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April 7, 2020

The Honorable Kimberly D. Bose  
Secretary  
Federal Energy Regulatory Commission  
888 First Street, N.E. Room 1A  
Washington, D.C. 20426

Re: *PJM Interconnection L.L.C., Docket No. ER19-1651-001*  
*Inclusion of Commission-Approved Settlement in PJM Tariff*

Dear Secretary Bose,

In compliance with the Federal Energy Regulatory Commission's ("FERC" or the "Commission") directive in its March 26, 2020 order<sup>1</sup> approving the April 23, 2019 Settlement Agreement<sup>2</sup> in Docket No. ER19-1651-000, PJM Interconnection, L.L.C. ("PJM") hereby submits for filing an eTariff record of the Settlement Agreement for inclusion in the PJM Open Access Transmission Tariff ("Tariff").<sup>3</sup>

PJM respectfully requests an effective date of July 1, 2020 for the enclosed eTariff record, to align with the date that the Settlement Agreement becomes effective pursuant to its terms.<sup>4</sup>

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<sup>1</sup> *PJM Interconnection, L.L.C.*, 170 FERC ¶ 61,258 at P 49 (2020) (the "March 26 Order") ("Consistent with the terms of the Settlement, PJM is directed to make a compliance filing within 30 days of the date of this order to include the Settlement as an attachment to the Tariff.").

<sup>2</sup> *PJM Interconnection, L.L.C.*, Offer of Settlement, Docket No. ER19-1651-000 (Apr. 23, 2019) (the "Settlement Agreement").

<sup>3</sup> The PJM Tariff is currently located under PJM's "Intra-PJM Tariffs" eTariff title, which is available here: <https://etariff.ferc.gov/TariffBrowser.aspx?tid=1731>

<sup>4</sup> See Settlement Agreement at Article IV ("The Settlement will become effective on the first day of the first month beginning at least ninety (90) days after the date of a Commission order approving the Settlement . . .").

## **I. DESCRIPTION OF FILING**

On April 23, 2019, PJM submitted the Settlement Agreement in Docket No. ER19-1651-000, which resolves all issues set for hearing and settlement judge procedures stemming from two 2017 complaints filed in Docket Nos. EL17-64-000 and EL17-65-000 related to certain changes to PJM’s methodology for determining the automated frequency Regulation signal in PJM’s Regulation market for providers of “Regulation D” Regulation service.

In the March 26 Order, the Commission approved the Settlement Agreement, finding that the Settlement Agreement “resolves all issues set for hearing in Docket Nos. EL17-64-000 and EL17-65-000”<sup>5</sup> and that “the overall effect of the Settlement is just and reasonable.”<sup>6</sup>

Article VI of the Settlement Agreement states that, once the Settlement Agreement is approved by the Commission, it will be “filed through a compliance filing as an attachment to the Tariff and function as the filed rate for Affected Batteries providing Regulation service under the terms of the Settlement.” Consistent with this provision, the Commission in its March 26 Order directed PJM “to make a compliance filing within 30 days of the date of this order to include the Settlement as an attachment to the Tariff.”<sup>7</sup> In compliance with this directive, PJM hereby submits for filing an eTariff record of the Settlement Agreement for inclusion in the PJM Tariff.

## **II. EFFECTIVE DATE**

PJM respectfully requests an effective date of July 1, 2020 for the enclosed eTariff record, to align with the date that the Settlement Agreement becomes effective pursuant to its terms.<sup>8</sup>

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<sup>5</sup> March 26 Order at P 48.

<sup>6</sup> *Id.* at P 44.

<sup>7</sup> *Id.* at P 49.

<sup>8</sup> *See* Settlement Agreement at Article IV (“The Settlement will become effective on the first day of the first month

### III. COMMUNICATIONS

PJM requests that all communications regarding this filing be directed to the following persons:

Craig Glazer  
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### IV. DOCUMENTS INCLUDED WITH THIS FILING

In accordance with the requirements of Order No. 714<sup>9</sup> and the Commission's eTariff regulations, PJM hereby submits an eTariff XML filing package consisting of the following materials:

1. This transmittal letter;
2. Attachment A – Revisions to the Tariff, in redlined format; and
3. Attachment B – Revisions to the Tariff, in clean format.

### V. SERVICE

PJM has served a copy of this filing on all PJM Members and on all state utility regulatory commissions in the PJM Region by posting this filing electronically. In accordance with the Commission's regulations,<sup>10</sup> PJM will post a copy of this filing to the FERC filings section of its internet site, located at the following link: <http://www.pjm.com/documents/ferc-manuals.aspx>

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beginning at least ninety (90) days after the date of a Commission order approving the Settlement . . . ”).

<sup>9</sup> *Electronic Tariff Filings*, 124 FERC ¶ 61,270 (2008).

<sup>10</sup> See 18 C.F.R §§ 35.2(e) and 385.2010(f)(3).

with a specific link to the newly-filed document, and will send an e-mail on the same date as this filing to all PJM Members and all state utility regulatory commissions in the PJM Region<sup>11</sup> alerting them that this filing has been made by PJM today and is available by following such link.

## VI. CONCLUSION

In accordance with the foregoing, PJM respectfully requests that the Commission accept the proposed revisions to the PJM Tariff, effective July 1, 2020, as discussed herein.

Respectfully submitted,

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*On behalf of*  
*PJM Interconnection, L.L.C*

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<sup>11</sup> PJM already maintains, updates, and regularly uses e-mail lists for all PJM members and affected commissions.

# Attachment A

## Revisions to the PJM Open Access Transmission Tariff

(Marked / Redline Format)

## TABLE OF CONTENTS

### **I. COMMON SERVICE PROVISIONS**

- 1**     **Definitions**
  - OATT Definitions – A – B**
  - OATT Definitions – C – D**
  - OATT Definitions – E – F**
  - OATT Definitions – G – H**
  - OATT Definitions – I – J – K**
  - OATT Definitions – L – M – N**
  - OATT Definitions – O – P – Q**
  - OATT Definitions – R – S**
  - OATT Definitions - T – U – V**
  - OATT Definitions – W – X – Y - Z**
- 2**     **Initial Allocation and Renewal Procedures**
- 3**     **Ancillary Services**
- 3B**    **PJM Administrative Service**
- 3C**    **Mid-Atlantic Area Council Charge**
- 3D**    **Transitional Market Expansion Charge**
- 3E**    **Transmission Enhancement Charges**
- 3F**    **Transmission Losses**
- 4**     **Open Access Same-Time Information System (OASIS)**
- 5**     **Local Furnishing Bonds**
- 6**     **Reciprocity**
- 6A**    **Counterparty**
- 7**     **Billing and Payment**
- 8**     **Accounting for a Transmission Owner’s Use of the Tariff**
- 9**     **Regulatory Filings**
- 10**    **Force Majeure and Indemnification**
- 11**    **Creditworthiness**
- 12**    **Dispute Resolution Procedures**
- 12A**   **PJM Compliance Review**

### **II. POINT-TO-POINT TRANSMISSION SERVICE**

#### **Preamble**

- 13**    **Nature of Firm Point-To-Point Transmission Service**
- 14**    **Nature of Non-Firm Point-To-Point Transmission Service**
- 15**    **Service Availability**
- 16**    **Transmission Customer Responsibilities**
- 17**    **Procedures for Arranging Firm Point-To-Point Transmission Service**
- 18**    **Procedures for Arranging Non-Firm Point-To-Point Transmission Service**
- 19**    **Firm Transmission Feasibility Study Procedures For Long-Term Firm Point-To-Point Transmission Service Requests**
- 20**    **[Reserved]**

- 21 [Reserved]
- 22 Changes in Service Specifications
- 23 Sale or Assignment of Transmission Service
- 24 Metering and Power Factor Correction at Receipt and Delivery Points(s)
- 25 Compensation for Transmission Service
- 26 Stranded Cost Recovery
- 27 Compensation for New Facilities and Redispatch Costs
- 27A Distribution of Revenues from Non-Firm Point-to-Point Transmission Service

### **III. NETWORK INTEGRATION TRANSMISSION SERVICE**

#### **Preamble**

- 28 Nature of Network Integration Transmission Service
- 29 Initiating Service
- 30 Network Resources
- 31 Designation of Network Load
- 32 Firm Transmission Feasibility Study Procedures For Network Integration Transmission Service Requests
- 33 Load Shedding and Curtailments
- 34 Rates and Charges
- 35 Operating Arrangements

### **IV. INTERCONNECTIONS WITH THE TRANSMISSION SYSTEM**

#### **Preamble**

#### **Subpart A –INTERCONNECTION PROCEDURES**

- 36 Interconnection Requests
- 37 Additional Procedures
- 38 Service on Merchant Transmission Facilities
- 39 Local Furnishing Bonds
- 40 Non-Binding Dispute Resolution Procedures
- 41 Interconnection Study Statistics

42-108 [Reserved]

Subpart B – [Reserved]

Subpart C – [Reserved]

Subpart D – [Reserved]

Subpart E – [Reserved]

Subpart F – [Reserved]

#### **Subpart G – SMALL GENERATION INTERCONNECTION PROCEDURE**

#### **Preamble**

- 109 Pre-application Process
- 110 Permanent Capacity Resource Additions Of 20 MW Or Less
- 111 Permanent Energy Resource Additions Of 20 MW Or Less but Greater than 2 MW (Synchronous) or Greater than 5 MW(Inverter-based)
- 112 Temporary Energy Resource Additions Of 20 MW Or Less But Greater Than 2 MW

- 112A Screens Process for Permanent or Temporary Energy Resources of 2 MW or less (Synchronous) or 5 MW (Inverter-based)
- 112B Certified Inverter-Based Small Generating Facilities No Larger than 10 kW
- 112C [Reserved]

**V. GENERATION DEACTIVATION**

**Preamble**

- 113 Notices
- 114 Deactivation Avoidable Cost Credit
- 115 Deactivation Avoidable Cost Rate
- 116 Filing and Updating of Deactivation Avoidable Cost Rate
- 117 Excess Project Investment Required
- 118 Refund of Project Investment Reimbursement
- 118A Recovery of Project Investment
- 119 Cost of Service Recovery Rate
- 120 Cost Allocation
- 121 Performance Standards
- 122 Black Start Units
- 123-199 [Reserved]

**VI. ADMINISTRATION AND STUDY OF NEW SERVICE REQUESTS; RIGHTS ASSOCIATED WITH CUSTOMER-FUNDED UPGRADES**

**Preamble**

- 200 Applicability
- 201 Queue Position
- Subpart A – SYSTEM IMPACT STUDIES AND FACILITIES STUDIES FOR NEW SERVICE REQUESTS
- 202 Coordination with Affected Systems
- 203 System Impact Study Agreement
- 204 Tender of System Impact Study Agreement
- 205 System Impact Study Procedures
- 206 Facilities Study Agreement
- 207 Facilities Study Procedures
- 208 Expedited Procedures for Part II Requests
- 209 Optional Interconnection Studies
- 210 Responsibilities of the Transmission Provider and Transmission Owners
- Subpart B– AGREEMENTS AND COST REPONSIBILITY FOR CUSTOMER- FUNDED UPGRADES
- 211 Interim Interconnection Service Agreement
- 212 Interconnection Service Agreement
- 213 Upgrade Construction Service Agreement
- 214 Filing/Reporting of Agreement
- 215 Transmission Service Agreements
- 216 Interconnection Requests Designated as Market Solutions
- 217 Cost Responsibility for Necessary Facilities and Upgrades



- 218 New Service Requests Involving Affected Systems
- 219 Inter-queue Allocation of Costs of Transmission Upgrades
- 220 Advance Construction of Certain Network Upgrades
- 221 Transmission Owner Construction Obligation for Necessary Facilities  
And Upgrades
- 222 Confidentiality
- 223 Confidential Information
- 224 – 229 [Reserved]
- Subpart C – RIGHTS RELATED TO CUSTOMER-FUNDED UPGRADES
- 230 Capacity Interconnection Rights
- 231 Incremental Auction Revenue Rights
- 232 Transmission Injection Rights and Transmission Withdrawal  
Rights
- 233 Incremental Available Transfer Capability Revenue Rights
- 234 Incremental Capacity Transfer Rights
- 235 Incremental Deliverability Rights
- 236 Interconnection Rights for Certain Transmission Interconnections
- 237 IDR Transfer Agreements

**SCHEDULE 1**

**Scheduling, System Control and Dispatch Service**

**SCHEDULE 1A**

**Transmission Owner Scheduling, System Control and Dispatch Service**

**SCHEDULE 2**

**Reactive Supply and Voltage Control from Generation Sources Service**

**SCHEDULE 3**

**Regulation and Frequency Response Service**

**SCHEDULE 4**

**Energy Imbalance Service**

**SCHEDULE 5**

**Operating Reserve – Synchronized Reserve Service**

**SCHEDULE 6**

**Operating Reserve - Supplemental Reserve Service**

**SCHEDULE 6A**

**Black Start Service**

**SCHEDULE 7**

**Long-Term Firm and Short-Term Firm Point-To-Point Transmission Service**

**SCHEDULE 8**

**Non-Firm Point-To-Point Transmission Service**

**SCHEDULE 9**

**PJM Interconnection L.L.C. Administrative Services**

**SCHEDULE 9-1**

**Control Area Administration Service**

**SCHEDULE 9-2**

**Financial Transmission Rights Administration Service**

**SCHEDULE 9-3**

**Market Support Service**  
**SCHEDULE 9-4**  
**Regulation and Frequency Response Administration Service**  
**SCHEDULE 9-5**  
**Capacity Resource and Obligation Management Service**  
**SCHEDULE 9-6**  
**Management Service Cost**  
**SCHEDULE 9-FERC**  
**FERC Annual Charge Recovery**  
**SCHEDULE 9-OPSI**  
**OPSI Funding**  
**SCHEDULE 9-CAPS**  
**CAPS Funding**  
**SCHEDULE 9-FINCON**  
**Finance Committee Retained Outside Consultant**  
**SCHEDULE 9-MMU**  
**MMU Funding**  
**SCHEDULE 9 – PJM SETTLEMENT**  
**SCHEDULE 10 - [Reserved]**  
**SCHEDULE 10-NERC**  
**North American Electric Reliability Corporation Charge**  
**SCHEDULE 10-RFC**  
**Reliability First Corporation Charge**  
**SCHEDULE 11**  
**[Reserved for Future Use]**  
**SCHEDULE 11A**  
**Additional Secure Control Center Data Communication Links and Formula Rate**  
**SCHEDULE 12**  
**Transmission Enhancement Charges**  
**SCHEDULE 12 APPENDIX**  
**SCHEDULE 12-A**  
**SCHEDULE 13**  
**Expansion Cost Recovery Change (ECRC)**  
**SCHEDULE 14**  
**Transmission Service on the Neptune Line**  
**SCHEDULE 14 - Exhibit A**  
**SCHEDULE 15**  
**Non-Retail Behind The Meter Generation Maximum Generation Emergency**  
**Obligations**  
**SCHEDULE 16**  
**Transmission Service on the Linden VFT Facility**  
**SCHEDULE 16 Exhibit A**  
**SCHEDULE 16 – A**  
**Transmission Service for Imports on the Linden VFT Facility**  
**SCHEDULE 17**  
**Transmission Service on the Hudson Line**

**SCHEDULE 17 - Exhibit A**

**ATTACHMENT A**

**Form of Service Agreement For Firm Point-To-Point Transmission Service**

**ATTACHMENT A-1**

**Form of Service Agreement For The Resale, Reassignment or Transfer of Point-to-Point Transmission Service**

**ATTACHMENT B**

**Form of Service Agreement For Non-Firm Point-To-Point Transmission Service**

**ATTACHMENT C**

**Methodology To Assess Available Transfer Capability**

**ATTACHMENT C-1**

**Conversion of Service in the Dominion and Duquesne Zones**

**ATTACHMENT C-2**

**Conversion of Service in the Duke Energy Ohio, Inc. and Duke Energy Kentucky, Inc, ("DEOK") Zone**

**ATTACHMENT C-4**

**Conversion of Service in the OVEC Zone**

**ATTACHMENT D**

**Methodology for Completing a System Impact Study**

**ATTACHMENT E**

**Index of Point-To-Point Transmission Service Customers**

**ATTACHMENT F**

**Service Agreement For Network Integration Transmission Service**

**ATTACHMENT F-1**

**Form of Umbrella Service Agreement for Network Integration Transmission Service Under State Required Retail Access Programs**

**ATTACHMENT G**

**Network Operating Agreement**

**ATTACHMENT H-1**

**Annual Transmission Rates -- Atlantic City Electric Company for Network Integration Transmission Service**

**ATTACHMENT H-1A**

**Atlantic City Electric Company Formula Rate Appendix A**

**ATTACHMENT H-1B**

**Atlantic City Electric Company Formula Rate Implementation Protocols**

**ATTACHMENT H-2**

**Annual Transmission Rates -- Baltimore Gas and Electric Company for Network Integration Transmission Service**

**ATTACHMENT H-2A**

**Baltimore Gas and Electric Company Formula Rate**

**ATTACHMENT H-2B**

**Baltimore Gas and Electric Company Formula Rate Implementation Protocols**

**ATTACHMENT H-3**

**Annual Transmission Rates -- Delmarva Power & Light Company for Network Integration Transmission Service**

**ATTACHMENT H-3A**

**Delmarva Power & Light Company Load Power Factor Charge Applicable to Service the Interconnection Points**  
**ATTACHMENT H-3B**  
**Delmarva Power & Light Company Load Power Factor Charge Applicable to Service the Interconnection Points**  
**ATTACHMENT H-3C**  
**Delmarva Power & Light Company Under-Frequency Load Shedding Charge**  
**ATTACHMENT H-3D**  
**Delmarva Power & Light Company Formula Rate – Appendix A**  
**ATTACHMENT H-3E**  
**Delmarva Power & Light Company Formula Rate Implementation Protocols**  
**ATTACHMENT H-3F**  
**Old Dominion Electric Cooperative Formula Rate – Appendix A**  
**ATTACHMENT H-3G**  
**Old Dominion Electric Cooperative Formula Rate Implementation Protocols**  
**ATTACHMENT H-4**  
**Annual Transmission Rates -- Jersey Central Power & Light Company for Network Integration Transmission Service**  
**ATTACHMENT H-4A**  
**Other Supporting Facilities - Jersey Central Power & Light Company**  
**ATTACHMENT H-4B**  
**Jersey Central Power & Light Company – [Reserved]**  
**ATTACHMENT H-5**  
**Annual Transmission Rates -- Metropolitan Edison Company for Network Integration Transmission Service**  
**ATTACHMENT H-5A**  
**Other Supporting Facilities -- Metropolitan Edison Company**  
**ATTACHMENT H-6**  
**Annual Transmission Rates -- Pennsylvania Electric Company for Network Integration Transmission Service**  
**ATTACHMENT H-6A**  
**Other Supporting Facilities Charges -- Pennsylvania Electric Company**  
**ATTACHMENT H-7**  
**Annual Transmission Rates -- PECO Energy Company for Network Integration Transmission Service**  
**ATTACHMENT H-7A**  
**PECO Energy Company Formula Rate Template**  
**ATTACHMENT H-7B**  
**PECO Energy Company Monthly Deferred Tax Adjustment Charge**  
**ATTACHMENT H-7C**  
**PECO Energy Company Formula Rate Implementation Protocols**  
**ATTACHMENT H-8**  
**Annual Transmission Rates – PPL Group for Network Integration Transmission Service**  
**ATTACHMENT H-8A**  
**Other Supporting Facilities Charges -- PPL Electric Utilities Corporation**

