum error of two percent over the full range of the metering equipment (including Potential Transformers and Current Transformers) and the metering equipment and associated data shall meet the requirements set forth herein and in the PJM Manuals. The Emergency Load Response Program and Pre-Emergency Load Response Program participants must meter reductions in demand by using either of the following two methods:

Each one of the three conditions above provides objective criteria to address the Commission's concerns of potential barriers to participation<sup>10</sup> and establishes a clear framework for the review and evaluation of such attestations. Specifically, the first scenario addresses legal obstacles that fully prevent participation of third-party CSPs.<sup>11</sup> The second condition provides an objective criterion, in the form of a 40-day data procurement threshold, that address the Commission's concerns regarding "impractically small batches," "restrictions on the use of electronic interfaces," "inability to access larger numbers of accounts" due to security mechanisms, and "impractically slow turnaround time."<sup>12</sup> The last criterion addresses the Commission's concerns that fees could be

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<sup>10</sup> *Id.* at P 67.

<sup>11</sup> *Id.* at P 67 (1).

<sup>12</sup> *Id.* at P 67 (2), (3), (4), and (6).

“economically prohibitive”<sup>13</sup> in the form of an economic test comparing expected revenue per registrant with the access fees per registrant

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<sup>13</sup> *Id.* at P 67 (5).

**Question 2:**

*What evidence must a CSP provide to PJM to establish that it lacks reasonable access to interval meter data?*

**Response to Question 2:**

To establish that a CSP lacks reasonable access to interval meter data, a CSP should be required to attest that the data is not reasonably accessible. Upon request of PJM or the Independent Market Monitor for PJM (“IMM”), the CSP should be required to provide documentary evidence, such as written communication from the applicable electric distribution company (“EDC”) to the CSP clearly demonstrating that the interval meter data was specifically requested and that the request was denied in whole or in part by the EDC or that the EDC was otherwise unable to provide the data in a timely or economically feasible manner.

The acceptable circumstances under which a CSP cannot reasonably access the interval meter data necessary for a residential customer to participate in ELRP should be premised on one of the following “Barriers to Obtaining Interval Meter Data” that the Commission outlined in the ELRP Order.<sup>14</sup> Specifically, new tariff language should be added to specify that in order to demonstrate that interval meter data cannot be accessed for residential customers, the CSP must submit annually a sworn attestation as part of the load management registration process that at least one of the following is true for any interval metered residential demand response customer for which the CSP has elected to use statistical sampling:

- (i) State laws, Relevant Electric Retail Regulatory Authority (“RERRA”) rules,

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<sup>14</sup> The Commission outlined six descriptions of potential barriers to PJM market participation. ELRP Order at P 67.

and/or EDC tariffs limit the provision of interval meter data to licensed suppliers or brokers, or otherwise excludes third-party CSPs;

- (ii) The EDC can only provide access to interval meter data in impracticable ways that render the CSP unable to timely provide curtailment data to PJM within 40 days of an event, such as in impractically small batch sizes, undue delay by the EDC, or requiring the use of data access security mechanisms that render the data not reasonably accessible;
- (iii) The EDC charges fees for data access which exceed the expected revenue per registrant.

These predicate requirements on the use of statistical sampling for interval metered residential demand response customers provide objective criteria by which PJM, the IMM, and the Commission could ultimately review attestations that address the Commission's concerns of qualitative potential market barriers.<sup>15</sup> The CSP must be able to provide supporting documentation regarding any of the above attestations to PJM or the IMM upon request. It should also be clear that PJM may refer any attestations that are not supported by any requested documentation to the IMM or the Commission's Office of Enforcement.

However, certain categories of evidence should not, by themselves, demonstrate that interval meter data is not reasonably accessible so that CSPs are still required to use interval meter data where it exists and can be accessed through reasonable efforts. Evidence which should not be considered sufficient to demonstrate that the CSP cannot reasonably access data includes: (i) EDC fees that are not economically prohibitive; (ii) a lack of programmatic access or electronic interfaces (e.g., Electronic Data Interchange),

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<sup>15</sup> *Id.*

and (iii) common practice security mechanisms such as two-factor authentication that do not render the CSP unable to reasonably access the interval meter data.

