

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

Energy Storage Association	)	
Complainant.	)	Docket No. EL17-64-000
v.	)	
PJM Interconnection, L.L.C.	)	
Respondent.	)	
	)	
	)	
	)	
Renewable Energy Systems Americas	)	Docket No. EL17-65-000
and Invenergy Storage Development	)	
LLC	)	
Complainants	)	
v.	)	(Not Consolidated)
PJM Interconnection, L.L.C.	)	
Respondent	)	

**MOTION FOR LEAVE TO FILE ANSWER AND ANSWER OF PJM  
INTERCONNECTION, L.L.C.**

Pursuant to Rule 213 of the Rules of Practice and Procedure of the Federal Energy Regulatory Commission (“Commission”), 18 C.F.R. § 385.213, PJM Interconnection, L.L.C. (“PJM”) submits this i) motion for leave to file an answer<sup>1</sup> and ii) answer in response to the May 31, 2017 Motion for Leave to File Answer and Answer of Renewable Energy Systems Americas and Invenergy Storage Development LLC (collectively, “RESI”) filed in Docket No. EL17-65-000 (“RESI Answer”), and the June 2, 2017 Answer to Motion to Consolidate and Motion for Leave to Answer and Answer of the Energy Storage Association (“ESA”) filed in Docket No. EL-64-000 (“ESA Answer”) (collectively, “the Answers”).

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<sup>1</sup> PJM seeks leave to submit this answer to assist the Commission’s decision-making process and clarify the issues. The Commission regularly allows answers in such cases. See e.g., *PJM Interconnection, L.L.C.*, 139 FERC ¶ 61,165, at P 24 (2012) (accepting answers to a protest because “they have provided information that assisted [the Commission] in [its] decision-making process”); *PJM Interconnection, L.L.C.*, 104 FERC ¶ 61,031, at P 10 (2003) (accepting answer because “it will not delay the proceeding, will assist the Commission in understanding the issues raised, and will [e]nsure a complete record upon which the Commission may act”).

## I. ANSWER

### A. *PJM Recently Made Adjustments To The Regulation Signal That Address Many of ESA's and RESI's Concerns Related To "Pegging"*

Both ESA and RESI describe how PJM's "pegging" of RegD<sup>2</sup> resources has caused such resources to, among other things, experience increases in operational costs.<sup>3</sup> However, ESA and RESI overlook the fact that instances where PJM requires Regulation<sup>4</sup> resources to operate close to their full offered capability are merely examples of such resources providing PJM with Regulation service. ESA and RESI also overlook the fact that Regulation is an *hourly* product in PJM, as specified in Operating Agreement, Schedule 1, section 3.2.2 and PJM's manuals.<sup>5</sup> Moreover, as discussed in PJM's May 15 Answer, and the attached Affidavit of Eric Hsia on Behalf of PJM Interconnection, L.L.C. ("Hsia Affidavit"), Regulation is necessary to control for Area Control Error ("ACE") and properly maintain the reliability of the bulk power system.<sup>6</sup> Accordingly, it is entirely consistent with PJM's filed rate for PJM to require a Regulation

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<sup>2</sup> As discussed in the May 15 Answer and Motion To Consolidate of PJM Interconnection, L.L.C., Docket Nos. EL17-64-000 and EL17-65-000 (May 15, 2017) ("May 15 Answer"), PJM instituted two new types of Regulation signals in 2012: the "RegA" signal, which is a slower, sustaining signal typically followed by steam, combustion turbine, and hydro resources, and the "RegD" signal, which is a faster ramping, dynamic signal typically followed by limited-energy storage and demand response resources. *See id.* at 6. PJM and its stakeholders commonly refer to resources that follow the RegA signal as "RegA resources" and resources that follow the RegD signal as "RegD resources." PJM will utilize this convention herein when referring to such resources.

<sup>3</sup> *See e.g.* ESA Answer at 6-7; RESI Answer at 15, n. 24.

<sup>4</sup> Capitalized terms used and not otherwise defined herein shall have the meaning set forth in the PJM Open Access Transmission Tariff ("Tariff") or the Amended and Restated Operating Agreement of PJM Interconnection, L.L.C. ("Operating Agreement"). Further, because Tariff, Attachment K-Appendix and Operating Agreement, Schedule 1 are identical, for convenience, PJM will reference only the Operating Agreement herein.

<sup>5</sup> *See e.g.* Operating Agreement, Schedule 1, section 3.2.2(a) (describing Load Serving Entities' requirement that they procure Regulation on an hourly basis); Operating Agreement, Schedule 1, section 3.2.2(k) (describing how the accuracy score for each Regulation resource is calculated on an hourly basis); *PJM Manual 11: Energy and Ancillary Services Market Operations*, PJM Interconnection, L.L.C., section 3.1, rev. 88 (May 11, 2017) (available at <http://pjm.com/~media/documents/manuals/m11.ashx>) (describing, *inter alia*, how Regulation is committed on an hourly basis).