**ATTACHMENT 8C**

**UGI Utilities, Inc. Formula Rate – Appendix A**

**ATTACHMENT 8D**

**UGI Utilities, Inc. Formula Rate Implementation Protocols**

**ATTACHMENT 8E**

**UGI Utilities, Inc. Formula Rate – Appendix A**

**ATTACHMENT H-8G**

**Annual Transmission Rates – PPL Electric Utilities Corp.**

**ATTACHMENT H-8H**

**Formula Rate Implementation Protocols – PPL Electric Utilities Corp.**

**ATTACHMENT H-9**

**Annual Transmission Rates -- Potomac Electric Power Company for Network Integration Transmission Service**

**ATTACHMENT H-9A**

**Potomac Electric Power Company Formula Rate – Appendix A**

**ATTACHMENT H-9B**

**Potomac Electric Power Company Formula Rate Implementation Protocols**

**ATTACHMENT H-9C**

**Annual Transmission Rate – Southern Maryland Electric Cooperative, Inc. for Network Integration Transmission Service**

**ATTACHMENT H-10**

**Annual Transmission Rates -- Public Service Electric and Gas Company for Network Integration Transmission Service**

**ATTACHMENT H-10A**

**Formula Rate -- Public Service Electric and Gas Company**

**ATTACHMENT H-10B**

**Formula Rate Implementation Protocols – Public Service Electric and Gas Company**

**ATTACHMENT H-11**

**Annual Transmission Rates -- Allegheny Power for Network Integration Transmission Service**

**ATTACHMENT 11A**

**Other Supporting Facilities Charges - Allegheny Power**

**ATTACHMENT H-12**

**Annual Transmission Rates -- Rockland Electric Company for Network Integration Transmission Service**

**ATTACHMENT H-13**

**Annual Transmission Rates – Commonwealth Edison Company for Network Integration Transmission Service**

**ATTACHMENT H-13A**

**Commonwealth Edison Company Formula Rate – Appendix A**

**ATTACHMENT H-13B**

**Commonwealth Edison Company Formula Rate Implementation Protocols**

**ATTACHMENT H-14**

**Annual Transmission Rates – AEP East Operating Companies for Network Integration Transmission Service**

**ATTACHMENT H-14A**

**AEP East Operating Companies Formula Rate Implementation Protocols**  
**ATTACHMENT H-14B Part 1**  
**ATTACHMENT H-14B Part 2**  
**ATTACHMENT H-15**  
**Annual Transmission Rates -- The Dayton Power and Light Company**  
**for Network Integration Transmission Service**  
***ATTACHMENT H-15A – Formula Rate - The Dayton Power and Light Company***  
***ATTACHMENT H-15B – Formula Rate Implementation Protocols - The Dayton Power***  
***and Light Company***  
**ATTACHMENT H-16**  
**Annual Transmission Rates -- Virginia Electric and Power Company**  
**for Network Integration Transmission Service**  
**ATTACHMENT H-16A**  
**Formula Rate - Virginia Electric and Power Company**  
**ATTACHMENT H-16B**  
**Formula Rate Implementation Protocols - Virginia Electric and Power Company**  
**ATTACHMENT H-16C**  
**Virginia Retail Administrative Fee Credit for Virginia Retail Load Serving**  
**Entities in the Dominion Zone**  
**ATTACHMENT H-16D – [Reserved]**  
**ATTACHMENT H-16E – [Reserved]**  
**ATTACHMENT H-16AA**  
**Virginia Electric and Power Company**  
**ATTACHMENT H-17**  
**Annual Transmission Rates -- Duquesne Light Company for Network Integration**  
**Transmission Service**  
**ATTACHMENT H-17A**  
**Duquesne Light Company Formula Rate – Appendix A**  
**ATTACHMENT H-17B**  
**Duquesne Light Company Formula Rate Implementation Protocols**  
**ATTACHMENT H-17C**  
**Duquesne Light Company Monthly Deferred Tax Adjustment Charge**  
**ATTACHMENT H-18**  
**Annual Transmission Rates – Trans-Allegheny Interstate Line Company**  
**ATTACHMENT H-18A**  
**Trans-Allegheny Interstate Line Company Formula Rate – Appendix A**  
**ATTACHMENT H-18B**  
**Trans-Allegheny Interstate Line Company Formula Rate Implementation Protocols**  
**ATTACHMENT H-19**  
**Annual Transmission Rates – Potomac-Appalachian Transmission Highline, L.L.C.**  
**ATTACHMENT H-19A**  
**Potomac-Appalachian Transmission Highline, L.L.C. Summary**  
**ATTACHMENT H-19B**  
**Potomac-Appalachian Transmission Highline, L.L.C. Formula Rate Implementation**  
**Protocols**  
**ATTACHMENT H-20**

**Annual Transmission Rates – AEP Transmission Companies (AEPTCo) in the AEP Zone**  
**ATTACHMENT H-20A**  
**AEP Transmission Companies (AEPTCo) in the AEP Zone - Formula Rate Implementation Protocols**  
**ATTACHMENT H-20A APPENDIX A**  
**Transmission Formula Rate Settlement for AEPTCo**  
**ATTACHMENT H-20B - Part I**  
**AEP Transmission Companies (AEPTCo) in the AEP Zone – Blank Formula Rate Template**  
**ATTACHMENT H-20B - Part II**  
**AEP Transmission Companies (AEPTCo) in the AEP Zone – Blank Formula Rate Template**  
**ATTACHMENT H-21**  
**Annual Transmission Rates – American Transmission Systems, Inc. for Network Integration Transmission Service**  
**ATTACHMENT H-21A - ATSI**  
**ATTACHMENT H-21A Appendix A - ATSI**  
**ATTACHMENT H-21A Appendix B - ATSI**  
**ATTACHMENT H-21A Appendix C - ATSI**  
**ATTACHMENT H-21A Appendix C - ATSI [Reserved]**  
**ATTACHMENT H-21A Appendix D – ATSI**  
**ATTACHMENT H-21A Appendix E - ATSI**  
**ATTACHMENT H-21A Appendix F – ATSI [Reserved]**  
**ATTACHMENT H-21A Appendix G - ATSI**  
**ATTACHMENT H-21A Appendix G – ATSI (Credit Adj)**  
**ATTACHMENT H-21B ATSI Protocol**  
**ATTACHMENT H-22**  
**Annual Transmission Rates – DEOK for Network Integration Transmission Service and Point-to-Point Transmission Service**  
**ATTACHMENT H-22A**  
**Duke Energy Ohio and Duke Energy Kentucky (DEOK) Formula Rate Template**  
**ATTACHMENT H-22B**  
**DEOK Formula Rate Implementation Protocols**  
**ATTACHMENT H-22C**  
**Additional provisions re DEOK and Indiana**  
**ATTACHMENT H-23**  
**EP Rock springs annual transmission Rate**  
**ATTACHMENT H-24**  
**EKPC Annual Transmission Rates**  
**ATTACHMENT H-24A APPENDIX A**  
**EKPC Schedule 1A**  
**ATTACHMENT H-24A APPENDIX B**  
**EKPC RTEP**  
**ATTACHMENT H-24A APPENDIX C**  
**EKPC True-up**

**ATTACHMENT H-24A APPENDIX D**  
**EKPC Depreciation Rates**

**ATTACHMENT H-24-B**  
**EKPC Implementation Protocols**

**ATTACHMENT H-25**  
**Annual Transmission Rates – NEET PJM Entities for Network Integration**  
**Transmission Service and Point-to-Point Transmission Service in the ComEd Zone**

**ATTACHMENT H-25A**  
**NextEra Energy Transmission PJM Entities - Formula Rate Implementation**  
**Protocols**

**ATTACHMENT H-25B**  
**NextEra Energy Transmission MidAtlantic, LLC - Formula Rate**

**ATTACHMENT H-26**  
**Transource West Virginia, LLC Formula Rate Template**

**ATTACHMENT H-26A**  
**Transource West Virginia, LLC Formula Rate Implementation Protocols**

**ATTACHMENT H-27**  
**Annual Transmission Rates – Silver Run Electric, LLC**

**ATTACHMENT H-27A**  
**Silver Run Electric, LLC Formula Rate Template**

**ATTACHMENT H-27B**  
**Silver Run Electric, LLC Formula Rate Implementation Protocols**

**ATTACHMENT H-28**  
**Annual Transmission Rates – Mid-Atlantic Interstate Transmission, LLC for**  
**Network Integration Transmission Service**

**ATTACHMENT H-28A**  
**Mid-Atlantic Interstate Transmission, LLC Formula Rate Template**

**ATTACHMENT H-28B**  
**Mid-Atlantic Interstate Transmission, LLC Formula Rate Implementation Protocols**

**ATTACHMENT H-29**  
**Annual Transmission Rates – Transource Pennsylvania, LLC**

**ATTACHMENT H-29A**  
**Transource Pennsylvania, LLC Formula Rate Template**

**ATTACHMENT H-29B**  
**Transource Pennsylvania, LLC Formula Rate Implementation Protocols**

**ATTACHMENT H-30**  
**Annual Transmission Rates – Transource Maryland, LLC**

**ATTACHMENT H-30A**  
**Transource Maryland, LLC Formula Rate Template**

**ATTACHMENT H-30B**  
**Transource Maryland, LLC Formula Rate Implementation Protocols**

**ATTACHMENT H-31**  
**Annual Transmission Revenue Requirement – Ohio Valley Electric Corporation for**  
**Network Integration Transmission Service**

**ATTACHMENT H-32**  
**Annual Transmission Revenue Requirements and Rates - AMP Transmission, LLC**



**ATTACHMENT H-32A**

**AMP Transmission, LLC - Formula Rate Template**

**ATTACHMENT H-32B**

**AMP Transmission, LLC - Formula Rate Implementation Protocols**

**ATTACHMENT H-32C**

**Annual Transmission Revenue Requirement and Rates - AMP Transmission, LLC  
for Network Integration Transmission Service**

**ATTACHMENT H-A**

**Annual Transmission Rates -- Non-Zone Network Load for Network Integration  
Transmission Service**

**ATTACHMENT I**

**Index of Network Integration Transmission Service Customers**

**ATTACHMENT J**

**PJM Transmission Zones**

**ATTACHMENT K**

**Transmission Congestion Charges and Credits**

**Preface**

**ATTACHMENT K -- APPENDIX**

**Preface**

**1. MARKET OPERATIONS**

- 1.1 Introduction
- 1.2 Cost-Based Offers
- 1.2A Transmission Losses
- 1.3 [Reserved for Future Use]
- 1.4 Market Buyers
- 1.5 Market Sellers
- 1.5A Economic Load Response Participant
- 1.6 Office of the Interconnection
- 1.6A PJM Settlement
- 1.7 General
- 1.8 Selection, Scheduling and Dispatch Procedure Adjustment Process
- 1.9 Prescheduling
- 1.10 Scheduling
- 1.11 Dispatch
- 1.12 Dynamic Transfers

**2. CALCULATION OF LOCATIONAL MARGINAL PRICES**

- 2.1 Introduction
- 2.2 General
- 2.3 Determination of System Conditions Using the State Estimator
- 2.4 Determination of Energy Offers Used in Calculating
- 2.5 Calculation of Real-time Prices
- 2.6 Calculation of Day-ahead Prices
- 2.6A Interface Prices
- 2.7 Performance Evaluation

**3. ACCOUNTING AND BILLING**

- 3.1 Introduction

- 3.2 Market Buyers
- 3.3 Market Sellers
  - 3.3A Economic Load Response Participants
- 3.4 Transmission Customers
- 3.5 Other Control Areas
- 3.6 Metering Reconciliation
- 3.7 Inadvertent Interchange
- 3.8 Market-to-Market Coordination
- 4. [Reserved For Future Use]**
- 5. CALCULATION OF CHARGES AND CREDITS FOR TRANSMISSION CONGESTION AND LOSSES**
  - 5.1 Transmission Congestion Charge Calculation
  - 5.2 Transmission Congestion Credit Calculation
  - 5.3 Unscheduled Transmission Service (Loop Flow)
  - 5.4 Transmission Loss Charge Calculation
  - 5.5 Distribution of Total Transmission Loss Charges
  - 5.6 Transmission Constraint Penalty Factors
- 6. “MUST-RUN” FOR RELIABILITY GENERATION**
  - 6.1 Introduction
  - 6.2 Identification of Facility Outages
  - 6.3 Dispatch for Local Reliability
  - 6.4 Offer Price Caps
  - 6.5 [Reserved]
  - 6.6 Minimum Generator Operating Parameters – Parameter-Limited Schedules
- 6A. [Reserved]**
  - 6A.1 [Reserved]
  - 6A.2 [Reserved]
  - 6A.3 [Reserved]
- 7. FINANCIAL TRANSMISSION RIGHTS AUCTIONS**
  - 7.1 Auctions of Financial Transmission Rights
    - 7.1A Long-Term Financial Transmission Rights Auctions
  - 7.2 Financial Transmission Rights Characteristics
  - 7.3 Auction Procedures
  - 7.4 Allocation of Auction Revenues
  - 7.5 Simultaneous Feasibility
  - 7.6 New Stage 1 Resources
  - 7.7 Alternate Stage 1 Resources
  - 7.8 Elective Upgrade Auction Revenue Rights
  - 7.9 Residual Auction Revenue Rights
  - 7.10 Financial Settlement
  - 7.11 PJMSettlement as Counterparty
- 8. EMERGENCY AND PRE-EMERGENCY LOAD RESPONSE PROGRAM**
  - 8.1 Emergency Load Response and Pre-Emergency Load Response Program Options
  - 8.2 Participant Qualifications
  - 8.3 Metering Requirements
  - 8.4 Registration

- 8.5 Pre-Emergency Operations
- 8.6 Emergency Operations
- 8.7 Verification
- 8.8 Market Settlements
- 8.9 Reporting and Compliance
- 8.10 Non-Hourly Metered Customer Pilot
- 8.11 Emergency Load Response and Pre-Emergency Load Response Participant Aggregation

**ATTACHMENT L**

**List of Transmission Owners**

**ATTACHMENT M**

**PJM Market Monitoring Plan**

**ATTACHMENT M – APPENDIX**

**PJM Market Monitor Plan Attachment M Appendix**

- I Confidentiality of Data and Information
- II Development of Inputs for Prospective Mitigation
- III Black Start Service
- IV Deactivation Rates
- V Opportunity Cost Calculation
- VI FTR Forfeiture Rule
- VII Forced Outage Rule
- VIII Data Collection and Verification

**ATTACHMENT M-1 (FirstEnergy)**

**Energy Procedure Manual for Determining Supplier Total Hourly Energy Obligation**

**ATTACHMENT M-2 (First Energy)**

**Energy Procedure Manual for Determining Supplier Peak Load Share**

**Procedures for Load Determination**

**ATTACHMENT M-2 (ComEd)**

**Determination of Capacity Peak Load Contributions and Network Service Peak Load Contributions**

**ATTACHMENT M-2 (PSE&G)**

**Procedures for Determination of Peak Load Contributions and Hourly Load Obligations for Retail Customers**

**ATTACHMENT M-2 (Atlantic City Electric Company)**

**Procedures for Determination of Peak Load Contributions and Hourly Load Obligations for Retail Customers**

**ATTACHMENT M-2 (Delmarva Power & Light Company)**

**Procedures for Determination of Peak Load Contributions and Hourly Load Obligations for Retail Customers**

**ATTACHMENT M-2 (Delmarva Power & Light Company)**

**Procedures for Determination of Peak Load Contributions and Hourly Load Obligations for Retail Customers**

**ATTACHMENT M-2 (Duke Energy Ohio, Inc.)**

**Procedures for Determination of Peak Load Contributions, Network Service Peak Load and Hourly Load Obligations for Retail Customers**

**ATTACHMENT M-3**

**Additional Procedures for Planning of Supplemental Projects**

**ATTACHMENT N**

**Form of Generation Interconnection Feasibility Study Agreement**

**ATTACHMENT N-1**

**Form of System Impact Study Agreement**

**ATTACHMENT N-2**

**Form of Facilities Study Agreement**

**ATTACHMENT N-3**

**Form of Optional Interconnection Study Agreement**

**ATTACHMENT O**

**Form of Interconnection Service Agreement**

- 1.0 Parties
- 2.0 Authority
- 3.0 Customer Facility Specifications
- 4.0 Effective Date
- 5.0 Security
- 6.0 Project Specific Milestones
- 7.0 Provision of Interconnection Service
- 8.0 Assumption of Tariff Obligations
- 9.0 Facilities Study
- 10.0 Construction of Transmission Owner Interconnection Facilities
- 11.0 Interconnection Specifications
- 12.0 Power Factor Requirement
- 12.0A RTU
- 13.0 Charges
- 14.0 Third Party Benefits
- 15.0 Waiver
- 16.0 Amendment
- 17.0 Construction With Other Parts Of The Tariff
- 18.0 Notices
- 19.0 Incorporation Of Other Documents
- 20.0 Addendum of Non-Standard Terms and Conditions for Interconnection Service
- 21.0 Addendum of Interconnection Customer's Agreement  
to Conform with IRS Safe Harbor Provisions for Non-Taxable Status
- 22.0 Addendum of Interconnection Requirements for a Wind Generation Facility
- 23.0 Infrastructure Security of Electric System Equipment and Operations and Control  
Hardware and Software is Essential to Ensure Day-to-Day Reliability and  
Operational Security

**Specifications for Interconnection Service Agreement**

- 1.0 Description of [generating unit(s)] [Merchant Transmission Facilities] (the  
Customer Facility) to be Interconnected with the Transmission System in the PJM  
Region
- 2.0 Rights
- 3.0 Construction Responsibility and Ownership of Interconnection Facilities
- 4.0 Subject to Modification Pursuant to the Negotiated Contract Option
- 4.1 Attachment Facilities Charge

- 4.2 Network Upgrades Charge
- 4.3 Local Upgrades Charge
- 4.4 Other Charges
- 4.5 Cost breakdown
- 4.6 Security Amount Breakdown

**ATTACHMENT O APPENDIX 1: Definitions**

**ATTACHMENT O APPENDIX 2: Standard Terms and Conditions for Interconnections**

- 1 Commencement, Term of and Conditions Precedent to Interconnection Service**
  - 1.1 Commencement Date
  - 1.2 Conditions Precedent
  - 1.3 Term
  - 1.4 Initial Operation
  - 1.4A Other Interconnection Options
  - 1.5 Survival
- 2 Interconnection Service**
  - 2.1 Scope of Service
  - 2.2 Non-Standard Terms
  - 2.3 No Transmission Services
  - 2.4 Use of Distribution Facilities
  - 2.5 Election by Behind The Meter Generation
- 3 Modification Of Facilities**
  - 3.1 General
  - 3.2 Interconnection Request
  - 3.3 Standards
  - 3.4 Modification Costs
- 4 Operations**
  - 4.1 General
  - 4.2 [Reserved]
  - 4.3 Interconnection Customer Obligations
  - 4.4 Transmission Interconnection Customer Obligations
  - 4.5 Permits and Rights-of-Way
  - 4.6 No Ancillary Services
  - 4.7 Reactive Power
  - 4.8 Under- and Over-Frequency and Under- and Over- Voltage Conditions
  - 4.9 System Protection and Power Quality
  - 4.10 Access Rights
  - 4.11 Switching and Tagging Rules
  - 4.12 Communications and Data Protocol
  - 4.13 Nuclear Generating Facilities
- 5 Maintenance**
  - 5.1 General
  - 5.2 [Reserved]
  - 5.3 Outage Authority and Coordination
  - 5.4 Inspections and Testing
  - 5.5 Right to Observe Testing

- 5.6 Secondary Systems
- 5.7 Access Rights
- 5.8 Observation of Deficiencies
- 6 Emergency Operations**
  - 6.1 Obligations
  - 6.2 Notice
  - 6.3 Immediate Action
  - 6.4 Record-Keeping Obligations
- 7 Safety**
  - 7.1 General
  - 7.2 Environmental Releases
- 8 Metering**
  - 8.1 General
  - 8.2 Standards
  - 8.3 Testing of Metering Equipment
  - 8.4 Metering Data
  - 8.5 Communications
- 9 Force Majeure**
  - 9.1 Notice
  - 9.2 Duration of Force Majeure
  - 9.3 Obligation to Make Payments
  - 9.4 Definition of Force Majeure
- 10 Charges**
  - 10.1 Specified Charges
  - 10.2 FERC Filings
- 11 Security, Billing And Payments**
  - 11.1 Recurring Charges Pursuant to Section 10
  - 11.2 Costs for Transmission Owner Interconnection Facilities
  - 11.3 No Waiver
  - 11.4 Interest
- 12 Assignment**
  - 12.1 Assignment with Prior Consent
  - 12.2 Assignment Without Prior Consent
  - 12.3 Successors and Assigns
- 13 Insurance**
  - 13.1 Required Coverages for Generation Resources Of More Than 20 Megawatts and Merchant Transmission Facilities
  - 13.1A Required Coverages for Generation Resources Of 20 Megawatts Or Less
  - 13.2 Additional Insureds
  - 13.3 Other Required Terms
  - 13.3A No Limitation of Liability
  - 13.4 Self-Insurance
  - 13.5 Notices; Certificates of Insurance
  - 13.6 Subcontractor Insurance
  - 13.7 Reporting Incidents