EDC fees that are not economically prohibitive should not be considered sufficient to demonstrate a lack of reasonable access. EDCs may incur reasonable charges for the installation, operation, and maintenance of advanced metering infrastructure as well as the administrative costs of providing such data. It is therefore just and reasonable that an EDC may charge a fee to account for such costs. Unless such a fee results in a resource's costs being greater than its revenues, it should not constitute a lack of reasonable access.

A lack of programmatic access through automated programming interfaces (e.g., Electronic Data Interchange) should not, on its own, render the data not reasonably accessible. Whether or not EDCs should be required to incur costs to develop and maintain programmatic interfaces for third-party access should remain at the discretion of the RERRA. A lack of access to such electronic interfaces has not prevented CSPs from effectively participating in PJM's markets. Expanding that exception here would therefore potentially result in the switching of registered interval metered residential demand response customers to less accurate statistical sampling. Additionally, restrictions on the use of such electronic interfaces to transfer data may also be reasonably asserted by the EDC as such restrictions may protect sensitive data.

An inability to access larger numbers of accounts due to common practice security mechanisms such as two-factor authentication should not, on its own, be considered a barrier to effective participation in PJM's markets either. PJM's tariff should only allow for statistical sampling in lieu of interval meter data where it exists if the CSP submits a sworn attestation that such a security mechanism is preventing the CSP from timely providing curtailment data to PJM and is able to provide supporting documentation upon

request. A 40-day standard on the timeliness of being able to access hourly load data is appropriate because load management performance data must be submitted within 45 days after the end of the month in which an event took place.<sup>16</sup> Accordingly, under rare and tight conditions, if an event happens on the last day of the month, then the 40 days provides a buffer for the CSP to process and provide that data to PJM in a timely manner.

While some of the above requirements may create costs of doing business for the CSPs, such common place practices and reasonable restrictions should not be considered per se barriers to market participation. The Commission should limit the expansion of the exception to the interval metering requirement and keep in “place some limitations on the expanded use of statistical sampling.”<sup>17</sup> Such limitations are just and reasonable to mitigate “concerns that the cumulative error of load reductions approximated through statistical sampling could materially affect PJM’s ability to rely on load reductions” from its ELRP program, as directed by the Commission in the ELRP Order.<sup>18</sup>

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<sup>16</sup> See PJM, Manual 18: PJM Capacity Market, § 4.3.1 (rev. 62, Dec. 17, 2025) (“PJM Manual 18”), <https://www.pjm.com/-/media/DotCom/documents/manuals/m18.pdf> (providing that demand resource providers with capacity obligations must provide customer-specific compliance and verification information within 45 days after the end of the month in which a Performance Assessment Interval occurred). This Manual deadline is based on the Reliability Assurance Agreement Among Load Serving Entities (“RAA”) expectation that compliance reviews will be completed within two months of the end of the month in which the event took place. See RAA, Schedule 6, section K.

<sup>17</sup> ELRP at P 76.

<sup>18</sup> *Id.*

### **Question 3:**

*What, if any, additional limitations should be placed on the expanded use of statistical sampling? For example, should there be a megawatt cap on the amount of load reduction capability that a CSP can rely on statistical sampling to measure and, if so, how would such a cap be objectively determined? As another example, should PJM limit eligibility to residential customers with Direct Load Control with two-way switch communication?<sup>19</sup>*

*(a) Please explain how any additional limitations—if they are needed—would ensure the accuracy of information available to PJM.*

*(b) Please explain how any additional limitations would strike the appropriate balance between removing barriers to the participation of demand response resources in PJM's markets and the need for accurate load reduction data.*

### **Response to Question 3:**

PJM agrees that additional limitations on the expanded use of statistical sampling may be prudent. Specifically, PJM recommends limiting the eligibility of statistical sampling to residential customers that have Direct Load Control with two-way switch communication for air conditioning and/or electric water heaters. Such a requirement would improve PJM's ability to verify whether load reductions are actually occurring in response to PJM's instruction as two-way switch communication allows the CSP to receive verification from the switch that it successfully curtailed based on the CSP's instruction. When there is two-way switch communication in place, the CSP can calculate a performance factor as the total number of switches in the population that were sent the instruction to cycle for that event divided by number of switches in the population that successfully cycled for that event. As meter data is ultimately multiplied by this value before submission to PJM, the sample average load data is scaled to represent the population that actually performed the load reductions, as determined by the switch

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<sup>19</sup> For simplicity, internal citations from the ELRP Order have been omitted.

confirmation, resulting in more accurate data for PJM and equitable compensation for the Curtailment Service Provider.