<sup>6</sup> *See e.g.* Hsia Affidavit at PP 26-27. *See also id.* at PP 24-26 describing how PJM defines "pegging" and how PJM disputes the ESA's expansive definition of the term.

resource to operate to its full offered capability<sup>7</sup> for up to an hour if such action is required to maintain reliability and effectively control for ACE.

That being said, when PJM made its changes to the Regulation signal in January 2017, PJM also committed to continuously evaluate the design and effectiveness of the updated signal. As a result of this process, as well as the concerns raised by ESA and RESI in their Complaints related to “pegging” RegD resources, PJM made adjustments to the Regulation signal on June 2, 2017 aimed at reducing the instances in which PJM would need to operate RegD resources at close to the full output of such resources’ offered capability for sustained periods of time, while also maintaining PJM’s ability to adequately and reliably control the bulk power system. This was accomplished by modifying the Regulation controller to better optimize ACE control, thus reducing the need to operate RegD resources for sustained periods of time. These changes have already reduced the frequency with which PJM has had to “peg” RegD resources.

Thus, even assuming *arguendo* that the January 2017 Regulation signal change resulted in certain RegD resources incurring additional operating costs, given the changes that PJM made to the Regulation signal on June 2, 2017, it is unclear to what extent such costs will continue to be borne by RegD resources as contended by ESA and RESI.

***B. ESA Makes Several Statements in their Answer That May Confuse the Record***

ESA made several statements in its Answer that may confuse the factual record and that mischaracterize arguments made by PJM in the May 15 Answer. The statements, as well PJM’s as responses, are set forth as follows:

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<sup>7</sup> See e.g. May 15 Answer at 27.

**ESA Statement:** “PJM never answers the fundamental question posed in the Complaint: why is there a clear pattern of PJM dispatching Regulation resources to absorb or provide energy for long periods of time, however defined, on an almost daily basis?”<sup>8</sup>

**PJM Response:** PJM addressed this issue in paragraphs 23 through 27 of the Hsia Affidavit.<sup>9</sup> As discussed in detail therein, “PJM must instantaneously control numerous variables in order to effectively operate the bulk power system” and “[m]any of these variables are challenging to forecast and control in advance of real-time operations.”<sup>10</sup> Regulation service is one of the essential reliability products that PJM depends upon to help manage these variables, and “system conditions such as load forecast error, high system frequency, large schedule changes, or resources running off their base point” may require PJM to operate RegD resources for longer periods of time in order to effectively control ACE.<sup>11</sup> Accordingly, PJM clearly explained that it dispatches Regulation resources for longer periods of time, if needed, in order to effectively control ACE as necessitated by conditions on the bulk power system.

**ESA Statement:** “As ESA demonstrated in its Complaint, and PJM ignores in its answer, the underlying reason for the RegD signal moving in the opposition direction of ACE control is because PJM has been consistently leaning on Regulation resources to address long-term imbalances not addressed in (or created by) PJM’s management of [sic] its energy market.”<sup>12</sup>

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<sup>8</sup> ESA Answer at 3.

<sup>9</sup> See Hsia Affidavit at PP 23-27.

<sup>10</sup> See *id.* at P 27.

<sup>11</sup> See *id.*

<sup>12</sup> ESA Answer at 17.

**PJM Response:** This statement is incorrect. As was discussed at length in the PJM Regulation Whitepaper,<sup>13</sup> the Regulation Market Issues Senior Task Force (“RMISTF”), and the May 15 Answer,<sup>14</sup> the reason the RegD signal moved in the opposite direction of ACE control (*i.e.* in the same direction as ACE) prior to the January 2017 changes to the Regulation signal was due to an uncoordinated and ineffective RegD signal design which was corrected by PJM. At times, this meant that the RegD signal would move in the same direction as ACE, thus inhibiting PJM’s ability to control ACE effectively.<sup>15</sup> PJM corrected this design flaw when it implemented changes to the Regulation signal in January 2017.

**ESA’s Statement:** “PJM has not directly responded to ESA’s evidence that only one hour of performance data was presented, leaving us to conclude that the ‘off-line simulation studies’ referred to are for that single hour on June 2, 2015. PJM’s failure to address ESA’s concern directly is precisely why PJM should be required to submit the methodology by which it calculates the benefits factor for Commission review.”<sup>16</sup>

**PJM Response:** PJM presented far more evidence than a single hour’s worth of data at the RMISTF in 2016 to explain its changes to the Benefits Factor in December 2015. This evidence included, *inter alia*, a thorough analysis of the RegD signal’s impact on PJM’s ability to control the bulk power system across a sample of hours, as well as demonstrative examples of

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<sup>13</sup> See generally PJM Interconnection, L.L.C., *Implementation and Rationale For PJM’s Conditional Neutrality Regulation Signals* (Jan. 2017) (available at <http://www.pjm.com/~media/committees-groups/task-forces/rmistf/postings/regulation-market-whitepaper.ashx>) (“PJM Regulation Whitepaper”).