- 14 Indemnity**
  - 14.1 Indemnity
  - 14.2 Indemnity Procedures
  - 14.3 Indemnified Person
  - 14.4 Amount Owing
  - 14.5 Limitation on Damages
  - 14.6 Limitation of Liability in Event of Breach
  - 14.7 Limited Liability in Emergency Conditions
- 15 Breach, Cure And Default**
  - 15.1 Breach
  - 15.2 Continued Operation
  - 15.3 Notice of Breach
  - 15.4 Cure and Default
  - 15.5 Right to Compel Performance
  - 15.6 Remedies Cumulative
- 16 Termination**
  - 16.1 Termination
  - 16.2 Disposition of Facilities Upon Termination
  - 16.3 FERC Approval
  - 16.4 Survival of Rights
- 17 Confidentiality**
  - 17.1 Term
  - 17.2 Scope
  - 17.3 Release of Confidential Information
  - 17.4 Rights
  - 17.5 No Warranties
  - 17.6 Standard of Care
  - 17.7 Order of Disclosure
  - 17.8 Termination of Interconnection Service Agreement
  - 17.9 Remedies
  - 17.10 Disclosure to FERC or its Staff
  - 17.11 No Interconnection Party Shall Disclose Confidential Information
  - 17.12 Information that is Public Domain
  - 17.13 Return or Destruction of Confidential Information
- 18 Subcontractors**
  - 18.1 Use of Subcontractors
  - 18.2 Responsibility of Principal
  - 18.3 Indemnification by Subcontractors
  - 18.4 Subcontractors Not Beneficiaries
- 19 Information Access And Audit Rights**
  - 19.1 Information Access
  - 19.2 Reporting of Non-Force Majeure Events
  - 19.3 Audit Rights
- 20 Disputes**
  - 20.1 Submission
  - 20.2 Rights Under The Federal Power Act

- 20.3 Equitable Remedies
- 21 Notices**
  - 21.1 General
  - 21.2 Emergency Notices
  - 21.3 Operational Contacts
- 22 Miscellaneous**
  - 22.1 Regulatory Filing
  - 22.2 Waiver
  - 22.3 Amendments and Rights Under the Federal Power Act
  - 22.4 Binding Effect
  - 22.5 Regulatory Requirements
- 23 Representations And Warranties**
  - 23.1 General
- 24 Tax Liability**
  - 24.1 Safe Harbor Provisions
  - 24.2 Tax Indemnity
  - 24.3 Taxes Other Than Income Taxes
  - 24.4 Income Tax Gross-Up
  - 24.5 Tax Status

**ATTACHMENT O - SCHEDULE A**

**Customer Facility Location/Site Plan**

**ATTACHMENT O - SCHEDULE B**

**Single-Line Diagram**

**ATTACHMENT O - SCHEDULE C**

**List of Metering Equipment**

**ATTACHMENT O - SCHEDULE D**

**Applicable Technical Requirements and Standards**

**ATTACHMENT O - SCHEDULE E**

**Schedule of Charges**

**ATTACHMENT O - SCHEDULE F**

**Schedule of Non-Standard Terms & Conditions**

**ATTACHMENT O - SCHEDULE G**

**Interconnection Customer's Agreement to Conform with IRS Safe Harbor Provisions for Non-Taxable Status**

**ATTACHMENT O - SCHEDULE H**

**Interconnection Requirements for a Wind Generation Facility**

**ATTACHMENT O - SCHEDULE I**

**Interconnection Specifications for an Energy Storage Resource**

**ATTACHMENT O - SCHEDULE J**

**Schedule of Terms and Conditions for Surplus Interconnection Service**

**ATTACHMENT O - SCHEDULE K**

**Requirements for Interconnection Service Below Full Electrical Generating Capability**

**ATTACHMENT O-1**

**Form of Interim Interconnection Service Agreement**

**ATTACHMENT P**



## **Form of Interconnection Construction Service Agreement**

- 1.0 Parties
- 2.0 Authority
- 3.0 Customer Facility
- 4.0 Effective Date and Term
  - 4.1 Effective Date
  - 4.2 Term
  - 4.3 Survival
- 5.0 Construction Responsibility
- 6.0 [Reserved.]
- 7.0 Scope of Work
- 8.0 Schedule of Work
- 9.0 [Reserved.]
- 10.0 Notices
- 11.0 Waiver
- 12.0 Amendment
- 13.0 Incorporation Of Other Documents
- 14.0 Addendum of Interconnection Customer's Agreement to Conform with IRS Safe Harbor Provisions for Non-Taxable Status
- 15.0 Addendum of Non-Standard Terms and Conditions for Interconnection Service
- 16.0 Addendum of Interconnection Requirements for a Wind Generation Facility
- 17.0 Infrastructure Security of Electric System Equipment and Operations and Control Hardware and Software is Essential to Ensure Day-to-Day Reliability and Operational Security

### **ATTACHMENT P - APPENDIX 1 – DEFINITIONS**

### **ATTACHMENT P - APPENDIX 2 – STANDARD CONSTRUCTION TERMS AND CONDITIONS**

#### **Preamble**

#### **1 Facilitation by Transmission Provider**

#### **2 Construction Obligations**

- 2.1 Interconnection Customer Obligations
- 2.2 Transmission Owner Interconnection Facilities and Merchant Network Upgrades
  - 2.2A Scope of Applicable Technical Requirements and Standards
- 2.3 Construction By Interconnection Customer
- 2.4 Tax Liability
- 2.5 Safety
- 2.6 Construction-Related Access Rights
- 2.7 Coordination Among Constructing Parties

#### **3 Schedule of Work**

- 3.1 Construction by Interconnection Customer
- 3.2 Construction by Interconnected Transmission Owner
  - 3.2.1 Standard Option
  - 3.2.2 Negotiated Contract Option
  - 3.2.3 Option to Build
- 3.3 Revisions to Schedule of Work

- 3.4 Suspension
  - 3.4.1 Costs
  - 3.4.2 Duration of Suspension
- 3.5 Right to Complete Transmission Owner Interconnection Facilities
- 3.6 Suspension of Work Upon Default
- 3.7 Construction Reports
- 3.8 Inspection and Testing of Completed Facilities
- 3.9 Energization of Completed Facilities
- 3.10 Interconnected Transmission Owner's Acceptance of Facilities Constructed by Interconnection Customer
- 4 Transmission Outages**
- 4.1 Outages; Coordination
- 5 Land Rights; Transfer of Title**
- 5.1 Grant of Easements and Other Land Rights
- 5.2 Construction of Facilities on Interconnection Customer Property
- 5.3 Third Parties
- 5.4 Documentation
- 5.5 Transfer of Title to Certain Facilities Constructed By Interconnection Customer
- 5.6 Liens
- 6 Warranties**
- 6.1 Interconnection Customer Warranty
- 6.2 Manufacturer Warranties
- 7 [Reserved.]**
- 8 [Reserved.]**
- 9 Security, Billing And Payments**
- 9.1 Adjustments to Security
- 9.2 Invoice
- 9.3 Final Invoice
- 9.4 Disputes
- 9.5 Interest
- 9.6 No Waiver
- 10 Assignment**
- 10.1 Assignment with Prior Consent
- 10.2 Assignment Without Prior Consent
- 10.3 Successors and Assigns
- 11 Insurance**
- 11.1 Required Coverages For Generation Resources Of More Than 20 Megawatts and Merchant Transmission Facilities
- 11.1A Required Coverages For Generation Resources of 20 Megawatts Or Less
- 11.2 Additional Insureds
- 11.3 Other Required Terms
- 11.3A No Limitation of Liability
- 11.4 Self-Insurance

- 11.5 Notices; Certificates of Insurance
- 11.6 Subcontractor Insurance
- 11.7 Reporting Incidents
- 12 Indemnity**
  - 12.1 Indemnity
  - 12.2 Indemnity Procedures
  - 12.3 Indemnified Person
  - 12.4 Amount Owing
  - 12.5 Limitation on Damages
  - 12.6 Limitation of Liability in Event of Breach
  - 12.7 Limited Liability in Emergency Conditions
- 13 Breach, Cure And Default**
  - 13.1 Breach
  - 13.2 Notice of Breach
  - 13.3 Cure and Default
    - 13.3.1 Cure of Breach
  - 13.4 Right to Compel Performance
  - 13.5 Remedies Cumulative
- 14 Termination**
  - 14.1 Termination
  - 14.2 [Reserved.]
  - 14.3 Cancellation By Interconnection Customer
  - 14.4 Survival of Rights
- 15 Force Majeure**
  - 15.1 Notice
  - 15.2 Duration of Force Majeure
  - 15.3 Obligation to Make Payments
  - 15.4 Definition of Force Majeure
- 16 Subcontractors**
  - 16.1 Use of Subcontractors
  - 16.2 Responsibility of Principal
  - 16.3 Indemnification by Subcontractors
  - 16.4 Subcontractors Not Beneficiaries
- 17 Confidentiality**
  - 17.1 Term
  - 17.2 Scope
  - 17.3 Release of Confidential Information
  - 17.4 Rights
  - 17.5 No Warranties
  - 17.6 Standard of Care
  - 17.7 Order of Disclosure
  - 17.8 Termination of Construction Service Agreement
  - 17.9 Remedies
  - 17.10 Disclosure to FERC or its Staff
  - 17.11 No Construction Party Shall Disclose Confidential Information of Another Construction Party 17.12 Information that is Public Domain

- 17.13 Return or Destruction of Confidential Information
- 18 Information Access And Audit Rights**
  - 18.1 Information Access
  - 18.2 Reporting of Non-Force Majeure Events
  - 18.3 Audit Rights
- 19 Disputes**
  - 19.1 Submission
  - 19.2 Rights Under The Federal Power Act
  - 19.3 Equitable Remedies
- 20 Notices**
  - 20.1 General
  - 20.2 Operational Contacts
- 21 Miscellaneous**
  - 21.1 Regulatory Filing
  - 21.2 Waiver
  - 21.3 Amendments and Rights under the Federal Power Act
  - 21.4 Binding Effect
  - 21.5 Regulatory Requirements
- 22 Representations and Warranties**
  - 22.1 General

**ATTACHMENT P - SCHEDULE A**

**Site Plan**

**ATTACHMENT P - SCHEDULE B**

**Single-Line Diagram of Interconnection Facilities**

**ATTACHMENT P - SCHEDULE C**

**Transmission Owner Interconnection Facilities to be Built by Interconnected  
Transmission Owner**

**ATTACHMENT P - SCHEDULE D**

**Transmission Owner Interconnection Facilities to be Built by Interconnection  
Customer Pursuant to Option to Build**

**ATTACHMENT P - SCHEDULE E**

**Merchant Network Upgrades to be Built by Interconnected Transmission Owner**

**ATTACHMENT P - SCHEDULE F**

**Merchant Network Upgrades to be Built by Interconnection Customer  
Pursuant to Option to Build**

**ATTACHMENT P - SCHEDULE G**

**Customer Interconnection Facilities**

**ATTACHMENT P - SCHEDULE H**

**Negotiated Contract Option Terms**

**ATTACHMENT P - SCHEDULE I**

**Scope of Work**

**ATTACHMENT P - SCHEDULE J**

**Schedule of Work**

**ATTACHMENT P - SCHEDULE K**

**Applicable Technical Requirements and Standards**

**ATTACHMENT P - SCHEDULE L**

**Interconnection Customer's Agreement to Confirm with IRS Safe Harbor Provisions For Non-Taxable Status**

**ATTACHMENT P - SCHEDULE M**  
**Schedule of Non-Standard Terms and Conditions**

**ATTACHMENT P - SCHEDULE N**  
**Interconnection Requirements for a Wind Generation Facility**

**ATTACHMENT Q**  
**PJM Credit Policy**

**ATTACHMENT R**  
**Lost Revenues Of PJM Transmission Owners And Distribution of Revenues Remitted By MISO, SECA Rates to Collect PJM Transmission Owner Lost Revenues Under Attachment X, And Revenues From PJM Existing Transactions**

**ATTACHMENT S**  
**Form of Transmission Interconnection Feasibility Study Agreement**

**ATTACHMENT T**  
**Identification of Merchant Transmission Facilities**

**ATTACHMENT U**  
**Independent Transmission Companies**

**ATTACHMENT V**  
**Form of ITC Agreement**

**ATTACHMENT W**  
**COMMONWEALTH EDISON COMPANY**

**ATTACHMENT X**  
**Seams Elimination Cost Assignment Charges**

**NOTICE OF ADOPTION OF NERC TRANSMISSION LOADING RELIEF PROCEDURES**

**NOTICE OF ADOPTION OF LOCAL TRANSMISSION LOADING RELIEF PROCEDURES**

**SCHEDULE OF PARTIES ADOPTING LOCAL TRANSMISSION LOADING RELIEF PROCEDURES**

**ATTACHMENT Y**  
**Forms of Screens Process Interconnection Request (For Generation Facilities of 2 MW or less)**

**ATTACHMENT Z**  
**Certification Codes and Standards**

**ATTACHMENT AA**  
**Certification of Small Generator Equipment Packages**

**ATTACHMENT BB**  
**Form of Certified Inverter-Based Generating Facility No Larger Than 10 kW Interconnection Service Agreement**

**ATTACHMENT CC**  
**Form of Certificate of Completion (Small Generating Inverter Facility No Larger Than 10 kW)**

**ATTACHMENT DD**  
**Reliability Pricing Model**

**ATTACHMENT EE**

**Form of Upgrade Request**  
**ATTACHMENT FF**

**[Reserved]**

**ATTACHMENT GG**

**Form of Upgrade Construction Service Agreement**

Article 1 – Definitions And Other Documents

- 1.0 Defined Terms
- 1.1 Incorporation of Other Documents

Article 2 – Responsibility for Direct Assignment Facilities or Customer-Funded Upgrades

- 2.0 New Service Customer Financial Responsibilities
- 2.1 Obligation to Provide Security
- 2.2 Failure to Provide Security
- 2.3 Costs
- 2.4 Transmission Owner Responsibilities

Article 3 – Rights To Transmission Service

- 3.0 No Transmission Service

Article 4 – Early Termination

- 4.0 Termination by New Service Customer

Article 5 – Rights

- 5.0 Rights
- 5.1 Amount of Rights Granted
- 5.2 Availability of Rights Granted
- 5.3 Credits

Article 6 – Miscellaneous

- 6.0 Notices
- 6.1 Waiver
- 6.2 Amendment
- 6.3 No Partnership
- 6.4 Counterparts

**ATTACHMENT GG - APPENDIX I –**

**SCOPE AND SCHEDULE OF WORK FOR DIRECT ASSIGNMENT FACILITIES OR CUSTOMER-FUNDED UPGRADES TO BE BUILT BY TRANSMISSION OWNER**

**ATTACHMENT GG - APPENDIX II - DEFINITIONS**

- 1 Definitions
  - 1.1 Affiliate
  - 1.2 Applicable Laws and Regulations
  - 1.3 Applicable Regional Reliability Council
  - 1.4 Applicable Standards
  - 1.5 Breach
  - 1.6 Breaching Party
  - 1.7 Cancellation Costs
  - 1.8 Commission
  - 1.9 Confidential Information
  - 1.10 Constructing Entity

- 1.11 Control Area
- 1.12 Costs
- 1.13 Default
- 1.14 Delivering Party
- 1.15 Emergency Condition
- 1.16 Environmental Laws
- 1.17 Facilities Study
- 1.18 Federal Power Act
- 1.19 FERC
- 1.20 Firm Point-To-Point
- 1.21 Force Majeure
- 1.22 Good Utility Practice
- 1.23 Governmental Authority
- 1.24 Hazardous Substances
- 1.25 Incidental Expenses
- 1.26 Local Upgrades
- 1.27 Long-Term Firm Point-To-Point Transmission Service
- 1.28 MAAC
- 1.29 MAAC Control Zone
- 1.30 NERC
- 1.31 Network Upgrades
- 1.32 Office of the Interconnection
- 1.33 Operating Agreement of the PJM Interconnection, L.L.C. or Operating Agreement
- 1.34 Part I
- 1.35 Part II
- 1.36 Part III
- 1.37 Part IV
- 1.38 Part VI
- 1.39 PJM Interchange Energy Market
- 1.40 PJM Manuals
- 1.41 PJM Region
- 1.42 PJM West Region
- 1.43 Point(s) of Delivery
- 1.44 Point(s) of Receipt
- 1.45 Project Financing
- 1.46 Project Finance Entity
- 1.47 Reasonable Efforts
- 1.48 Receiving Party
- 1.49 Regional Transmission Expansion Plan
- 1.50 Schedule and Scope of Work
- 1.51 Security
- 1.52 Service Agreement
- 1.53 State
- 1.54 Transmission System
- 1.55 VACAR

## **ATTACHMENT GG - APPENDIX III – GENERAL TERMS AND CONDITIONS**

- 1.0 Effective Date and Term
  - 1.1 Effective Date
  - 1.2 Term
  - 1.3 Survival
- 2.0 Facilitation by Transmission Provider
- 3.0 Construction Obligations
  - 3.1 Direct Assignment Facilities or Customer-Funded Upgrades
  - 3.2 Scope of Applicable Technical Requirements and Standards
- 4.0 Tax Liability
  - 4.1 New Service Customer Payments Taxable
  - 4.2 Income Tax Gross-Up
  - 4.3 Private Letter Ruling
  - 4.4 Refund
  - 4.5 Contests
  - 4.6 Taxes Other Than Income Taxes
  - 4.7 Tax Status
- 5.0 Safety
  - 5.1 General
  - 5.2 Environmental Releases
- 6.0 Schedule Of Work
  - 6.1 Standard Option
  - 6.2 Option to Build
  - 6.3 Revisions to Schedule and Scope of Work
  - 6.4 Suspension
- 7.0 Suspension of Work Upon Default
  - 7.1 Notification and Correction of Defects
- 8.0 Transmission Outages
  - 8.1 Outages; Coordination
- 9.0 Security, Billing and Payments
  - 9.1 Adjustments to Security
  - 9.2 Invoice
  - 9.3 Final Invoice
  - 9.4 Disputes
  - 9.5 Interest
  - 9.6 No Waiver
- 10.0 Assignment
  - 10.1 Assignment with Prior Consent
  - 10.2 Assignment Without Prior Consent
  - 10.3 Successors and Assigns
- 11.0 Insurance
  - 11.1 Required Coverages
  - 11.2 Additional Insureds
  - 11.3 Other Required Terms
  - 11.4 No Limitation of Liability
  - 11.5 Self-Insurance



- 11.6 Notices: Certificates of Insurance
- 11.7 Subcontractor Insurance
- 11.8 Reporting Incidents
- 12.0 Indemnity
  - 12.1 Indemnity
  - 12.2 Indemnity Procedures
  - 12.3 Indemnified Person
  - 12.4 Amount Owing
  - 12.5 Limitation on Damages
  - 12.6 Limitation of Liability in Event of Breach
  - 12.7 Limited Liability in Emergency Conditions
- 13.0 Breach, Cure And Default
  - 13.1 Breach
  - 13.2 Notice of Breach
  - 13.3 Cure and Default
  - 13.4 Right to Compel Performance
  - 13.5 Remedies Cumulative
- 14.0 Termination
  - 14.1 Termination
  - 14.2 Cancellation By New Service Customer
  - 14.3 Survival of Rights
  - 14.4 Filing at FERC
- 15.0 Force Majeure
  - 15.1 Notice
  - 15.2 Duration of Force Majeure
  - 15.3 Obligation to Make Payments
- 16.0 Confidentiality
  - 16.1 Term
  - 16.2 Scope
  - 16.3 Release of Confidential Information
  - 16.4 Rights
  - 16.5 No Warranties
  - 16.6 Standard of Care
  - 16.7 Order of Disclosure
  - 16.8 Termination of Upgrade Construction Service Agreement
  - 16.9 Remedies
  - 16.10 Disclosure to FERC or its Staff
  - 16.11 No Party Shall Disclose Confidential Information of Party 16.12  
Information that is Public Domain
  - 16.13 Return or Destruction of Confidential Information
- 17.0 Information Access And Audit Rights
  - 17.1 Information Access
  - 17.2 Reporting of Non-Force Majeure Events
  - 17.3 Audit Rights
  - 17.4 Waiver
  - 17.5 Amendments and Rights under the Federal Power Act

- 17.6 Regulatory Requirements
- 18.0 Representation and Warranties
  - 18.1 General
- 19.0 Inspection and Testing of Completed Facilities
  - 19.1 Coordination
  - 19.2 Inspection and Testing
  - 19.3 Review of Inspection and Testing by Transmission Owner
  - 19.4 Notification and Correction of Defects
  - 19.5 Notification of Results
- 20.0 Energization of Completed Facilities
- 21.0 Transmission Owner's Acceptance of Facilities Constructed by New Service Customer
- 22.0 Transfer of Title to Certain Facilities Constructed By New Service Customer
- 23.0 Liens

**ATTACHMENT HH – RATES, TERMS, AND CONDITIONS OF SERVICE FOR PJMSETTLEMENT, INC.**

**ATTACHMENT II – MTEP PROJECT COST RECOVERY FOR ATSI ZONE**

**ATTACHMENT JJ – MTEP PROJECT COST RECOVERY FOR DEOK ZONE**

**ATTACHMENT KK - FORM OF DESIGNATED ENTITY AGREEMENT**

**ATTACHMENT LL - FORM OF INTERCONNECTION COORDINATION AGREEMENT**

**ATTACHMENT MM – FORM OF PSEUDO-TIE AGREEMENT – WITH NATIVE BA AS PARTY**

**ATTACHMENT MM-1 – FORM OF SYSTEM MODIFICATION COST REIMBURSEMENT AGREEMENT – PSEUDO-TIE INTO PJM**

**ATTACHMENT NN – FORM OF PSEUDO-TIE AGREEMENT WITHOUT NATIVE BA AS PARTY**

**ATTACHMENT OO – FORM OF DYNAMIC SCHEDULE AGREEMENT INTO THE PJM REGION**

**ATTACHMENT PP – FORM OF FIRM TRANSMISSION FEASIBILITY STUDY AGREEMENT**

***ATTACHMENT RR – FORM OF SURPLUS INTERCONNECTION STUDY AGREEMENT***

**ATTACHMENT SS – REGULATION MARKET SETTLEMENT AGREEMENT**

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

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

**SETTLEMENT AGREEMENT AND OFFER OF SETTLEMENT**

This Settlement Agreement and Offer of Settlement (“Settlement”) is made pursuant to Rule 602 of the Rules of Practice and Procedures of the Federal Energy Regulatory Commission (“Commission”), 18 C.F.R. § 385.602, by and among PJM Interconnection, L.L.C. (“PJM”), together with The AES Corporation (“AES”); Duke Energy Corporation; EDF Renewables, Inc.; Invenergy LLC (“Invenergy”); NextEra Energy, Inc.; Renewable Energy Systems Americas, Inc. (“RES”); Convergent Energy and Power LP, Convergent Energy and Power GP LLC, and Hazle Spindle, LLC; GlidePath Power Solutions LLC; GlidePath Power LLC (together with GlidePath Power Solutions LLC, “GlidePath”); and Energy Storage Association (“ESA”).<sup>1</sup> These parties enter into

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<sup>1</sup> Subsidiaries of AES, Duke, EDF, Invenergy, NextEra, RES, or GlidePath listed as “Immediate Affected Battery Owners” in Table 2.2 of the Settlement also join the Settlement as Settling Parties and signatories to the Settlement.

this Settlement to resolve all outstanding issues in Docket Nos. EL17-64-000 and EL17-65-000 (collectively, the “Regulation Complaints”).