In order to strike a balance between removing barriers to participation, treating all CSPs on a consistent basis, and the need for accurate load reduction data, this limitation should only apply to residential end-use customers that have interval meter data that cannot be readily accessible and is instead included under statistical sampling. Without this condition, there could be non-interval metered residential demand response customers currently participating in the ELRP that would be prevented from participating going forward since they may not have two-way switch communication for air conditioning and/or electric water heaters. It is therefore appropriate to apply this limitation to interval metered residential demand response customers to mitigate any potential impacts from expanding the use of the statistical sampling methodology while balancing PJM's need for accurate load reduction data.

At this time, PJM does not have enough information regarding the expansion of statistical sampling to establish a reasonable threshold beyond which additional statistical sampling MWs would be detrimental in order to recommend a MW cap.

**Question 4:**

*What, if any, technologies or practices could be required to verify the accuracy of statistical sampling (e.g., customer-owned or CSP-installed consumption monitoring devices, customer-owned or CSP-acquired interval meters)?*

**Response to Question 4:**

While PJM already has a framework of practices in place to verify the accuracy of statistical sampling,<sup>20</sup> PJM recommends one enhancement that would further improve the accuracy of statistical sampling as it pertains to its use for residential demand response customers. Specifically, PJM recommends tightening the standard such that a sample must be designed to achieve a maximum error of 5% at 95% confidence for all residential demand response customers. Tightening this standard will significantly improve the accuracy by cutting the error in half but would increase the sample requirement, from approximately 150 customers to approximately 850 customers, assuming a normal distribution and coefficient of variation of approximately .75.

This update would balance between the need for accurate interval meter data where it exists and the potential barrier caused by necessary information not being reasonably accessible.

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<sup>20</sup> See, e.g., PJM, Manual 19: Load Forecasting and Analysis, Attachment C - Residential Non-Interval Metered Guidelines (rev. 39, June 30, 2026) (“PJM Manual 19”), <https://www.pjm.com/-/media/DotCom/documents/manuals/m19.pdf>.

**Question 5:**

*Would requiring CSPs to annually provide PJM full meter data (e.g., meter data for all interval customers in a demand response aggregation) for all events where sampling was used (a) mitigate concerns about the accuracy of sampling expressed by PJM and (b) reduce barriers to access to meter data (e.g., by lowering data access costs, providing more time to request and receive data, and requiring fewer meter data requests by the CSP to utilities)?*

*(a) If such data submissions were required, what are the advantages and disadvantages of requiring PJM to submit annual informational filings to the Commission for an initial period of time (e.g., three years) on the accuracy of the statistical sampling analyses to inform the use of statistical sampling?*

**Response to Question 5:**

Requiring CSPs to annually produce full meter data may mitigate concerns about the accuracy of sampling as having the ability to audit full meter data as necessary to review demand response participation could allow PJM to be able to verify individual registrations and compliance with events. Although this could mitigate concerns regarding accuracy, that should be weighed against the potentially significant administrative cost and potentially small benefit towards producing more accurate results that annual submissions would bring given the relatively small quantity of MWs that participate as residential demand response customers today.

It is unclear how requiring CSPs to annually produce full meter data would reduce many of the barriers to accessing meter data that the Commission found compelling in the ELRP Order,<sup>21</sup> as it is unclear whether CSPs will ultimately be able to provide this data, even on an annual basis.

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<sup>21</sup> See, e.g., ELRP Order at P 67(1)-(5).

**Question 6:**

*Would having PJM randomly select the specific interval metered customer for each CSP to use in a statistical sample (consistent with the requirements of Manual 19 of PJM's business practice manuals) address concerns about the accuracy of and/or manipulation of statistical sampling?*

**Response to Question 6:**

PJM Manual 19 requires that locations in the sample be randomly selected from all the locations in the population group and be stratified by control device size and geographic location, unless otherwise approved by PJM.<sup>22</sup> It should not make any difference whether PJM or the CSP randomly select the location. As a result, this would not address concerns about the accuracy and/or manipulation of statistical sampling. PJM has no reason to believe that CSPs are manipulating statistical sampling methodologies through the random selection of sample locations.

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<sup>22</sup> PJM Manual 19 at Attachment C.