<sup>14</sup> See *e.g.* May 15 Answer at 13.

<sup>15</sup> See *e.g. id.*

<sup>16</sup> ESA Answer at 19.

how hypothetical shifts in the Benefits Factor curve would impact the amount of RegD resources clearing the Regulation market in given hours.<sup>17</sup>

***C. PJM’s Engagement of Stakeholders Over The Course of 2016 Does Not Support The Contention That PJM Was Not Seeking to Address Reliability Concerns***

In their Answers, ESA and RESI make arguments questioning how PJM’s changes to the RegD signal in January 2017 could have been for the purpose of maintaining the reliability of the bulk power system if PJM engaged stakeholders throughout 2016 before implementing these changes.<sup>18</sup> These arguments are flawed and should be rejected by the Commission.

As discussed at length in the May 15 Answer, PJM made changes to the RegD signal in January 2017 to address reliability concerns that were manifesting under the prior signal.<sup>19</sup> By promulgating their positions, ESA and RESI seem to imply that the only time PJM may take any action related to reliability is if there is a risk of an imminent reliability-related event on the bulk power system. However, PJM does not need to wait (and rightfully does not wait) until such an imminent event in order to make operational changes to improve the reliability of the bulk power system, which is precisely what it did in changing the RegD signal in January 2017. Moreover, the fact that PJM engaged its stakeholders (including ESA’s representatives) to address

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<sup>17</sup> See e.g. PJM Regulation Study, RMISTF, at 5-6 (Oct. 16, 2015) (available at <http://pjm.com/~media/committees-groups/task-forces/rmistf/20151016/20151016-item-07-pjm-regulation-study.ashx>) (presentation was updated with enhancements at the November 11, 2015 meeting of the RMISTF); Regulation Clearing and Benefits Factor Calculation, PJM Operating Committee Meeting, at 21 (Aug. 11, 2015) (available at <http://www.pjm.com/~media/committees-groups/committees/oc/20150811/20150811-item-03-regulation-clearing-and-benefits-factor-calculation.ashx>).

<sup>18</sup> See e.g. RESI Answer at 13 (“PJM also doesn’t explain how, if there was a reliability problem that needed to be solved quickly, it came to think it could let the solution to that problem remain on hold during a two-plus year stakeholder process out of which the new dispatch signal ostensibly sprang.”); ESA Answer at 18 (“PJM’s characterization of the December 2015 Signal Change and December 2015 Cap, implemented after seven months of consideration, as ‘immediate action to protect the reliability of the bulk power system’ is somewhat curious.”) (citations omitted).

<sup>19</sup> See e.g. May 15 Answer at 13-14.

reliability concerns does not mean that the reliability challenges posed by the previous design of the RegD signal were not real.

***D. Many of ESA and RESI's Arguments Merely Criticize How PJM Operates The Bulk Power System***

ESA and RESI set forth arguments criticizing the way that PJM utilizes Regulation as a product when dispatching the bulk power system, and PJM's management of the bulk power system in general.<sup>20</sup> In fact, the RESI Answer has an entire section entitled "Regulation should complement the other products that have different qualities and purpose, not substitute for them."<sup>21</sup>

As a matter of law, the manner in which PJM operates the bulk power system in order to meet its needs is a matter within PJM's discretion.<sup>22</sup> However, while it may be appropriate to discuss ways in which PJM can improve its operational practices generally, such issues should not be addressed through a litigious process before the Commission. Instead, they should be discussed in PJM's stakeholder process, or other proceedings pending before the Commission, such as the development of a separate load following product as PJM suggested in its recently issued white-paper on price formation, and proposed in its comments to the Commission's Notice of Proposed Rulemaking on Fast-Start Resources.<sup>23</sup>

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<sup>20</sup> See e.g. ESA Answer at 3-7.

<sup>21</sup> See RESI Answer at 19-22.

<sup>22</sup> See e.g. *PPL EnergyPlus, LLC*, 117 FERC ¶ 61,338, at P 33 (2006) ("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.").

<sup>23</sup> See PJM Interconnection, L.L.C., *Energy Price Formation and Valuing Flexibility*, at 4-5 (Jun. 15, 2017) (available at <http://www.pjm.com/~media/library/reports-notice/special-reports/20170615-energy-market-price-formation.ashx>); *Fast-Start Pricing in Markets Operated by Regional Transmission Organizations and Independent System Operators*, PJM Interconnection, L.L.C. Comments to Notice of Proposed Rulemaking, at 12-13, Docket No. RM17-3-000 (Feb. 28, 2017).

## II. CONCLUSION

For the foregoing reasons, PJM requests that the Commission accept its Answer herein.

Respectfully submitted,



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**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 Audubon, PA this 27<sup>th</sup> day of June, 2017.

A handwritten signature in black ink, appearing to read "Steven Shparber", written over a horizontal line.

Steven Shparber