## **ARTICLE I** **BACKGROUND**

On April 13, 2017, ESA filed a Complaint against PJM under sections 205 and 206 of the Federal Power Act (“FPA”)<sup>2</sup> in Docket No. EL17-64-000 (“ESA Complaint”).<sup>3</sup> The ESA Complaint alleged that PJM had unilaterally implemented a series of changes to its Regulation market that were arbitrary, capricious, and unduly discriminatory to ESA’s members who participate in the Regulation market. ESA requested that the Commission: (i) direct PJM to file for review under section 205 of the FPA revisions to its Open Access Transmission Tariff (“Tariff”) that set forth the methodology by which PJM calculates the benefits factor used in clearing resources in the Regulation market and justify the reasonableness of its benefits factor calculations; (ii) direct PJM to eliminate the Regulation procurement cap set forth in the PJM business practice manuals; and (iii) direct PJM to file for review under Section 205 of the FPA revisions to its Tariff that set forth the parameters governing the design of its long-established Regulation D frequency Regulation signal (“Regulation D Signal”), and to revert to its prior Regulation D Signal until such time as it receives Commission approval for any changes.

On April 14, 2017, RES and Invenergy (“RES/Invenergy”) filed a Complaint against PJM under FPA sections 205 and 206 in Docket No. EL17-65-000

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<sup>2</sup> 16 U.S.C. §§ 824d, 824e

<sup>3</sup> Complaint of Energy Storage Association, Docket No. EL17-64-000 (Apr. 13, 2017).

(“RES/Invenergy Complaint”).<sup>4</sup> The RES/Invenergy Complaint alleged that PJM had made unilateral, unreasonable and unduly discriminatory changes to its Regulation D Signal, which adversely affected the complainants’ storage facilities. The RES/Invenergy Complaint requested that the Commission (i) find that PJM’s decision to modify its Regulation D Signal was unjust and unreasonable, resulting in discriminatory treatment of the complainants and adverse impacts on their projects; and (ii) direct that PJM revert to using the original Regulation D Signal and codify any new procedures for treatment of fast response supply in the Tariff.

PJM filed an Answer and Motion to Consolidate the Regulation Complaints on May 15, 2017. A number of parties intervened and filed comments on the Regulation Complaints on May 15, 2017. The Independent Market Monitor for PJM (“IMM”) filed Comments on the Regulation Complaints on May 25, 2017. RES/Invenergy filed an Answer to PJM’s Answer and Motion to Consolidate and other filed comments on May 31, 2017 in Docket No. EL17-65-000. ESA filed an Answer to PJM’s Answer and Motion to Consolidate and other filed comments on June 2, 2017 in Docket No. EL17-64-000. The IMM filed an Answer to the Answers of ESA and RES/Invenergy on June 12, 2017. PJM filed an Answer to the Answers of ESA and RES/Invenergy on June 27, 2017.

On July 25, 2017, ESA filed a Motion Requesting Appointment of Settlement Judge in Docket No. EL17-64-000. RES/Invenergy filed a similar Motion in Docket No. EL17-65-000. PJM filed Comments on the Motions on August 9, 2017. RES/Invenergy filed a response to PJM’s Comments on August 21, 2017. AES filed Comments in response to

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<sup>4</sup> Complaint of Renewable Energy Systems Americas and Invenergy Storage Development LLC, Docket No. EL17-65-000 (Apr. 14, 2017).

PJM's Answer and in Support of the Motions filed by ESA and RES/Invenergy on August 30, 2017.

On March 30, 2018, the Commission issued its Order on Complaints and Establishing Technical Conference in Docket Nos. EL17-64-000 and EL17-65-000 ("March 30 Order").<sup>5</sup> The March 30 Order (i) granted the ESA Complaint in part; (ii) directed Commission staff to convene a technical conference to explore issues related to the Regulation Complaints; and (iii) established refund effective dates for Docket Nos. EL17-64-000 and EL17-65-000 pursuant to FPA Section 206(b).

On May 3, 2018, the Commission issued a Notice of Technical Conference in Docket Nos. EL17-64-000, EL17-65-000, ER18-87-000, and ER18-87-001. On May 18, 2018, PJM, ESA, and RES/Invenergy filed a joint request for the appointment of a settlement judge and to postpone scheduling the Technical Conference and the collection of related information until conclusion of settlement judge proceedings. AES filed comments in support of the joint request while the IMM filed comments in opposition, on May 24, 2018.

On May 30, 2018, the Commission issued its Order Establishing Settlement Procedures and Postponing Technical Conference Docket Nos. EL17-64-000, EL17-65-000, ER18-87-000, and ER18-87-001 ("May 30 Order").<sup>6</sup> The May 30 Order directed the Chief Judge to appoint a settlement judge in Docket Nos. EL17-64-000 and EL17-65-000. The May 30 Order further held the technical conference in abeyance until further order. On June 6, 2018, the Commission issued an Order of the Chief Judge designating Judge

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<sup>5</sup> *Energy Storage Ass'n v. PJM Interconnection, L.L.C.*, 162 FERC ¶ 61,296 (2018).

<sup>6</sup> *Energy Storage Ass'n v. PJM Interconnection, L.L.C.*, 163 FERC ¶ 61,157 (2018).

Lawrence Brenner to preside over settlement procedures. Following Judge Brenner's retirement in September 2018, the Commission issued an Order of the Chief Judge Making Substitute Designation of Settlement Judge designating Judge Suzanne Krolikowski to preside over settlement procedures on October 1, 2018.

Settling Parties and intervenors including the IMM, Dominion Energy Services, Inc., and American Municipal Power, Inc. participated in settlement conferences throughout June, July, and August of 2018. Settling Parties also engaged in ongoing informal settlement discussions throughout the settlement negotiation period. Settling Parties reached a settlement in principle in August 2018, and this Settlement memorializes the terms of the settlement in principle.

NOW, THEREFORE, in consideration of the promises and the mutual covenants and agreements contained herein, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Settling Parties, intending to be legally bound, agree as follows:

## **ARTICLE II** **DEFINITIONS**

**2.1 Tariff Definitions:** Capitalized terms not otherwise defined in this Settlement will have the meaning specified in the Tariff or the Amended and Restated Operating Agreement of PJM Interconnection, L.L.C. ("Operating Agreement").

**2.1.1 Affected Battery:** An "Affected Battery" is any short-duration battery unit interconnected with the PJM system that: (i) was operational prior to January 9, 2017; (ii) is designed to converge to neutrality within fifteen (15) minutes; (iii) was adversely affected by the January 9, 2017 implementation of the 30-minute conditional neutrality of PJM's

frequency regulation signal; and (iv) continues to actively participate in the PJM Regulation market as of August 27, 2018. The list of Affected Batteries identified and agreed-upon as of the date of this Settlement are set forth in Section 2.2 below, and include the identified flywheel energy storage frequency regulation plant.

**2.1.2 Affected Battery Owner:** An “Affected Battery Owner” is any legal or natural person that directly or indirectly owns or controls an Affected Battery or is owned or controlled by a legal or natural person that directly or indirectly owns or controls an Affected Battery. An Affected Battery Owner that directly owns or controls an Affected Battery may be referred to as an “Immediate Affected Battery Owner.” The ultimate U.S.-based upstream owner of an Affected Battery may be referred to as an “Ultimate Upstream Affected Battery Owner.”

**2.1.3 Settlement Regulation Signal:** The Settlement Regulation Signal is the 30-minute conditional neutrality regulation signal in effect as of October 1, 2018. Consistent with current practice by PJM under the Tariff, the Settlement Regulation Signal will be subject to intensity changes according to system condition, but the intensity of the signal neutrality bias function under and parameters and design of the PJM Regulation Conditional Neutrality Controller will remain as it was on October 1, 2018, throughout the term of this Settlement.

**2.1.4 Maximum Recent Regulation Offer:** An Affected Battery’s “Maximum Recent Regulation Offer” is its single maximum hourly-offered megawatts (“MW”) offered into the Regulation market over the most recent 100 hours



prior to October 1, 2018, during which the Affected Battery provided Regulation service and where there was not a full or partial outage of the Affected Battery; PJM will work in good faith and expeditiously with the Immediate Affected Battery Owner of each Affected Battery to determine those hours during which there was a full or partial outage of the Immediate Affected Battery Owner's Affected Battery.

**2.1.5 Original Battery Capacity:** An Affected Battery's "Original Battery Capacity," as identified in the chart provided in Section 2.2 of this Settlement, is the original installed MW capacity of the applicable Affected Battery, including any restorations, as tested and certified pursuant to sections 4.5.1 (Regulation Qualification Test) and 4.5.2 (Certifying Regulating Resource) of PJM Manual 12<sup>7</sup> on or before January 9, 2017.

**2.1.6 Settling Party:** A "Settling Party" is any person or entity that meets one or more of the following criteria: (a) any signatory to this Settlement; or (b) an Affected Battery Owner that meets the qualifications in Section 2.1.2 of this Settlement and that has complied with the opt-in procedures provided in Section 5.2.1, below.

**2.2 Identified Affected Batteries and Affected Battery Owners:** Table 2.2 below sets forth a non-exhaustive list and short description of entities that will be considered Affected Battery Owners and facilities that will be considered Affected

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<sup>7</sup> *PJM Manual 12: Balancing Operations (Rev. 35)*, PJM Interconnection, L.L.C., 49-51 (May 25, 2016), <https://www.pjm.com/-/media/documents/manuals/archive/m12/m12V35-balancing-operations-08-25-2016.ashx>.

Batteries for the purposes and duration of this Settlement. Each Immediate Affected Battery Owner and its Ultimate Upstream Affected Battery Owner(s) identified in Table 2.2 are signatories to the Settlement and agree to be bound by all the terms of the Settlement. All subsidiaries of named Affected Battery Owners will also be treated as Affected Battery Owners, consistent with the definition in Section 2.1.2, above. Note that Affected Batteries (and their Affected Battery Owners) not listed here may voluntarily participate in the Regulation market under this Settlement by complying with the provisions of Section 5.2.1, below.

**Table 2.2:**  
**Affected Batteries**

<u>Immediate Affected Battery Owner</u>	<u>Ultimate Upstream Affected Battery Owner</u>	<u>Location of Identified Affected Battery</u>	<u>Original Capacity of Identified Affected Battery</u>
<u>AES ES Tait, LLC</u>	<u>The AES Corporation</u>	<u>Allegheny Power Systems (facility known as Warrior Run)</u>	<u>10 MW</u>
<u>AES Laurel Mountain, LLC</u>	<u>The AES Corporation</u>	<u>Allegheny Power Systems</u>	<u>32 MW</u>
<u>Duke Energy Beckjord Storage, LLC</u>	<u>Duke Energy Corporation</u>	<u>New Richmond, OH – Duke Energy Ohio Kentucky</u>	<u>Two 2 MW batteries (modeled separately with separate performance scores)</u>
<u>McHenry Battery Storage, LLC</u>	<u>EDF Renewables, Inc.</u>	<u>McHenry, IL – ComEd</u>	<u>20 MW</u>
<u>Beech Ridge Energy Storage LLC</u>	<u>Invenergy Investment Company LLC</u>	<u>WV – Allegheny Power</u>	<u>31.5 MW</u>
<u>Grand Ridge Energy Storage LLC</u>	<u>Invenergy Investment Company LLC</u>	<u>Lasalle County, IL – ComEd</u>	<u>31.5 MW</u>

<u>Immediate Affected Battery Owner</u>	<u>Ultimate Upstream Affected Battery Owner</u>	<u>Location of Identified Affected Battery</u>	<u>Original Capacity of Identified Affected Battery</u>
<u>Grand Ridge Energy IV LLC</u>	<u>Invenergy Investment Company LLC</u>	<u>Lasalle County, IL – ComEd</u>	<u>4.5 MW</u>
<u>Meyersdale Storage, LLC</u>	<u>GlidePath Power Solutions LLC, GlidePath Power LLC</u>	<u>Somerset County, PA – Penelec</u>	<u>18 MW</u>
<u>FPL Energy Illinois Wind, LLC</u>	<u>NextEra Energy, Inc.</u>	<u>Dekalb County, IL – ComEd (facility known as Lee DeKalb Battery)</u>	<u>20 MW</u>
<u>Green Mountain Storage, LLC</u>	<u>NextEra Energy, Inc.</u>	<u>Somerset County, PA – Penelec</u>	<u>10.4 MW</u>
<u>Energy Storage Holdings, LLC</u>	<u>NextEra Energy, Inc.</u>	<u>Gloucester County, NJ – PSEG (facility known as Mantua Creek)</u>	<u>2 MW</u>
<u>Battery Utility of Ohio, LLC</u>	<u>Renewable Energy Systems Americas, Inc.</u>	<u>Sunbury, OH – AEP Ohio</u>	<u>4 MW</u>
<u>Joliet Battery Storage LLC</u>	<u>Renewable Energy Systems Americas, Inc.</u>	<u>Joliet, IL – ComEd</u>	<u>20 MW</u>
<u>West Chicago Battery Storage LLC</u>	<u>Renewable Energy Systems Americas, Inc.</u>	<u>West Chicago, IL – ComEd</u>	<u>20 MW</u>
<u>Hazle Spindle, LLC</u>	<u>Convergent Energy and Power LP, Convergent Energy and Power GP LLC</u>	<u>Hazle Township, PA – PPL</u>	<u>20 MW</u>

### **ARTICLE III**

#### **SCOPE OF SETTLEMENT**

The terms provided in this Settlement constitute full and complete resolution of all issues raised in Docket Nos. EL17-64-000 and EL17-65-000, including but not limited to disputes regarding historical signal changes, any question of whether PJM complied with its own Tariff in administering Affected Batteries' participation in PJM's Regulation market, and whether any Affected Battery experienced damage as a result of PJM's administration of its Regulation market. The Commission's approval of this Settlement resolves the above-referenced proceedings.

### **ARTICLE IV**

#### **SETTLEMENT TERM**

The Settlement will become effective on the first day of the first month beginning at least ninety (90) days after the date of a Commission order approving the Settlement ("Settlement Effective Date"). The terms and conditions governing the Affected Batteries' participation in the Regulation market set forth in Sections 5.1 through 5.5.2 will terminate forty-two (42) months after the Settlement Effective Date. The remaining rights and obligations under this Settlement shall remain in full force and effect until such time as the obligations set forth in Section 5.6 of this Settlement have been fully satisfied.

### **ARTICLE V**

#### **AFFECTED BATTERY PARTICIPATION IN REGULATION MARKET**

**5.1 Tariff Still In Effect:** The terms and conditions of the Tariff and Operating Agreement will apply to all Settling Parties, including Affected Batteries and Affected Battery Owners, throughout the Settlement term; provided, however, that during the Settlement: (i) to the extent the operative provisions in this Settlement under this Article

V conflict with other provisions of the Tariff or Operating Agreement, Article V shall govern, and (ii) the terms of this Settlement will apply notwithstanding any revisions that may be made to sections of the Attachment K-Appendix of the Tariff, or section 1.11.4 of Schedule 1 of the Operating Agreement, or to provisions of PJM's business practice manuals respecting participation in the Regulation market, as those provisions and manuals were in effect on October 1, 2018. For the avoidance of doubt, Settling Parties clarify that if an Affected Battery is in a Suspension Period as described in Section 5.5, below, such Affected Battery will be subject for the duration of such suspension to all of terms and conditions of the Tariff and the Operating Agreement as they are then in effect and the provisos in (i) and (ii) above shall not apply. Except as set forth in this Article V, the Tariff and Operating Agreement will continue to apply to Affected Batteries and Affected Battery Owners, including for the purposes of ordinary and customary market settlements for Regulation and other services under the Tariff, bill corrections, rebillings, and related matters.

**5.2 Participation in the PJM Regulation Market:** For the duration of this Settlement term articulated in Article IV, Affected Batteries may participate in the PJM Regulation market utilizing the Settlement Regulation Signal. During the term of the Settlement, each Affected Battery may offer MW into the Regulation market not to exceed its Original Battery Capacity, as set forth in the table in Section 2.2, above; provided, however, that for any Affected Battery offering MW into the Regulation market above its Maximum Recent Regulation Offer but less than or equal to its Original Battery Capacity, the total Regulation capability of the Affected Battery must be confirmed through a successful retest under section 4.5.4 of PJM Manual 12 (Increasing

Regulation Capability on a Resource).<sup>8</sup> The successful retest performance score determined using the Settlement Regulation Signal will not supersede the Baseline Performance Score as defined in Section 5.3 below. In the absence of a successful retest as described above, an Affected Battery’s maximum offered MW into the Regulation market during the Settlement may not exceed the Affected Battery’s Maximum Recent Regulation Offer.

For the avoidance of doubt, Settling Parties clarify that during this Settlement, in the event an Affected Battery makes an offer into the Regulation market in excess of the Affected Battery’s Original Battery Capacity, that offer and the entire amount of MW offered into the Regulation market by the Affected Battery in that offer shall not be subject to the terms of Sections 5.2, 5.3, 5.4, and 5.5 of this Settlement, and instead shall be subject to the full terms, and conditions of the Tariff, Operating Agreement, and PJM business practice manuals then in effect.

**5.2.1 Voluntary Participation by Unlisted Affected Batteries:** An Affected Battery not listed as an Identified Affected Battery in Section 2.2, above, may opt in to this Settlement in order to participate in the Regulation market under this Section 5.2 as set forth herein. An Affected Battery Owner that is not an Identified Affected Battery Owner under the Settlement but that would like to have an Affected Battery it owns or controls participate in the Regulation market under this Section 5.2 must identify its battery to PJM as an Affected Battery, demonstrate its

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<sup>8</sup> *PJM Manual 12: Balancing Operation (Rev. 38)*, PJM Interconnection, L.L.C., 53 (Apr. 20, 2018), <https://www.pjm.com/-/media/documents/manuals/m12.ashx> (“PJM Manual 12 Rev. 38”).

eligibility as an Affected Battery to the satisfaction of PJM, and agree to abide by the terms of this Settlement including, but not limited to, Section 5.6, below, before it may participate in the Regulation market under this section. Additionally, an Affected Battery's Ultimate Upstream Affected Battery Owner(s) must also agree to abide by the terms of the Settlement, including but not limited to Section 5.6, below, before the Affected Battery may participate in the Regulation market under this section. Such opt-in by an Affected Battery Owner and its Ultimate Upstream Affected Battery Owner must be provided on the Opt-in Form attached (as Attachment A) to this Settlement, endorsed by PJM, and filed with the Commission as a notification in Docket Nos. EL17-64-000 and EL17-65-000. Such opt-in notice will take effect on the first day of the first month following its filing with the Commission. Once effective, this opt-in notice will cause the Ultimate Upstream Affected Battery Owner opting in to the Settlement, as well as its subsidiaries, to become Settling Parties, and they will be subject to the rights and obligations of the Settlement for the remainder of the Settlement term set forth in Article IV, above.