**Question 7:**

*Should any modifications be made to the metering requirements currently applicable to CSPs under the PJM Tariff to enable CSPs to use alternative metering tools or technologies in circumstances where the CSP lacks reasonable access to EDC interval meter data?*

*(a)<sup>23</sup> What requirements, including level of accuracy and verifiability, would be required through such tariff modifications? If so, please identify and explain the Tariff changes that would be necessary to enable use of customer-owned or CSP-acquired interval meters or other metering technologies.*

**Response to Question 7:**

No modifications should be made to the robust metering requirements currently applicable to CSPs because Tariff, Attachment K-Appendix, section 8.3 and the parallel provision of Operating Agreement, Schedule 1, section 8.3 already provide sufficient requirements to produce accurate metering data, such as having a maximum error of two percent over its full range, while also providing a level a flexibility to CSPs and allowing CSPs to utilize alternative metering tools or technologies, as PJM's tariff is not prescriptive about metering technology types. PJM's tariff also explicitly allows for customer-owned metering equipment which can be read by PJM or, if approved by PJM, can be read by the customer and forwarded to PJM.<sup>24</sup> In short, the PJM tariff does not dictate or constrain the CSP to use a particular technology but does appropriately place requirements associated with the accuracy of the metering data being provided.

PJM Manual 11, section 10.6 further describes the implementation details that a CSP must provide for accuracy and verifiability of metering equipment when non-retail electric service metering equipment and load data is utilized for settlements or

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<sup>23</sup> This item was written as (6)(a) but place following (7) in the ELRP Order, so this response addresses this subpart herein and revises it as (7)(a).

<sup>24</sup> See Tariff, Attachment K-Appendix, section 8.3(b), (c).

compliance.<sup>25</sup> In particular, CSPs must specify the date the metering equipment was installed, tested, and ready to record, store, and communicate interval load data for demand response activity; the person that installed the metering equipment; the make and model of the meter; metering equipment accuracy; current or potential transformer type designation; and current transformer ratio.<sup>26</sup> PJM Manual 11 also specifies that all metering equipment shall, at a minimum, meet appropriate American National Standards Institute (“ANSI”) c12.1 and c57.13 standards.<sup>27</sup>

If equipment does not meet these standards then, on an exception basis, PJM may conduct a field test to validate the accuracy as long as the electricity service is less than 600 volts. PJM reviews such field test results and associated metering equipment configurations to determine whether or not the use of metering equipment will be permitted.<sup>28</sup>

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<sup>25</sup> PJM, Manual 11: Energy & Ancillary Services Market Operations, § 10.6 (rev. 137, July 28, 2026) (“PJM Manual 11”), <https://www.pjm.com/-/media/DotCom/documents/manuals/m11.pdf>.

<sup>26</sup> *Id.*

<sup>27</sup> *Id.*; see ANSI, C12.1 (2026); ANSI C57.13 (2026).

<sup>28</sup> PJM Manual 11 § 10.6.

**Question 8:**

*What, if any, enhanced requirements or supporting information to verify load reduction capability and/or electrical equipment at the customer site should be required to ensure that statistical sampling cannot be used in a manner that enables CSPs to enroll customers who lack verifiable load reduction capability?*

**Response to Question 8:**

PJM is not recommending any enhancements or providing any additional supporting information at this time. The current rules already provide, to the extent possible, that statistical sampling cannot be used in a manner that enables CSPs to enroll customers who lack verifiable load reduction capability. For example, PJM requires CSPs to have contracts with their customers based on their ability to reduce load.<sup>29</sup> Specifically, PJM's Manual 11 specifies that CSPs shall provide, for each location, the load reduction method and the associated load reduction kilowatt which represents a reasonable estimate of the location's expected hourly energy load reduction (at the retail meter) that will be achieved during a system emergency when wholesale energy prices are high and the resource participates in the wholesale market.<sup>30</sup>

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<sup>29</sup> See PJM Manual 18 § 4.3.3 (establishing that the MWs that the CSP has or intends to have under contract for a given Delivery Year are considered Existing MWs).

<sup>30</sup> PJM Manual 11 § 10.2.2.

### III. CONCLUSION

PJM requests the Commission consider PJM's responses to the Briefing Questions and PJM's proposed replacement rate.

Craig Glazer  
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September 14, 2026

### **CERTIFICATE OF SERVICE**

I hereby certify that on this 14th day of September, 2026, I have served the foregoing document upon each person designated on the official service list compiled by the Secretary in this proceeding.

/s/ Daniel Vinnik

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