**5.3 Evaluation.** During the Settlement term, PJM shall evaluate each Affected Battery's performance utilizing a resource-specific 100-hour average performance score under the 30-minute conditional neutrality Regulation signal (the "Baseline Performance Score"). The Baseline Performance Score for each Affected Battery shall be calculated by PJM and consist of a rolling average actual hourly performance score for the last 100 hours a resource has operated as of October 1, 2018.

**5.4 Compensation.** During the Settlement, assuming an Affected Battery meets the Baseline Performance Score criteria set forth below, PJM agrees to treat offers from the Affected Battery as having cleared the Regulation D market, regardless of whether such offers do, in fact, clear, provided such offers are made as price takers, either as self-scheduled Regulation with a zero offer or as a zero priced Regulation offer. Each Affected Battery agrees to follow PJM’s Regulation signal and provide Regulation service as if its offer had cleared and PJM will compensate the Affected Batteries for participation in the Regulation market utilizing the greater of (i) the Affected Battery’s current five-minute interval performance score, or (ii) the Affected Battery’s resource-specific rolling average actual hourly performance score for the last 100 hours a resource operated prior to the January 9, 2017 implementation of the 30-minute conditional neutrality of PJM’s frequency regulation signal (the “Historic Performance Score”). For the avoidance of doubt, Settling Parties clarify that nothing herein would prevent an Affected Battery from making a non-zero offer into the Regulation D market, but if such non-zero offer does not clear, the Affected Battery would not be compensated for that offer. Furthermore, the Settling Parties agree that during the term of this Settlement Regulation Credits as defined in PJM Manual 28, section 4.2<sup>9</sup> as it was in effect on October 1, 2018, shall be utilized to determine compensation for each Affected Battery. Further, the calculation of the Performance Score as defined in Tariff, Attachment K-

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<sup>9</sup> *PJM Manual 28: Operating Agreement Accounting (Rev. 80)*, PJM Interconnection, L.L.C., 28-31 (June 1, 2018), <https://www.pjm.com/-/media/documents/manuals/archive/m28/m28v80-operating-agreement-accounting-06-01-2018.ashx>.



Appendix, section 3.2.2(k) and PJM Manual 12, section 4.5.6;<sup>10</sup> and the Mileage Ratio as defined in PJM Manual 11, section 3.2.7<sup>11</sup> shall be performed in accordance with the Tariff as it was in effect on October 1, 2018.

5.4.1 In the event PJM transitions to a single Regulation signal as described in Section 5.6, below, during the Settlement, PJM will compensate each Affected Battery participating in the Regulation market under the Settlement and not in a Suspension Period under Section 5.5, below, for participation in the Regulation market utilizing the greater of the current five-minute interval performance score or Historic Performance Score multiplied by the five (5) minute Regulation Market Clearing Price (“RMCP”) and a mileage ratio derived from the greater of the following: (i) the average of the mileage ratios for the last twelve (12) months prior to the mileage ratio becoming incalculable due to PJM’s transition to a single Regulation signal; or (ii) a mileage ratio of 6.576, the average of the monthly mileage ratios from October 2017 to September 2018 (the resulting mileage ratio being referred to as the “Historic Mileage Ratio”).

5.4.2 In the event that the Regulation Market Performance Clearing Price (“RMPCP”), as defined by PJM Manual 11 as it was in effect on October 1, 2018,<sup>12</sup> is no longer available for an Affected Battery, the RMPCP used

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<sup>10</sup> PJM Manual 12 Rev. 38 at 54-56.

<sup>11</sup> PJM Manual 11: Energy & Ancillary Service Market Operations (Rev.97), PJM Interconnection, L.L.C., 62-70 (July 26, 2018), <https://www.pjm.com/-/media/documents/manuals/archive/m11/m11v97-energy-and-ancillary-services-market-operations-07-26-2018.ashx> (“PJM Manual 11 Rev. 97”).

<sup>12</sup> PJM Manual 11 Rev. 97 at 67.

to determine the Regulation Credits for the said Affected Battery shall be determined using the greater of (i) the average of the RMPCP for the last twelve (12) months prior to the RMPCP becoming unavailable, and (ii) a RMPCP of \$1.73, the average of the RMPCP from October 2017 to September 2018. The Regulation RMPCP credit calculation will be the applicable interval RMPCP multiplied by the applicable Regulation MW, Performance score, and Mileage ratio. The Regulation Market Capability Clearing Price (“RMCCP”) credit calculation will be the interval RMCP minus the applicable RMPCP multiplied by the applicable Regulation MW and Performance score.

**5.5 Suspension.** For each Affected Battery, if at any point during the Settlement term the average hourly performance score for the last 100 hours a resource has operated is lower than the Baseline Performance Score by more than or equal to seven percent (7%), the terms of this Settlement shall be suspended only as to that Affected Battery (the “Suspension Period”). An Affected Battery shall remain in suspension until such time as it achieves an average performance score for the last 100 hours the resource has operated greater than or equal to the Baseline Performance Score while following the Settlement Regulation Signal. For avoidance of doubt, Settling Parties agree that an Affected Battery’s participation in the PJM Regulation market during the Suspension Period shall be governed by the Tariff and the Operating Agreement and relevant PJM business practice manuals that exist while the Suspension Period occurs; however, the calculation of the Performance Score as defined in Tariff, Attachment K-Appendix,

section 3.2.2(k) and PJM Manual 12, section 4.5.6<sup>13</sup> shall be performed under the same terms as it would if the Affected battery were not in a Suspension Period. Furthermore, the Settling Parties agree that during the Suspension Period the Affected Battery will follow the Settlement Regulation Signal. Participation in the PJM Regulation market during a Suspension Period is not subject to retroactive financial adjustment.

5.5.1 For the avoidance of doubt, Settling Parties further clarify that they understand that an Affected Battery that is in a Suspension Period is not eligible for compensation under Section 5.4, above.

5.5.2 In the event PJM transitions to a single Regulation signal as described in Section 5.6, below, an Affected Battery in a Suspension Period will still be subject to and treated in accordance with this Section 5.5.

**5.6 Future Regulation Market Enhancements.** PJM intends to file, pursuant to Section 205 of the Federal Power Act, revisions to its Tariff and Operating Agreement to implement enhancements to the Regulation market, which may include elimination of the Regulation D Signal and operation of the Regulation market using a single regulation signal that is technology agnostic with no firm commitment of neutrality (“Regulation Market Enhancement Filing”). The Regulation Market Enhancement Filing will not affect the terms or duration of this Settlement. Each Affected Battery Owner agrees that it will not file any pleadings in opposition to or pursue any other litigation or administrative proceedings opposing the elimination of the Regulation D Signal or initial implementation of a single Regulation signal as part of PJM’s Regulation Market Enhancement Filing on the basis that PJM’s proposal: (i) utilizes a single regulation

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<sup>13</sup> PJM Manual 12 Rev. 38 at 54-56.

signal; or (ii) employs a signal that is not designed to be energy-neutral. The Settling Parties acknowledge that this Settlement does not prohibit any Affected Battery Owner from opposing other substantive aspects of the Regulation Market Enhancement Filing, including, but not limited to, opposing specific design characteristics (such as performance measurement and compensation), opposing specific design components of a single signal, opposing settlement calculations such as the removal or modification to the current mileage ratio calculation or the performance scoring calculation, opposing elements of the signal as inconsistent with Order No. 755<sup>14</sup> or other applicable FERC precedent.

**5.7 Binding on All Parties.** The Settlement will be binding on all intervenors, complainants, and respondents in Docket Nos. EL17-64-000 and EL17-65-000, whether or not they are signatories to this Settlement.

## **ARTICLE VI**

### **SETTLEMENT AS ATTACHMENT TO TARIFF**

The Settlement, once approved by the Commission, will be filed through a compliance filing as an attachment to the Tariff and function as the filed rate for Affected Batteries providing Regulation service under the terms of the Settlement.

## **ARTICLE VII**

### **WITHDRAWAL OF COMPLAINT IN DOCKET NO. EL17-64-000**

ESA agrees to withdraw its complaint filed in Docket No. EL17-64-000 with prejudice within ten (10) business days of an order approving this Settlement that is final

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<sup>14</sup> *Frequency Regulation Compensation in the Organized Wholesale Power Market*, Order No. 755, 137 FERC ¶ 61,064 (2011), *reh'g denied*, Order No. 755-A, 138 FERC ¶ 61,123 (2012).

and non-appealable; provided, however, ESA's withdrawal shall be without prejudice with respect to Section 5.6, above, for its members that are not Settling Parties in the proceeding.

## **ARTICLE VIII**

### **COST RECOVERY**

The costs of all Regulation service provided by an Affected Battery and compensated by PJM pursuant to the terms of Sections 5.1 through 5.4 of this Settlement, whether the offer for such service cleared or was only deemed cleared in the Regulation market under Section 5.4, shall be included as part of the Regulation Obligation and recovered through the Regulation Charge set forth in Tariff, Attachment K-Appendix, section 3.2.2(a), and Operating Agreement, Schedule 1.

## **ARTICLE IX**

### **MISCELLANEOUS PROVISIONS**

**9.1 No Admissions or Precedent; Exceptions.** This entire Settlement, and the Settling Parties' performance of their obligations hereunder, are the result of the settlement and compromise of all the claims and actions expressly addressed in this Settlement, and neither the Settlement nor the Settling Parties' performance hereunder shall be deemed to be an admission of any fact or of any liability. It is specifically understood and agreed that the Settlement represents a negotiated settlement in the public interest with respect to the matters agreed to herein for the sole purpose of the settlement of such matters agreed to herein, and the Settling Parties shall not be prejudiced or bound thereby in any proceeding, except as specifically provided for herein. The Settling Parties offer this Settlement solely for the purpose of compromising on the matters set for hearing by the Commission in Docket Nos. EL17-64-000 and EL17-65-000. The Settling Parties

shall not be deemed to have approved, accepted, agreed, or consented to any concept, theory, or principle underlying or supposed to underlie any of the matters provided for herein. Further, the Settlement cannot be used, and no part hereof shall be used, to advance, support, or resist a position taken before the Commission or the courts by any Settling Party except as otherwise provided herein.

**9.2 Entire Agreement.** This Settlement, including any attachments, constitutes the entire agreement between and among the Settling Parties and no other agreement with regard to the matters addressed in this Settlement shall be binding on the Settling Parties except by written amendment to this Settlement. This Settlement is an integrated package. None of the terms of the Settlement are agreed to, acquiesced in, or non-opposed without each of the others. The various provisions of this Settlement are not severable and shall not become operative unless and until the Commission issues as a final order accepting or approving this Settlement as to all its terms and conditions without modification. Except for the terms and conditions enumerated in this Settlement and any attachment hereto, the Settling Parties acknowledge and agree that the Settling Parties have not made any other promises, warranties, or representations to each other or any other participant in the proceedings referenced herein regarding any aspect of the settlement of the matters addressed in this Settlement. Each Settling Party acknowledges that it has read this Settlement and executed it without relying upon any other promise, warranty, or representation, written or otherwise, of the other Settling Party or any other participant in the proceeding or the proceedings referenced herein. Each Settling Party acknowledges that no other participant in this proceeding or in the proceedings referenced herein has made any promise, warranty, or representation.

**9.3 Modification or Condition of Settlement.** The terms and conditions of this Settlement are expressly contingent upon approval or acceptance by the Commission of this Settlement without modification or condition. If the Commission by order conditions its approval or acceptance of this Settlement or requires its modification, this Settlement shall be deemed withdrawn, shall not be considered to be part of the record in this proceeding or the proceedings in Docket Nos. EL17-64-000 and EL17-65-000, shall not become effective, and shall be null and void, unless the Settling Parties, within ten (10) business days (subject to extension by mutual agreement of all the Settling Parties) of issuance of the Commission order approving or accepting this Settlement subject to condition or modification either: (i) accept the Commission's modifications and conditions; or (ii) modify the Settlement to address or obviate the Commission's concerns.

**9.4 Settlement Discussions.** The discussions that have produced this Settlement have been conducted on the explicit understanding, pursuant to Rules 602 and 606 of the Commission's Rules of Practice and Procedure, 18 C.F.R. §§ 385.602 and 385.606, that all settlement communications and discussions shall be privileged and confidential, shall be without prejudice to the position of any Settling Party or participant making such communications or participating in any such discussions, and are not to be used in any manner in connection with this proceeding, the proceedings referenced herein, any other proceeding, or otherwise, except to the extent necessary to enforce the terms of this Settlement or to construe the meaning of the terms used herein.

**9.5 Not Admissible as Evidence.** This Settlement is submitted pursuant to Rule 602 of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.602, and

shall not be admissible in evidence or made a part of the record in any proceeding except as necessary to implement or enforce the Settlement.

**9.6 Further Assurances.** Following execution of this Settlement, each Settling Party shall cooperate with and support, and shall not take any action inconsistent with: (i) the filing of this Settlement with the Commission; and (ii) efforts to obtain Commission approval or acceptance of the Settlement. Consistent therewith, none of the Settling Parties shall seek rehearing of an order approving or accepting the Settlement without modification or condition.

**9.7 Successors and Assigns.** This Settlement is binding upon and for the benefit of the Settling Parties and their successors and assigns.

**9.8 Ambiguities Neutrally Construed.** This Settlement is the result of negotiations among Settling Parties, and has been reviewed by each Settling Party and its respective counsel. Accordingly, this Settlement shall be deemed to be the product of each Settling Party, and no ambiguity shall be construed in favor of or against any Settling Party.

**9.9 Authorizations.** Each person executing this Settlement represents and warrants that he or she is duly authorized and empowered to act on behalf of, and to sign for, the Settling Party for whom he or she has signed.

**9.10 Counterparts.** This Settlement may be executed in one or more counterparts, each of which shall be deemed to be an original and all of which together shall be deemed to be one and the same instrument.

**9.11 Requisite Waivers.** The Commission's approval of this Settlement shall constitute the requisite grant of any waivers of any regulations as may be deemed necessary to permit the implementation of the provisions of this Settlement by its terms.



**9.12 Rules of Construction.** Except as otherwise expressly provided for in this Settlement, the rules of interpretation and construction set forth below shall apply to this Settlement:

**9.12.1** All defined terms in the singular shall have the same meaning when used in the plural and vice versa;

**9.12.2** References to “includes,” “including,” and similar phrases, shall mean “including without limitation.”

**9.12.3** Unless otherwise indicated, references to “Sections” or “Articles” refer to sections or articles in this Settlement.

**9.13 Headings.** The titles and headings of the various sections in this Settlement are for reference purposes only. They are not to be construed or taken into account in interpreting this Settlement, and they do not qualify, modify, or explain the effects of this Settlement.

**9.14 Standard of Review.** This Settlement may be amended only by the agreement or non-opposition of all Settling Parties. The standard of review for any modifications to this Settlement requested by a Settling Party, without the agreement or non-opposition of all other Settling Parties, shall be the “public interest” version of the just and reasonable standard of review. This standard shall apply notwithstanding any contrary provision in the Tariff or Operating Agreement, including section 9.2 of the Tariff or any other provisions that give PJM unilateral filing rights. The standard of review for any modifications to this Settlement requested by any other party, non-party, or the Commission acting *sua sponte*, shall be the most stringent standard permissible under applicable law.

**9.15 No Settled Practice.** This Settlement is made upon the express understanding that it constitutes a negotiated offer of settlement to resolve the issues presented in the underlying hearing in these proceedings. Neither the Settling Parties nor the Commission shall be deemed to have approved, accepted, agreed, or otherwise consented to any ratemaking principle or methodology or to any tariff interpretation or modification or to any other factor or concept underlying or supposed to underlie any of the matters herein, except as previously provided in this Settlement. The Commission's approval of this Settlement shall not constitute precedent nor be used to prejudice any otherwise available rights or arguments of any party in a future proceeding, other than to enforce the terms of the Settlement, and shall not be used as evidence that a particular method is a "long standing practice" as that term is used in *Columbia Gas Transmission Corp. v. FERC*, 628 F.2d 578 (D.C. Cir. 1979), or a "settled practice" as that term is used in *Public Service Commission of New York v. FERC*, 642 F.2d 1335 (D.C. Cir. 1980).

**9.16 Settlement Terms Govern.** To the extent there is any inconsistency between this Settlement and the Explanatory Statement submitted in support hereof, this Settlement shall control.

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**AGREEMENT CONTINUES ON NEXT PAGE**

WHEREFORE, the Settling Parties have caused their duly authorized representatives to execute and attest to this Settlement.

Respectfully submitted,

**PJM Interconnection, L.L.C.**

By: /s/ Michael Bryson  
Name: Michael Bryson  
Title: Vice President - Operations

**Energy Storage Association**

By: /s/ Kelly Speakes-Backman  
Name: Kelly Speakes-Backman  
Title: Chief Executive Officer

**AES ES Tait, LLC**

By: /s/ Judi L. Sobecki/rvg  
Name: Judi L. Sobecki  
Title: Secretary and General Counsel

**The AES Corporation**

By: /s/ Randall V. Griffin  
Name: Randall V. Griffin  
Title: Chief Regulatory Counsel

**AES Laurel Mountain, LLC**

By: /s/ Judi L. Sobecki/rvg  
Name: Judi L. Sobecki  
Title: Secretary and General Counsel

**Duke Energy Beckjord Storage, LLC**

By: /s/ Christopher M. Fallon  
Name: Christopher M. Fallon  
Title: Duke Energy, Vice President  
DE Renewables, Authorized  
Signatory

**Duke Energy Corporation**

By: /s/ Robert Caldwell  
Robert Caldwell  
Senior Vice President and President, Duke  
Energy Renewables and Distributed  
Energy, Authorized Signatory

**(Signatures continue next page)**

**McHenry Battery Storage, LLC**

By: EDF Renewables Asset Holdings,  
Inc., its sole Member and Manager

By: /s/ Marty Crotty

Name: Marty Crotty

Title: Executive Vice President, Asset  
Optimization

**EDF Renewables, Inc.**

By: /s/ Marty Crotty

Name: Marty Crotty

Title: Executive Vice President, Asset  
Optimization

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**(Signatures continue next page)**

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**Beech Ridge Energy Storage LLC**

By: /s/ Alexander C. George  
Name: Alexander C. George  
Title: Senior Vice President, Invenergy  
Investment Company LLC, parent  
company of Beech Ridge Energy Storage  
LLC

**Invenergy Investment Company LLC**

By: /s/ Alexander C. George  
Name: Alexander C. George  
Title: Senior Vice President, Invenergy  
Investment Company LLC, parent  
company of Beech Ridge Energy Storage  
LLC

**Grand Ridge Energy Storage LLC**

By: /s/ Alexander C. George  
Name: Alexander C. George  
Title: Senior Vice President, Invenergy  
Investment Company LLC, parent  
company of Beech Ridge Energy Storage  
LLC

**Grand Ridge Energy IV LLC**

By: /s/ Alexander C. George  
Name: Alexander C. George  
Title: Senior Vice President, Invenergy  
Investment Company LLC, parent  
company of Beech Ridge Energy Storage  
LLC

**(Signatures continue next page)**



**FPL Energy Illinois Wind, LLC**

By: /s/ Jessica Wang  
Name: Jessica Wang  
Title: Vice President

**NextEra Energy, Inc.**

By: /s/ Joseph T. Kelliher  
Name: Joseph T. Kelliher  
Title: Exec. Vice President - Federal  
Regulatory Affairs

**Green Mountain Storage, LLC**

By: /s/ Jessica Wang  
Name: Jessica Wang  
Title: Vice President

**Energy Storage Holdings, LLC**

By: /s/ Jessica Wang  
Name: Jessica Wang  
Title: Vice President

**(Signatures continue next page)**

**Meyersdale Storage, LLC**

By: GlidePath Storage Operations LLC,

By: GlidePath Power Operations LLC,

By: GlidePath Power Solutions  
LLC,

By: /s/ Christopher McKissack  
Name: Christopher McKissack  
Title: Chief Operating Officer

**GlidePath Power Solutions LLC**

By: /s/ Christopher McKissack  
Name: Christopher McKissack  
Title: Chief Operating Officer

**GlidePath Power LLC**

By: /s/ Daniel J. Foley  
Name: Daniel J. Foley  
Title: Manager

**(Signatures continue next page)**

**Battery Utility of Ohio, LLC**

By: RES Energy Storage Holdings, LLC,  
its Manager

By: RES America Developments Inc.,  
its Manager

By: /s/ Andrew Oliver  
Name: Andrew Oliver  
Title: Chief Technology Officer

**Renewable Energy Systems Americas,**  
**Inc.**

By: /s/ Andrew Oliver  
Name: Andrew Oliver  
Title: Chief Technology Officer

**Joliet Battery Storage LLC**

By: Northern Illinois Battery Storage  
Holding LLC, its Manager

By: RES Battery Storage Holding LLC,  
its Manager

By: RES America Developments  
Inc., its Manager

By: /s/ Andrew Oliver  
Name: Andrew Oliver  
Title: Chief Technology Officer

**West Chicago Battery Storage LLC**

By: Northern Illinois Battery Storage  
Holding LLC, its Manager

By: RES Battery Storage Holding LLC,  
its Manager

By: RES America Developments  
Inc., its Manager

By: /s/ Andrew Oliver  
Name: Andrew Oliver  
Title: Chief Technology Officer

**(Signatures continue next page)**

**Hazle Spindle, LLC**

By: /s/ Johannes Rittershausen  
Johannes Rittershausen  
Authorized Signatory

**Convergent Energy and Power LP**

By: /s/ Johannes Rittershausen  
Johannes Rittershausen  
Authorized Signatory

**Convergent Energy and Power GP LLC**

By: /s/ Johannes Rittershausen  
Johannes Rittershausen  
Authorized Signatory

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**ATTACHMENT A**

**OPT-IN FORM FOR VOLUNTARY PARTICIPATION BY UNLISTED  
AFFECTED BATTERIES**

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

Energy Storage Association ) Docket No. EL17-64-000 Complainant.  
\_\_\_\_\_)  
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 \_\_\_\_\_)

**NOTICE OF [ULTIMATE UPSTREAM AFFECTED BATTERY OWNER] TO OPT INTO SETTLEMENT**

On \_\_\_\_\_ [insert date], 2019, the Federal Energy Regulatory Commission (“Commission”) approved a Settlement Agreement and Offer of Settlement (“Settlement”) by and among PJM Interconnection, L.L.C. (“PJM”) and the Affected Battery Owners.<sup>15</sup> Section 5.2.1 of the Settlement provides that an Affected Battery Owner that is not an Identified Affected Battery Owner under the Settlement but that would like to have an Affected Battery it owns or controls participate in the PJM Regulation market under the Settlement must identify its battery to PJM as an Affected Battery, demonstrate its eligibility as an Affected Battery to the satisfaction of PJM, and agree to abide by all terms of the Settlement before it may participate in the Regulation market under this Settlement. \_\_\_\_\_ [Ultimate Upstream Affected Battery Owner] hereby notifies the Commission that its subsidiary,

<sup>15</sup> Capitalized terms are defined in the Settlement.

\_\_\_\_\_ [Immediate Affected Battery], owns and operates the Affected Battery identified in Exhibit A to this Notice. \_\_\_\_\_ [Ultimate Upstream Affected Battery Owner] has fully complied with the requirements of Section 5.2.1 of the Settlement to PJM's satisfaction and hereby elects to opt-in to the Settlement and agrees to be bound by all terms and conditions of the Settlement for the remainder of the Settlement term. This opt-in notice will take effect on \_\_\_\_\_, 20\_\_ [insert first day of the first month following its filing with the Commission].

Respectfully submitted,

\_\_\_\_\_  
Signature: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_  
Representing: \_\_\_\_\_

Endorsed by: \_\_\_\_\_ Signature: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_  
Representing: PJM Interconnection, L.L.C. \_\_\_\_\_

**EXHIBIT A – AFFECTED BATTERY IDENTIFYING INFORMATION**

<b><u>Immediate Affected Battery Owner</u></b>	<b><u>Ultimate Upstream Affected Battery Owner</u></b>	<b><u>Location of Identified Affected Battery</u></b>	<b><u>Original Capacity of Identified Affected Battery</u></b>



# Attachment B

PJM Open Access Transmission Tariff

(Clean Format)

## TABLE OF CONTENTS

### **I. COMMON SERVICE PROVISIONS**

- 1**     **Definitions**
  - OATT Definitions – A – B**
  - OATT Definitions – C – D**
  - OATT Definitions – E – F**
  - OATT Definitions – G – H**
  - OATT Definitions – I – J – K**
  - OATT Definitions – L – M – N**
  - OATT Definitions – O – P – Q**
  - OATT Definitions – R – S**
  - OATT Definitions - T – U – V**
  - OATT Definitions – W – X – Y - Z**
- 2**     **Initial Allocation and Renewal Procedures**
- 3**     **Ancillary Services**
- 3B**    **PJM Administrative Service**
- 3C**    **Mid-Atlantic Area Council Charge**
- 3D**    **Transitional Market Expansion Charge**
- 3E**    **Transmission Enhancement Charges**
- 3F**    **Transmission Losses**
- 4**     **Open Access Same-Time Information System (OASIS)**
- 5**     **Local Furnishing Bonds**
- 6**     **Reciprocity**
- 6A**    **Counterparty**
- 7**     **Billing and Payment**
- 8**     **Accounting for a Transmission Owner’s Use of the Tariff**
- 9**     **Regulatory Filings**
- 10**    **Force Majeure and Indemnification**
- 11**    **Creditworthiness**
- 12**    **Dispute Resolution Procedures**
- 12A**   **PJM Compliance Review**

### **II. POINT-TO-POINT TRANSMISSION SERVICE**

#### **Preamble**

- 13**    **Nature of Firm Point-To-Point Transmission Service**
- 14**    **Nature of Non-Firm Point-To-Point Transmission Service**
- 15**    **Service Availability**
- 16**    **Transmission Customer Responsibilities**
- 17**    **Procedures for Arranging Firm Point-To-Point Transmission Service**
- 18**    **Procedures for Arranging Non-Firm Point-To-Point Transmission Service**
- 19**    **Firm Transmission Feasibility Study Procedures For Long-Term Firm Point-To-Point Transmission Service Requests**
- 20**    **[Reserved]**

- 21 [Reserved]
- 22 Changes in Service Specifications
- 23 Sale or Assignment of Transmission Service
- 24 Metering and Power Factor Correction at Receipt and Delivery Points(s)
- 25 Compensation for Transmission Service
- 26 Stranded Cost Recovery
- 27 Compensation for New Facilities and Redispatch Costs
- 27A Distribution of Revenues from Non-Firm Point-to-Point Transmission Service

### **III. NETWORK INTEGRATION TRANSMISSION SERVICE**

#### **Preamble**

- 28 Nature of Network Integration Transmission Service
- 29 Initiating Service
- 30 Network Resources
- 31 Designation of Network Load
- 32 Firm Transmission Feasibility Study Procedures For Network Integration Transmission Service Requests
- 33 Load Shedding and Curtailments
- 34 Rates and Charges
- 35 Operating Arrangements

### **IV. INTERCONNECTIONS WITH THE TRANSMISSION SYSTEM**

#### **Preamble**

#### **Subpart A –INTERCONNECTION PROCEDURES**

- 36 Interconnection Requests
- 37 Additional Procedures
- 38 Service on Merchant Transmission Facilities
- 39 Local Furnishing Bonds
- 40 Non-Binding Dispute Resolution Procedures
- 41 Interconnection Study Statistics

42-108 [Reserved]

Subpart B – [Reserved]

Subpart C – [Reserved]

Subpart D – [Reserved]

Subpart E – [Reserved]

Subpart F – [Reserved]

#### **Subpart G – SMALL GENERATION INTERCONNECTION PROCEDURE**

#### **Preamble**

- 109 Pre-application Process
- 110 Permanent Capacity Resource Additions Of 20 MW Or Less
- 111 Permanent Energy Resource Additions Of 20 MW Or Less but Greater than 2 MW (Synchronous) or Greater than 5 MW(Inverter-based)
- 112 Temporary Energy Resource Additions Of 20 MW Or Less But Greater Than 2 MW

- 112A Screens Process for Permanent or Temporary Energy Resources of 2 MW or less (Synchronous) or 5 MW (Inverter-based)
- 112B Certified Inverter-Based Small Generating Facilities No Larger than 10 kW
- 112C [Reserved]

**V. GENERATION DEACTIVATION**

**Preamble**

- 113 Notices
- 114 Deactivation Avoidable Cost Credit
- 115 Deactivation Avoidable Cost Rate
- 116 Filing and Updating of Deactivation Avoidable Cost Rate
- 117 Excess Project Investment Required
- 118 Refund of Project Investment Reimbursement
- 118A Recovery of Project Investment
- 119 Cost of Service Recovery Rate
- 120 Cost Allocation
- 121 Performance Standards
- 122 Black Start Units
- 123-199 [Reserved]

**VI. ADMINISTRATION AND STUDY OF NEW SERVICE REQUESTS; RIGHTS ASSOCIATED WITH CUSTOMER-FUNDED UPGRADES**

**Preamble**

- 200 Applicability
- 201 Queue Position
- Subpart A – SYSTEM IMPACT STUDIES AND FACILITIES STUDIES FOR NEW SERVICE REQUESTS
- 202 Coordination with Affected Systems
- 203 System Impact Study Agreement
- 204 Tender of System Impact Study Agreement
- 205 System Impact Study Procedures
- 206 Facilities Study Agreement
- 207 Facilities Study Procedures
- 208 Expedited Procedures for Part II Requests
- 209 Optional Interconnection Studies
- 210 Responsibilities of the Transmission Provider and Transmission Owners
- Subpart B– AGREEMENTS AND COST REPONSIBILITY FOR CUSTOMER- FUNDED UPGRADES
- 211 Interim Interconnection Service Agreement
- 212 Interconnection Service Agreement
- 213 Upgrade Construction Service Agreement
- 214 Filing/Reporting of Agreement
- 215 Transmission Service Agreements
- 216 Interconnection Requests Designated as Market Solutions
- 217 Cost Responsibility for Necessary Facilities and Upgrades

- 218 New Service Requests Involving Affected Systems
- 219 Inter-queue Allocation of Costs of Transmission Upgrades
- 220 Advance Construction of Certain Network Upgrades
- 221 Transmission Owner Construction Obligation for Necessary Facilities  
And Upgrades
- 222 Confidentiality
- 223 Confidential Information
- 224 – 229 [Reserved]
- Subpart C – RIGHTS RELATED TO CUSTOMER-FUNDED UPGRADES
- 230 Capacity Interconnection Rights
- 231 Incremental Auction Revenue Rights
- 232 Transmission Injection Rights and Transmission Withdrawal  
Rights
- 233 Incremental Available Transfer Capability Revenue Rights
- 234 Incremental Capacity Transfer Rights
- 235 Incremental Deliverability Rights
- 236 Interconnection Rights for Certain Transmission Interconnections
- 237 IDR Transfer Agreements

**SCHEDULE 1**

**Scheduling, System Control and Dispatch Service**

**SCHEDULE 1A**

**Transmission Owner Scheduling, System Control and Dispatch Service**

**SCHEDULE 2**

**Reactive Supply and Voltage Control from Generation Sources Service**

**SCHEDULE 3**

**Regulation and Frequency Response Service**

**SCHEDULE 4**

**Energy Imbalance Service**

**SCHEDULE 5**

**Operating Reserve – Synchronized Reserve Service**

**SCHEDULE 6**

**Operating Reserve - Supplemental Reserve Service**

**SCHEDULE 6A**

**Black Start Service**

**SCHEDULE 7**

**Long-Term Firm and Short-Term Firm Point-To-Point Transmission Service**

**SCHEDULE 8**

**Non-Firm Point-To-Point Transmission Service**

**SCHEDULE 9**

**PJM Interconnection L.L.C. Administrative Services**

**SCHEDULE 9-1**

**Control Area Administration Service**

**SCHEDULE 9-2**

**Financial Transmission Rights Administration Service**

**SCHEDULE 9-3**

**Market Support Service**  
**SCHEDULE 9-4**  
**Regulation and Frequency Response Administration Service**  
**SCHEDULE 9-5**  
**Capacity Resource and Obligation Management Service**  
**SCHEDULE 9-6**  
**Management Service Cost**  
**SCHEDULE 9-FERC**  
**FERC Annual Charge Recovery**  
**SCHEDULE 9-OPSI**  
**OPSI Funding**  
**SCHEDULE 9-CAPS**  
**CAPS Funding**  
**SCHEDULE 9-FINCON**  
**Finance Committee Retained Outside Consultant**  
**SCHEDULE 9-MMU**  
**MMU Funding**  
**SCHEDULE 9 – PJM SETTLEMENT**  
**SCHEDULE 10 - [Reserved]**  
**SCHEDULE 10-NERC**  
**North American Electric Reliability Corporation Charge**  
**SCHEDULE 10-RFC**  
**Reliability First Corporation Charge**  
**SCHEDULE 11**  
**[Reserved for Future Use]**  
**SCHEDULE 11A**  
**Additional Secure Control Center Data Communication Links and Formula Rate**  
**SCHEDULE 12**  
**Transmission Enhancement Charges**  
**SCHEDULE 12 APPENDIX**  
**SCHEDULE 12-A**  
**SCHEDULE 13**  
**Expansion Cost Recovery Change (ECRC)**  
**SCHEDULE 14**  
**Transmission Service on the Neptune Line**  
**SCHEDULE 14 - Exhibit A**  
**SCHEDULE 15**  
**Non-Retail Behind The Meter Generation Maximum Generation Emergency**  
**Obligations**  
**SCHEDULE 16**  
**Transmission Service on the Linden VFT Facility**  
**SCHEDULE 16 Exhibit A**  
**SCHEDULE 16 – A**  
**Transmission Service for Imports on the Linden VFT Facility**  
**SCHEDULE 17**  
**Transmission Service on the Hudson Line**

**SCHEDULE 17 - Exhibit A**

**ATTACHMENT A**

**Form of Service Agreement For Firm Point-To-Point Transmission Service**

**ATTACHMENT A-1**

**Form of Service Agreement For The Resale, Reassignment or Transfer of Point-to-Point Transmission Service**

**ATTACHMENT B**

**Form of Service Agreement For Non-Firm Point-To-Point Transmission Service**

**ATTACHMENT C**

**Methodology To Assess Available Transfer Capability**

**ATTACHMENT C-1**

**Conversion of Service in the Dominion and Duquesne Zones**

**ATTACHMENT C-2**

**Conversion of Service in the Duke Energy Ohio, Inc. and Duke Energy Kentucky, Inc, ("DEOK") Zone**

**ATTACHMENT C-4**

**Conversion of Service in the OVEC Zone**

**ATTACHMENT D**

**Methodology for Completing a System Impact Study**

**ATTACHMENT E**

**Index of Point-To-Point Transmission Service Customers**

**ATTACHMENT F**

**Service Agreement For Network Integration Transmission Service**

**ATTACHMENT F-1**

**Form of Umbrella Service Agreement for Network Integration Transmission Service Under State Required Retail Access Programs**

**ATTACHMENT G**

**Network Operating Agreement**

**ATTACHMENT H-1**

**Annual Transmission Rates -- Atlantic City Electric Company for Network Integration Transmission Service**

**ATTACHMENT H-1A**

**Atlantic City Electric Company Formula Rate Appendix A**

**ATTACHMENT H-1B**

**Atlantic City Electric Company Formula Rate Implementation Protocols**

**ATTACHMENT H-2**

**Annual Transmission Rates -- Baltimore Gas and Electric Company for Network Integration Transmission Service**

**ATTACHMENT H-2A**

**Baltimore Gas and Electric Company Formula Rate**

**ATTACHMENT H-2B**

**Baltimore Gas and Electric Company Formula Rate Implementation Protocols**

**ATTACHMENT H-3**

**Annual Transmission Rates -- Delmarva Power & Light Company for Network Integration Transmission Service**

**ATTACHMENT H-3A**

**Delmarva Power & Light Company Load Power Factor Charge Applicable to Service the Interconnection Points**  
**ATTACHMENT H-3B**  
**Delmarva Power & Light Company Load Power Factor Charge Applicable to Service the Interconnection Points**  
**ATTACHMENT H-3C**  
**Delmarva Power & Light Company Under-Frequency Load Shedding Charge**  
**ATTACHMENT H-3D**  
**Delmarva Power & Light Company Formula Rate – Appendix A**  
**ATTACHMENT H-3E**  
**Delmarva Power & Light Company Formula Rate Implementation Protocols**  
**ATTACHMENT H-3F**  
**Old Dominion Electric Cooperative Formula Rate – Appendix A**  
**ATTACHMENT H-3G**  
**Old Dominion Electric Cooperative Formula Rate Implementation Protocols**  
**ATTACHMENT H-4**  
**Annual Transmission Rates -- Jersey Central Power & Light Company for Network Integration Transmission Service**  
**ATTACHMENT H-4A**  
**Other Supporting Facilities - Jersey Central Power & Light Company**  
**ATTACHMENT H-4B**  
**Jersey Central Power & Light Company – [Reserved]**  
**ATTACHMENT H-5**  
**Annual Transmission Rates -- Metropolitan Edison Company for Network Integration Transmission Service**  
**ATTACHMENT H-5A**  
**Other Supporting Facilities -- Metropolitan Edison Company**  
**ATTACHMENT H-6**  
**Annual Transmission Rates -- Pennsylvania Electric Company for Network Integration Transmission Service**  
**ATTACHMENT H-6A**  
**Other Supporting Facilities Charges -- Pennsylvania Electric Company**  
**ATTACHMENT H-7**  
**Annual Transmission Rates -- PECO Energy Company for Network Integration Transmission Service**  
**ATTACHMENT H-7A**  
**PECO Energy Company Formula Rate Template**  
**ATTACHMENT H-7B**  
**PECO Energy Company Monthly Deferred Tax Adjustment Charge**  
**ATTACHMENT H-7C**  
**PECO Energy Company Formula Rate Implementation Protocols**  
**ATTACHMENT H-8**  
**Annual Transmission Rates – PPL Group for Network Integration Transmission Service**  
**ATTACHMENT H-8A**  
**Other Supporting Facilities Charges -- PPL Electric Utilities Corporation**



**ATTACHMENT 8C**

**UGI Utilities, Inc. Formula Rate – Appendix A**

**ATTACHMENT 8D**

**UGI Utilities, Inc. Formula Rate Implementation Protocols**

**ATTACHMENT 8E**

**UGI Utilities, Inc. Formula Rate – Appendix A**

**ATTACHMENT H-8G**

**Annual Transmission Rates – PPL Electric Utilities Corp.**

**ATTACHMENT H-8H**

**Formula Rate Implementation Protocols – PPL Electric Utilities Corp.**

**ATTACHMENT H-9**

**Annual Transmission Rates -- Potomac Electric Power Company for Network Integration Transmission Service**

**ATTACHMENT H-9A**

**Potomac Electric Power Company Formula Rate – Appendix A**

**ATTACHMENT H-9B**

**Potomac Electric Power Company Formula Rate Implementation Protocols**

**ATTACHMENT H-9C**

**Annual Transmission Rate – Southern Maryland Electric Cooperative, Inc. for Network Integration Transmission Service**

**ATTACHMENT H-10**

**Annual Transmission Rates -- Public Service Electric and Gas Company for Network Integration Transmission Service**

**ATTACHMENT H-10A**

**Formula Rate -- Public Service Electric and Gas Company**

**ATTACHMENT H-10B**

**Formula Rate Implementation Protocols – Public Service Electric and Gas Company**

**ATTACHMENT H-11**

**Annual Transmission Rates -- Allegheny Power for Network Integration Transmission Service**

**ATTACHMENT 11A**

**Other Supporting Facilities Charges - Allegheny Power**

**ATTACHMENT H-12**

**Annual Transmission Rates -- Rockland Electric Company for Network Integration Transmission Service**

**ATTACHMENT H-13**

**Annual Transmission Rates – Commonwealth Edison Company for Network Integration Transmission Service**

**ATTACHMENT H-13A**

**Commonwealth Edison Company Formula Rate – Appendix A**

**ATTACHMENT H-13B**

**Commonwealth Edison Company Formula Rate Implementation Protocols**

**ATTACHMENT H-14**

**Annual Transmission Rates – AEP East Operating Companies for Network Integration Transmission Service**

**ATTACHMENT H-14A**

**AEP East Operating Companies Formula Rate Implementation Protocols**  
**ATTACHMENT H-14B Part 1**  
**ATTACHMENT H-14B Part 2**  
**ATTACHMENT H-15**  
**Annual Transmission Rates -- The Dayton Power and Light Company**  
**for Network Integration Transmission Service**  
***ATTACHMENT H-15A – Formula Rate - The Dayton Power and Light Company***  
***ATTACHMENT H-15B – Formula Rate Implementation Protocols - The Dayton Power***  
***and Light Company***  
**ATTACHMENT H-16**  
**Annual Transmission Rates -- Virginia Electric and Power Company**  
**for Network Integration Transmission Service**  
**ATTACHMENT H-16A**  
**Formula Rate - Virginia Electric and Power Company**  
**ATTACHMENT H-16B**  
**Formula Rate Implementation Protocols - Virginia Electric and Power Company**  
**ATTACHMENT H-16C**  
**Virginia Retail Administrative Fee Credit for Virginia Retail Load Serving**  
**Entities in the Dominion Zone**  
**ATTACHMENT H-16D – [Reserved]**  
**ATTACHMENT H-16E – [Reserved]**  
**ATTACHMENT H-16AA**  
**Virginia Electric and Power Company**  
**ATTACHMENT H-17**  
**Annual Transmission Rates -- Duquesne Light Company for Network Integration**  
**Transmission Service**  
**ATTACHMENT H-17A**  
**Duquesne Light Company Formula Rate – Appendix A**  
**ATTACHMENT H-17B**  
**Duquesne Light Company Formula Rate Implementation Protocols**  
**ATTACHMENT H-17C**  
**Duquesne Light Company Monthly Deferred Tax Adjustment Charge**  
**ATTACHMENT H-18**  
**Annual Transmission Rates – Trans-Allegheny Interstate Line Company**  
**ATTACHMENT H-18A**  
**Trans-Allegheny Interstate Line Company Formula Rate – Appendix A**  
**ATTACHMENT H-18B**  
**Trans-Allegheny Interstate Line Company Formula Rate Implementation Protocols**  
**ATTACHMENT H-19**  
**Annual Transmission Rates – Potomac-Appalachian Transmission Highline, L.L.C.**  
**ATTACHMENT H-19A**  
**Potomac-Appalachian Transmission Highline, L.L.C. Summary**  
**ATTACHMENT H-19B**  
**Potomac-Appalachian Transmission Highline, L.L.C. Formula Rate Implementation**  
**Protocols**  
**ATTACHMENT H-20**

**Annual Transmission Rates – AEP Transmission Companies (AEPTCo) in the AEP Zone**  
**ATTACHMENT H-20A**  
**AEP Transmission Companies (AEPTCo) in the AEP Zone - Formula Rate Implementation Protocols**  
**ATTACHMENT H-20A APPENDIX A**  
**Transmission Formula Rate Settlement for AEPTCo**  
**ATTACHMENT H-20B - Part I**  
**AEP Transmission Companies (AEPTCo) in the AEP Zone – Blank Formula Rate Template**  
**ATTACHMENT H-20B - Part II**  
**AEP Transmission Companies (AEPTCo) in the AEP Zone – Blank Formula Rate Template**  
**ATTACHMENT H-21**  
**Annual Transmission Rates – American Transmission Systems, Inc. for Network Integration Transmission Service**  
**ATTACHMENT H-21A - ATSI**  
**ATTACHMENT H-21A Appendix A - ATSI**  
**ATTACHMENT H-21A Appendix B - ATSI**  
**ATTACHMENT H-21A Appendix C - ATSI**  
**ATTACHMENT H-21A Appendix C - ATSI [Reserved]**  
**ATTACHMENT H-21A Appendix D – ATSI**  
**ATTACHMENT H-21A Appendix E - ATSI**  
**ATTACHMENT H-21A Appendix F – ATSI [Reserved]**  
**ATTACHMENT H-21A Appendix G - ATSI**  
**ATTACHMENT H-21A Appendix G – ATSI (Credit Adj)**  
**ATTACHMENT H-21B ATSI Protocol**  
**ATTACHMENT H-22**  
**Annual Transmission Rates – DEOK for Network Integration Transmission Service and Point-to-Point Transmission Service**  
**ATTACHMENT H-22A**  
**Duke Energy Ohio and Duke Energy Kentucky (DEOK) Formula Rate Template**  
**ATTACHMENT H-22B**  
**DEOK Formula Rate Implementation Protocols**  
**ATTACHMENT H-22C**  
**Additional provisions re DEOK and Indiana**  
**ATTACHMENT H-23**  
**EP Rock springs annual transmission Rate**  
**ATTACHMENT H-24**  
**EKPC Annual Transmission Rates**  
**ATTACHMENT H-24A APPENDIX A**  
**EKPC Schedule 1A**  
**ATTACHMENT H-24A APPENDIX B**  
**EKPC RTEP**  
**ATTACHMENT H-24A APPENDIX C**  
**EKPC True-up**

**ATTACHMENT H-24A APPENDIX D**  
**EKPC Depreciation Rates**

**ATTACHMENT H-24-B**  
**EKPC Implementation Protocols**

**ATTACHMENT H-25**  
**Annual Transmission Rates – NEET PJM Entities for Network Integration**  
**Transmission Service and Point-to-Point Transmission Service in the ComEd Zone**

**ATTACHMENT H-25A**  
**NextEra Energy Transmission PJM Entities - Formula Rate Implementation**  
**Protocols**

**ATTACHMENT H-25B**  
**NextEra Energy Transmission MidAtlantic, LLC - Formula Rate**

**ATTACHMENT H-26**  
**Transource West Virginia, LLC Formula Rate Template**

**ATTACHMENT H-26A**  
**Transource West Virginia, LLC Formula Rate Implementation Protocols**

**ATTACHMENT H-27**  
**Annual Transmission Rates – Silver Run Electric, LLC**

**ATTACHMENT H-27A**  
**Silver Run Electric, LLC Formula Rate Template**

**ATTACHMENT H-27B**  
**Silver Run Electric, LLC Formula Rate Implementation Protocols**

**ATTACHMENT H-28**  
**Annual Transmission Rates – Mid-Atlantic Interstate Transmission, LLC for**  
**Network Integration Transmission Service**

**ATTACHMENT H-28A**  
**Mid-Atlantic Interstate Transmission, LLC Formula Rate Template**

**ATTACHMENT H-28B**  
**Mid-Atlantic Interstate Transmission, LLC Formula Rate Implementation Protocols**

**ATTACHMENT H-29**  
**Annual Transmission Rates – Transource Pennsylvania, LLC**

**ATTACHMENT H-29A**  
**Transource Pennsylvania, LLC Formula Rate Template**

**ATTACHMENT H-29B**  
**Transource Pennsylvania, LLC Formula Rate Implementation Protocols**

**ATTACHMENT H-30**  
**Annual Transmission Rates – Transource Maryland, LLC**

**ATTACHMENT H-30A**  
**Transource Maryland, LLC Formula Rate Template**

**ATTACHMENT H-30B**  
**Transource Maryland, LLC Formula Rate Implementation Protocols**

**ATTACHMENT H-31**  
**Annual Transmission Revenue Requirement – Ohio Valley Electric Corporation for**  
**Network Integration Transmission Service**

**ATTACHMENT H-32**  
**Annual Transmission Revenue Requirements and Rates - AMP Transmission, LLC**

**ATTACHMENT H-32A**

**AMP Transmission, LLC - Formula Rate Template**

**ATTACHMENT H-32B**

**AMP Transmission, LLC - Formula Rate Implementation Protocols**

**ATTACHMENT H-32C**

**Annual Transmission Revenue Requirement and Rates - AMP Transmission, LLC  
for Network Integration Transmission Service**

**ATTACHMENT H-A**

**Annual Transmission Rates -- Non-Zone Network Load for Network Integration  
Transmission Service**

**ATTACHMENT I**

**Index of Network Integration Transmission Service Customers**

**ATTACHMENT J**

**PJM Transmission Zones**

**ATTACHMENT K**

**Transmission Congestion Charges and Credits**

**Preface**

**ATTACHMENT K -- APPENDIX**

**Preface**

**1. MARKET OPERATIONS**

- 1.1 Introduction
- 1.2 Cost-Based Offers
- 1.2A Transmission Losses
- 1.3 [Reserved for Future Use]
- 1.4 Market Buyers
- 1.5 Market Sellers
- 1.5A Economic Load Response Participant
- 1.6 Office of the Interconnection
- 1.6A PJM Settlement
- 1.7 General
- 1.8 Selection, Scheduling and Dispatch Procedure Adjustment Process
- 1.9 Prescheduling
- 1.10 Scheduling
- 1.11 Dispatch
- 1.12 Dynamic Transfers

**2. CALCULATION OF LOCATIONAL MARGINAL PRICES**

- 2.1 Introduction
- 2.2 General
- 2.3 Determination of System Conditions Using the State Estimator
- 2.4 Determination of Energy Offers Used in Calculating
- 2.5 Calculation of Real-time Prices
- 2.6 Calculation of Day-ahead Prices
- 2.6A Interface Prices
- 2.7 Performance Evaluation

**3. ACCOUNTING AND BILLING**

- 3.1 Introduction

- 3.2 Market Buyers
- 3.3 Market Sellers
  - 3.3A Economic Load Response Participants
- 3.4 Transmission Customers
- 3.5 Other Control Areas
- 3.6 Metering Reconciliation
- 3.7 Inadvertent Interchange
- 3.8 Market-to-Market Coordination
- 4. [Reserved For Future Use]**
- 5. CALCULATION OF CHARGES AND CREDITS FOR TRANSMISSION CONGESTION AND LOSSES**
  - 5.1 Transmission Congestion Charge Calculation
  - 5.2 Transmission Congestion Credit Calculation
  - 5.3 Unscheduled Transmission Service (Loop Flow)
  - 5.4 Transmission Loss Charge Calculation
  - 5.5 Distribution of Total Transmission Loss Charges
  - 5.6 Transmission Constraint Penalty Factors
- 6. “MUST-RUN” FOR RELIABILITY GENERATION**
  - 6.1 Introduction
  - 6.2 Identification of Facility Outages
  - 6.3 Dispatch for Local Reliability
  - 6.4 Offer Price Caps
  - 6.5 [Reserved]
  - 6.6 Minimum Generator Operating Parameters – Parameter-Limited Schedules
- 6A. [Reserved]**
  - 6A.1 [Reserved]
  - 6A.2 [Reserved]
  - 6A.3 [Reserved]
- 7. FINANCIAL TRANSMISSION RIGHTS AUCTIONS**
  - 7.1 Auctions of Financial Transmission Rights
    - 7.1A Long-Term Financial Transmission Rights Auctions
  - 7.2 Financial Transmission Rights Characteristics
  - 7.3 Auction Procedures
  - 7.4 Allocation of Auction Revenues
  - 7.5 Simultaneous Feasibility
  - 7.6 New Stage 1 Resources
  - 7.7 Alternate Stage 1 Resources
  - 7.8 Elective Upgrade Auction Revenue Rights
  - 7.9 Residual Auction Revenue Rights
  - 7.10 Financial Settlement
  - 7.11 PJMSettlement as Counterparty
- 8. EMERGENCY AND PRE-EMERGENCY LOAD RESPONSE PROGRAM**
  - 8.1 Emergency Load Response and Pre-Emergency Load Response Program Options
  - 8.2 Participant Qualifications
  - 8.3 Metering Requirements
  - 8.4 Registration

- 8.5 Pre-Emergency Operations
- 8.6 Emergency Operations
- 8.7 Verification
- 8.8 Market Settlements
- 8.9 Reporting and Compliance
- 8.10 Non-Hourly Metered Customer Pilot
- 8.11 Emergency Load Response and Pre-Emergency Load Response Participant Aggregation

**ATTACHMENT L**

**List of Transmission Owners**

**ATTACHMENT M**

**PJM Market Monitoring Plan**

**ATTACHMENT M – APPENDIX**

**PJM Market Monitor Plan Attachment M Appendix**

- I Confidentiality of Data and Information
- II Development of Inputs for Prospective Mitigation
- III Black Start Service
- IV Deactivation Rates
- V Opportunity Cost Calculation
- VI FTR Forfeiture Rule
- VII Forced Outage Rule
- VIII Data Collection and Verification

**ATTACHMENT M-1 (FirstEnergy)**

**Energy Procedure Manual for Determining Supplier Total Hourly Energy Obligation**

**ATTACHMENT M-2 (First Energy)**

**Energy Procedure Manual for Determining Supplier Peak Load Share**

**Procedures for Load Determination**

**ATTACHMENT M-2 (ComEd)**

**Determination of Capacity Peak Load Contributions and Network Service Peak Load Contributions**

**ATTACHMENT M-2 (PSE&G)**

**Procedures for Determination of Peak Load Contributions and Hourly Load Obligations for Retail Customers**

**ATTACHMENT M-2 (Atlantic City Electric Company)**

**Procedures for Determination of Peak Load Contributions and Hourly Load Obligations for Retail Customers**

**ATTACHMENT M-2 (Delmarva Power & Light Company)**

**Procedures for Determination of Peak Load Contributions and Hourly Load Obligations for Retail Customers**

**ATTACHMENT M-2 (Delmarva Power & Light Company)**

**Procedures for Determination of Peak Load Contributions and Hourly Load Obligations for Retail Customers**

**ATTACHMENT M-2 (Duke Energy Ohio, Inc.)**

**Procedures for Determination of Peak Load Contributions, Network Service Peak Load and Hourly Load Obligations for Retail Customers**

**ATTACHMENT M-3**

**Additional Procedures for Planning of Supplemental Projects**

**ATTACHMENT N**

**Form of Generation Interconnection Feasibility Study Agreement**

**ATTACHMENT N-1**

**Form of System Impact Study Agreement**

**ATTACHMENT N-2**

**Form of Facilities Study Agreement**

**ATTACHMENT N-3**

**Form of Optional Interconnection Study Agreement**

**ATTACHMENT O**

**Form of Interconnection Service Agreement**

- 1.0 Parties
- 2.0 Authority
- 3.0 Customer Facility Specifications
- 4.0 Effective Date
- 5.0 Security
- 6.0 Project Specific Milestones
- 7.0 Provision of Interconnection Service
- 8.0 Assumption of Tariff Obligations
- 9.0 Facilities Study
- 10.0 Construction of Transmission Owner Interconnection Facilities
- 11.0 Interconnection Specifications
- 12.0 Power Factor Requirement
- 12.0A RTU
- 13.0 Charges
- 14.0 Third Party Benefits
- 15.0 Waiver
- 16.0 Amendment
- 17.0 Construction With Other Parts Of The Tariff
- 18.0 Notices
- 19.0 Incorporation Of Other Documents
- 20.0 Addendum of Non-Standard Terms and Conditions for Interconnection Service
- 21.0 Addendum of Interconnection Customer's Agreement  
to Conform with IRS Safe Harbor Provisions for Non-Taxable Status
- 22.0 Addendum of Interconnection Requirements for a Wind Generation Facility
- 23.0 Infrastructure Security of Electric System Equipment and Operations and Control  
Hardware and Software is Essential to Ensure Day-to-Day Reliability and  
Operational Security

**Specifications for Interconnection Service Agreement**

- 1.0 Description of [generating unit(s)] [Merchant Transmission Facilities] (the  
Customer Facility) to be Interconnected with the Transmission System in the PJM  
Region
- 2.0 Rights
- 3.0 Construction Responsibility and Ownership of Interconnection Facilities
- 4.0 Subject to Modification Pursuant to the Negotiated Contract Option
- 4.1 Attachment Facilities Charge



- 4.2 Network Upgrades Charge
- 4.3 Local Upgrades Charge
- 4.4 Other Charges
- 4.5 Cost breakdown
- 4.6 Security Amount Breakdown

**ATTACHMENT O APPENDIX 1: Definitions**

**ATTACHMENT O APPENDIX 2: Standard Terms and Conditions for Interconnections**

- 1 Commencement, Term of and Conditions Precedent to Interconnection Service**
  - 1.1 Commencement Date
  - 1.2 Conditions Precedent
  - 1.3 Term
  - 1.4 Initial Operation
  - 1.4A Other Interconnection Options
  - 1.5 Survival
- 2 Interconnection Service**
  - 2.1 Scope of Service
  - 2.2 Non-Standard Terms
  - 2.3 No Transmission Services
  - 2.4 Use of Distribution Facilities
  - 2.5 Election by Behind The Meter Generation
- 3 Modification Of Facilities**
  - 3.1 General
  - 3.2 Interconnection Request
  - 3.3 Standards
  - 3.4 Modification Costs
- 4 Operations**
  - 4.1 General
  - 4.2 [Reserved]
  - 4.3 Interconnection Customer Obligations
  - 4.4 Transmission Interconnection Customer Obligations
  - 4.5 Permits and Rights-of-Way
  - 4.6 No Ancillary Services
  - 4.7 Reactive Power
  - 4.8 Under- and Over-Frequency and Under- and Over- Voltage Conditions
  - 4.9 System Protection and Power Quality
  - 4.10 Access Rights
  - 4.11 Switching and Tagging Rules
  - 4.12 Communications and Data Protocol
  - 4.13 Nuclear Generating Facilities
- 5 Maintenance**
  - 5.1 General
  - 5.2 [Reserved]
  - 5.3 Outage Authority and Coordination
  - 5.4 Inspections and Testing
  - 5.5 Right to Observe Testing

- 5.6 Secondary Systems
- 5.7 Access Rights
- 5.8 Observation of Deficiencies
- 6 Emergency Operations**
  - 6.1 Obligations
  - 6.2 Notice
  - 6.3 Immediate Action
  - 6.4 Record-Keeping Obligations
- 7 Safety**
  - 7.1 General
  - 7.2 Environmental Releases
- 8 Metering**
  - 8.1 General
  - 8.2 Standards
  - 8.3 Testing of Metering Equipment
  - 8.4 Metering Data
  - 8.5 Communications
- 9 Force Majeure**
  - 9.1 Notice
  - 9.2 Duration of Force Majeure
  - 9.3 Obligation to Make Payments
  - 9.4 Definition of Force Majeure
- 10 Charges**
  - 10.1 Specified Charges
  - 10.2 FERC Filings
- 11 Security, Billing And Payments**
  - 11.1 Recurring Charges Pursuant to Section 10
  - 11.2 Costs for Transmission Owner Interconnection Facilities
  - 11.3 No Waiver
  - 11.4 Interest
- 12 Assignment**
  - 12.1 Assignment with Prior Consent
  - 12.2 Assignment Without Prior Consent
  - 12.3 Successors and Assigns
- 13 Insurance**
  - 13.1 Required Coverages for Generation Resources Of More Than 20 Megawatts and Merchant Transmission Facilities
  - 13.1A Required Coverages for Generation Resources Of 20 Megawatts Or Less
  - 13.2 Additional Insureds
  - 13.3 Other Required Terms
  - 13.3A No Limitation of Liability
  - 13.4 Self-Insurance
  - 13.5 Notices; Certificates of Insurance
  - 13.6 Subcontractor Insurance
  - 13.7 Reporting Incidents

- 14 Indemnity**
  - 14.1 Indemnity
  - 14.2 Indemnity Procedures
  - 14.3 Indemnified Person
  - 14.4 Amount Owing
  - 14.5 Limitation on Damages
  - 14.6 Limitation of Liability in Event of Breach
  - 14.7 Limited Liability in Emergency Conditions
- 15 Breach, Cure And Default**
  - 15.1 Breach
  - 15.2 Continued Operation
  - 15.3 Notice of Breach
  - 15.4 Cure and Default
  - 15.5 Right to Compel Performance
  - 15.6 Remedies Cumulative
- 16 Termination**
  - 16.1 Termination
  - 16.2 Disposition of Facilities Upon Termination
  - 16.3 FERC Approval
  - 16.4 Survival of Rights
- 17 Confidentiality**
  - 17.1 Term
  - 17.2 Scope
  - 17.3 Release of Confidential Information
  - 17.4 Rights
  - 17.5 No Warranties
  - 17.6 Standard of Care
  - 17.7 Order of Disclosure
  - 17.8 Termination of Interconnection Service Agreement
  - 17.9 Remedies
  - 17.10 Disclosure to FERC or its Staff
  - 17.11 No Interconnection Party Shall Disclose Confidential Information
  - 17.12 Information that is Public Domain
  - 17.13 Return or Destruction of Confidential Information
- 18 Subcontractors**
  - 18.1 Use of Subcontractors
  - 18.2 Responsibility of Principal
  - 18.3 Indemnification by Subcontractors
  - 18.4 Subcontractors Not Beneficiaries
- 19 Information Access And Audit Rights**
  - 19.1 Information Access
  - 19.2 Reporting of Non-Force Majeure Events
  - 19.3 Audit Rights
- 20 Disputes**
  - 20.1 Submission
  - 20.2 Rights Under The Federal Power Act

- 20.3 Equitable Remedies
- 21 Notices**
  - 21.1 General
  - 21.2 Emergency Notices
  - 21.3 Operational Contacts
- 22 Miscellaneous**
  - 22.1 Regulatory Filing
  - 22.2 Waiver
  - 22.3 Amendments and Rights Under the Federal Power Act
  - 22.4 Binding Effect
  - 22.5 Regulatory Requirements
- 23 Representations And Warranties**
  - 23.1 General
- 24 Tax Liability**
  - 24.1 Safe Harbor Provisions
  - 24.2 Tax Indemnity
  - 24.3 Taxes Other Than Income Taxes
  - 24.4 Income Tax Gross-Up
  - 24.5 Tax Status

**ATTACHMENT O - SCHEDULE A**

**Customer Facility Location/Site Plan**

**ATTACHMENT O - SCHEDULE B**

**Single-Line Diagram**

**ATTACHMENT O - SCHEDULE C**

**List of Metering Equipment**

**ATTACHMENT O - SCHEDULE D**

**Applicable Technical Requirements and Standards**

**ATTACHMENT O - SCHEDULE E**

**Schedule of Charges**

**ATTACHMENT O - SCHEDULE F**

**Schedule of Non-Standard Terms & Conditions**

**ATTACHMENT O - SCHEDULE G**

**Interconnection Customer's Agreement to Conform with IRS Safe Harbor Provisions for Non-Taxable Status**

**ATTACHMENT O - SCHEDULE H**

**Interconnection Requirements for a Wind Generation Facility**

**ATTACHMENT O - SCHEDULE I**

**Interconnection Specifications for an Energy Storage Resource**

**ATTACHMENT O - SCHEDULE J**

**Schedule of Terms and Conditions for Surplus Interconnection Service**

**ATTACHMENT O - SCHEDULE K**

**Requirements for Interconnection Service Below Full Electrical Generating Capability**

**ATTACHMENT O-1**

**Form of Interim Interconnection Service Agreement**

**ATTACHMENT P**

## **Form of Interconnection Construction Service Agreement**

- 1.0 Parties
- 2.0 Authority
- 3.0 Customer Facility
- 4.0 Effective Date and Term
  - 4.1 Effective Date
  - 4.2 Term
  - 4.3 Survival
- 5.0 Construction Responsibility
- 6.0 [Reserved.]
- 7.0 Scope of Work
- 8.0 Schedule of Work
- 9.0 [Reserved.]
- 10.0 Notices
- 11.0 Waiver
- 12.0 Amendment
- 13.0 Incorporation Of Other Documents
- 14.0 Addendum of Interconnection Customer's Agreement to Conform with IRS Safe Harbor Provisions for Non-Taxable Status
- 15.0 Addendum of Non-Standard Terms and Conditions for Interconnection Service
- 16.0 Addendum of Interconnection Requirements for a Wind Generation Facility
- 17.0 Infrastructure Security of Electric System Equipment and Operations and Control Hardware and Software is Essential to Ensure Day-to-Day Reliability and Operational Security

### **ATTACHMENT P - APPENDIX 1 – DEFINITIONS**

### **ATTACHMENT P - APPENDIX 2 – STANDARD CONSTRUCTION TERMS AND CONDITIONS**

#### **Preamble**

#### **1 Facilitation by Transmission Provider**

#### **2 Construction Obligations**

- 2.1 Interconnection Customer Obligations
- 2.2 Transmission Owner Interconnection Facilities and Merchant Network Upgrades
  - 2.2A Scope of Applicable Technical Requirements and Standards
- 2.3 Construction By Interconnection Customer
- 2.4 Tax Liability
- 2.5 Safety
- 2.6 Construction-Related Access Rights
- 2.7 Coordination Among Constructing Parties

#### **3 Schedule of Work**

- 3.1 Construction by Interconnection Customer
- 3.2 Construction by Interconnected Transmission Owner
  - 3.2.1 Standard Option
  - 3.2.2 Negotiated Contract Option
  - 3.2.3 Option to Build
- 3.3 Revisions to Schedule of Work

- 3.4 Suspension
  - 3.4.1 Costs
  - 3.4.2 Duration of Suspension
- 3.5 Right to Complete Transmission Owner Interconnection Facilities
- 3.6 Suspension of Work Upon Default
- 3.7 Construction Reports
- 3.8 Inspection and Testing of Completed Facilities
- 3.9 Energization of Completed Facilities
- 3.10 Interconnected Transmission Owner's Acceptance of Facilities Constructed by Interconnection Customer
- 4 Transmission Outages**
- 4.1 Outages; Coordination
- 5 Land Rights; Transfer of Title**
- 5.1 Grant of Easements and Other Land Rights
- 5.2 Construction of Facilities on Interconnection Customer Property
- 5.3 Third Parties
- 5.4 Documentation
- 5.5 Transfer of Title to Certain Facilities Constructed By Interconnection Customer
- 5.6 Liens
- 6 Warranties**
- 6.1 Interconnection Customer Warranty
- 6.2 Manufacturer Warranties
- 7 [Reserved.]**
- 8 [Reserved.]**
- 9 Security, Billing And Payments**
- 9.1 Adjustments to Security
- 9.2 Invoice
- 9.3 Final Invoice
- 9.4 Disputes
- 9.5 Interest
- 9.6 No Waiver
- 10 Assignment**
- 10.1 Assignment with Prior Consent
- 10.2 Assignment Without Prior Consent
- 10.3 Successors and Assigns
- 11 Insurance**
- 11.1 Required Coverages For Generation Resources Of More Than 20 Megawatts and Merchant Transmission Facilities
- 11.1A Required Coverages For Generation Resources of 20 Megawatts Or Less
- 11.2 Additional Insureds
- 11.3 Other Required Terms
- 11.3A No Limitation of Liability
- 11.4 Self-Insurance

- 11.5 Notices; Certificates of Insurance
- 11.6 Subcontractor Insurance
- 11.7 Reporting Incidents
- 12 Indemnity**
  - 12.1 Indemnity
  - 12.2 Indemnity Procedures
  - 12.3 Indemnified Person
  - 12.4 Amount Owing
  - 12.5 Limitation on Damages
  - 12.6 Limitation of Liability in Event of Breach
  - 12.7 Limited Liability in Emergency Conditions
- 13 Breach, Cure And Default**
  - 13.1 Breach
  - 13.2 Notice of Breach
  - 13.3 Cure and Default
    - 13.3.1 Cure of Breach
  - 13.4 Right to Compel Performance
  - 13.5 Remedies Cumulative
- 14 Termination**
  - 14.1 Termination
  - 14.2 [Reserved.]
  - 14.3 Cancellation By Interconnection Customer
  - 14.4 Survival of Rights
- 15 Force Majeure**
  - 15.1 Notice
  - 15.2 Duration of Force Majeure
  - 15.3 Obligation to Make Payments
  - 15.4 Definition of Force Majeure
- 16 Subcontractors**
  - 16.1 Use of Subcontractors
  - 16.2 Responsibility of Principal
  - 16.3 Indemnification by Subcontractors
  - 16.4 Subcontractors Not Beneficiaries
- 17 Confidentiality**
  - 17.1 Term
  - 17.2 Scope
  - 17.3 Release of Confidential Information
  - 17.4 Rights
  - 17.5 No Warranties
  - 17.6 Standard of Care
  - 17.7 Order of Disclosure
  - 17.8 Termination of Construction Service Agreement
  - 17.9 Remedies
  - 17.10 Disclosure to FERC or its Staff
  - 17.11 No Construction Party Shall Disclose Confidential Information of Another Construction Party 17.12 Information that is Public Domain

- 17.13 Return or Destruction of Confidential Information
- 18 Information Access And Audit Rights**
  - 18.1 Information Access
  - 18.2 Reporting of Non-Force Majeure Events
  - 18.3 Audit Rights
- 19 Disputes**
  - 19.1 Submission
  - 19.2 Rights Under The Federal Power Act
  - 19.3 Equitable Remedies
- 20 Notices**
  - 20.1 General
  - 20.2 Operational Contacts
- 21 Miscellaneous**
  - 21.1 Regulatory Filing
  - 21.2 Waiver
  - 21.3 Amendments and Rights under the Federal Power Act
  - 21.4 Binding Effect
  - 21.5 Regulatory Requirements
- 22 Representations and Warranties**
  - 22.1 General

**ATTACHMENT P - SCHEDULE A**

**Site Plan**

**ATTACHMENT P - SCHEDULE B**

**Single-Line Diagram of Interconnection Facilities**

**ATTACHMENT P - SCHEDULE C**

**Transmission Owner Interconnection Facilities to be Built by Interconnected  
Transmission Owner**

**ATTACHMENT P - SCHEDULE D**

**Transmission Owner Interconnection Facilities to be Built by Interconnection  
Customer Pursuant to Option to Build**

**ATTACHMENT P - SCHEDULE E**

**Merchant Network Upgrades to be Built by Interconnected Transmission Owner**

**ATTACHMENT P - SCHEDULE F**

**Merchant Network Upgrades to be Built by Interconnection Customer  
Pursuant to Option to Build**

**ATTACHMENT P - SCHEDULE G**

**Customer Interconnection Facilities**

**ATTACHMENT P - SCHEDULE H**

**Negotiated Contract Option Terms**

**ATTACHMENT P - SCHEDULE I**

**Scope of Work**

**ATTACHMENT P - SCHEDULE J**

**Schedule of Work**

**ATTACHMENT P - SCHEDULE K**

**Applicable Technical Requirements and Standards**

**ATTACHMENT P - SCHEDULE L**



**Interconnection Customer's Agreement to Confirm with IRS Safe Harbor Provisions For Non-Taxable Status**  
**ATTACHMENT P - SCHEDULE M**  
**Schedule of Non-Standard Terms and Conditions**  
**ATTACHMENT P - SCHEDULE N**  
**Interconnection Requirements for a Wind Generation Facility**  
**ATTACHMENT Q**  
**PJM Credit Policy**  
**ATTACHMENT R**  
**Lost Revenues Of PJM Transmission Owners And Distribution of Revenues Remitted By MISO, SECA Rates to Collect PJM Transmission Owner Lost Revenues Under Attachment X, And Revenues From PJM Existing Transactions**  
**ATTACHMENT S**  
**Form of Transmission Interconnection Feasibility Study Agreement**  
**ATTACHMENT T**  
**Identification of Merchant Transmission Facilities**  
**ATTACHMENT U**  
**Independent Transmission Companies**  
**ATTACHMENT V**  
**Form of ITC Agreement**  
**ATTACHMENT W**  
**COMMONWEALTH EDISON COMPANY**  
**ATTACHMENT X**  
**Seams Elimination Cost Assignment Charges**  
**NOTICE OF ADOPTION OF NERC TRANSMISSION LOADING RELIEF PROCEDURES**  
**NOTICE OF ADOPTION OF LOCAL TRANSMISSION LOADING RELIEF PROCEDURES**  
**SCHEDULE OF PARTIES ADOPTING LOCAL TRANSMISSION LOADING RELIEF PROCEDURES**  
**ATTACHMENT Y**  
**Forms of Screens Process Interconnection Request (For Generation Facilities of 2 MW or less)**  
**ATTACHMENT Z**  
**Certification Codes and Standards**  
**ATTACHMENT AA**  
**Certification of Small Generator Equipment Packages**  
**ATTACHMENT BB**  
**Form of Certified Inverter-Based Generating Facility No Larger Than 10 kW Interconnection Service Agreement**  
**ATTACHMENT CC**  
**Form of Certificate of Completion (Small Generating Inverter Facility No Larger Than 10 kW)**  
**ATTACHMENT DD**  
**Reliability Pricing Model**  
**ATTACHMENT EE**

**Form of Upgrade Request**  
**ATTACHMENT FF**

**[Reserved]**

**ATTACHMENT GG**

**Form of Upgrade Construction Service Agreement**

Article 1 – Definitions And Other Documents

- 1.0 Defined Terms
- 1.1 Incorporation of Other Documents

Article 2 – Responsibility for Direct Assignment Facilities or Customer-Funded Upgrades

- 2.0 New Service Customer Financial Responsibilities
- 2.1 Obligation to Provide Security
- 2.2 Failure to Provide Security
- 2.3 Costs
- 2.4 Transmission Owner Responsibilities

Article 3 – Rights To Transmission Service

- 3.0 No Transmission Service

Article 4 – Early Termination

- 4.0 Termination by New Service Customer

Article 5 – Rights

- 5.0 Rights
- 5.1 Amount of Rights Granted
- 5.2 Availability of Rights Granted
- 5.3 Credits

Article 6 – Miscellaneous

- 6.0 Notices
- 6.1 Waiver
- 6.2 Amendment
- 6.3 No Partnership
- 6.4 Counterparts

**ATTACHMENT GG - APPENDIX I –**

**SCOPE AND SCHEDULE OF WORK FOR DIRECT ASSIGNMENT FACILITIES OR CUSTOMER-FUNDED UPGRADES TO BE BUILT BY TRANSMISSION OWNER**

**ATTACHMENT GG - APPENDIX II - DEFINITIONS**

- 1 Definitions
  - 1.1 Affiliate
  - 1.2 Applicable Laws and Regulations
  - 1.3 Applicable Regional Reliability Council
  - 1.4 Applicable Standards
  - 1.5 Breach
  - 1.6 Breaching Party
  - 1.7 Cancellation Costs
  - 1.8 Commission
  - 1.9 Confidential Information
  - 1.10 Constructing Entity

- 1.11 Control Area
- 1.12 Costs
- 1.13 Default
- 1.14 Delivering Party
- 1.15 Emergency Condition
- 1.16 Environmental Laws
- 1.17 Facilities Study
- 1.18 Federal Power Act
- 1.19 FERC
- 1.20 Firm Point-To-Point
- 1.21 Force Majeure
- 1.22 Good Utility Practice
- 1.23 Governmental Authority
- 1.24 Hazardous Substances
- 1.25 Incidental Expenses
- 1.26 Local Upgrades
- 1.27 Long-Term Firm Point-To-Point Transmission Service
- 1.28 MAAC
- 1.29 MAAC Control Zone
- 1.30 NERC
- 1.31 Network Upgrades
- 1.32 Office of the Interconnection
- 1.33 Operating Agreement of the PJM Interconnection, L.L.C. or Operating Agreement
- 1.34 Part I
- 1.35 Part II
- 1.36 Part III
- 1.37 Part IV
- 1.38 Part VI
- 1.39 PJM Interchange Energy Market
- 1.40 PJM Manuals
- 1.41 PJM Region
- 1.42 PJM West Region
- 1.43 Point(s) of Delivery
- 1.44 Point(s) of Receipt
- 1.45 Project Financing
- 1.46 Project Finance Entity
- 1.47 Reasonable Efforts
- 1.48 Receiving Party
- 1.49 Regional Transmission Expansion Plan
- 1.50 Schedule and Scope of Work
- 1.51 Security
- 1.52 Service Agreement
- 1.53 State
- 1.54 Transmission System
- 1.55 VACAR

## **ATTACHMENT GG - APPENDIX III – GENERAL TERMS AND CONDITIONS**

- 1.0 Effective Date and Term
  - 1.1 Effective Date
  - 1.2 Term
  - 1.3 Survival
- 2.0 Facilitation by Transmission Provider
- 3.0 Construction Obligations
  - 3.1 Direct Assignment Facilities or Customer-Funded Upgrades
  - 3.2 Scope of Applicable Technical Requirements and Standards
- 4.0 Tax Liability
  - 4.1 New Service Customer Payments Taxable
  - 4.2 Income Tax Gross-Up
  - 4.3 Private Letter Ruling
  - 4.4 Refund
  - 4.5 Contests
  - 4.6 Taxes Other Than Income Taxes
  - 4.7 Tax Status
- 5.0 Safety
  - 5.1 General
  - 5.2 Environmental Releases
- 6.0 Schedule Of Work
  - 6.1 Standard Option
  - 6.2 Option to Build
  - 6.3 Revisions to Schedule and Scope of Work
  - 6.4 Suspension
- 7.0 Suspension of Work Upon Default
  - 7.1 Notification and Correction of Defects
- 8.0 Transmission Outages
  - 8.1 Outages; Coordination
- 9.0 Security, Billing and Payments
  - 9.1 Adjustments to Security
  - 9.2 Invoice
  - 9.3 Final Invoice
  - 9.4 Disputes
  - 9.5 Interest
  - 9.6 No Waiver
- 10.0 Assignment
  - 10.1 Assignment with Prior Consent
  - 10.2 Assignment Without Prior Consent
  - 10.3 Successors and Assigns
- 11.0 Insurance
  - 11.1 Required Coverages
  - 11.2 Additional Insureds
  - 11.3 Other Required Terms
  - 11.4 No Limitation of Liability
  - 11.5 Self-Insurance

- 11.6 Notices: Certificates of Insurance
- 11.7 Subcontractor Insurance
- 11.8 Reporting Incidents
- 12.0 Indemnity
  - 12.1 Indemnity
  - 12.2 Indemnity Procedures
  - 12.3 Indemnified Person
  - 12.4 Amount Owing
  - 12.5 Limitation on Damages
  - 12.6 Limitation of Liability in Event of Breach
  - 12.7 Limited Liability in Emergency Conditions
- 13.0 Breach, Cure And Default
  - 13.1 Breach
  - 13.2 Notice of Breach
  - 13.3 Cure and Default
  - 13.4 Right to Compel Performance
  - 13.5 Remedies Cumulative
- 14.0 Termination
  - 14.1 Termination
  - 14.2 Cancellation By New Service Customer
  - 14.3 Survival of Rights
  - 14.4 Filing at FERC
- 15.0 Force Majeure
  - 15.1 Notice
  - 15.2 Duration of Force Majeure
  - 15.3 Obligation to Make Payments
- 16.0 Confidentiality
  - 16.1 Term
  - 16.2 Scope
  - 16.3 Release of Confidential Information
  - 16.4 Rights
  - 16.5 No Warranties
  - 16.6 Standard of Care
  - 16.7 Order of Disclosure
  - 16.8 Termination of Upgrade Construction Service Agreement
  - 16.9 Remedies
  - 16.10 Disclosure to FERC or its Staff
  - 16.11 No Party Shall Disclose Confidential Information of Party 16.12  
Information that is Public Domain
  - 16.13 Return or Destruction of Confidential Information
- 17.0 Information Access And Audit Rights
  - 17.1 Information Access
  - 17.2 Reporting of Non-Force Majeure Events
  - 17.3 Audit Rights
  - 17.4 Waiver
  - 17.5 Amendments and Rights under the Federal Power Act

- 17.6 Regulatory Requirements
- 18.0 Representation and Warranties
  - 18.1 General
- 19.0 Inspection and Testing of Completed Facilities
  - 19.1 Coordination
  - 19.2 Inspection and Testing
  - 19.3 Review of Inspection and Testing by Transmission Owner
  - 19.4 Notification and Correction of Defects
  - 19.5 Notification of Results
- 20.0 Energization of Completed Facilities
- 21.0 Transmission Owner's Acceptance of Facilities Constructed by New Service Customer
- 22.0 Transfer of Title to Certain Facilities Constructed By New Service Customer
- 23.0 Liens

**ATTACHMENT HH – RATES, TERMS, AND CONDITIONS OF SERVICE FOR PJMSETTLEMENT, INC.**

**ATTACHMENT II – MTEP PROJECT COST RECOVERY FOR ATSI ZONE**

**ATTACHMENT JJ – MTEP PROJECT COST RECOVERY FOR DEOK ZONE**

**ATTACHMENT KK - FORM OF DESIGNATED ENTITY AGREEMENT**

**ATTACHMENT LL - FORM OF INTERCONNECTION COORDINATION AGREEMENT**

**ATTACHMENT MM – FORM OF PSEUDO-TIE AGREEMENT – WITH NATIVE BA AS PARTY**

**ATTACHMENT MM-1 – FORM OF SYSTEM MODIFICATION COST REIMBURSEMENT AGREEMENT – PSEUDO-TIE INTO PJM**

**ATTACHMENT NN – FORM OF PSEUDO-TIE AGREEMENT WITHOUT NATIVE BA AS PARTY**

**ATTACHMENT OO – FORM OF DYNAMIC SCHEDULE AGREEMENT INTO THE PJM REGION**

**ATTACHMENT PP – FORM OF FIRM TRANSMISSION FEASIBILITY STUDY AGREEMENT**

***ATTACHMENT RR – FORM OF SURPLUS INTERCONNECTION STUDY AGREEMENT***

**ATTACHMENT SS – REGULATION MARKET SETTLEMENT AGREEMENT**

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

Energy Storage Association	)	Docket No. EL17-64-000
Complainant.	)	
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	)	

**SETTLEMENT AGREEMENT AND OFFER OF SETTLEMENT**

This Settlement Agreement and Offer of Settlement (“Settlement”) is made pursuant to Rule 602 of the Rules of Practice and Procedures of the Federal Energy Regulatory Commission (“Commission”), 18 C.F.R. § 385.602, by and among PJM Interconnection, L.L.C. (“PJM”), together with The AES Corporation (“AES”); Duke Energy Corporation; EDF Renewables, Inc.; Invenergy LLC (“Invenergy”); NextEra Energy, Inc.; Renewable Energy Systems Americas, Inc. (“RES”); Convergent Energy and Power LP, Convergent Energy and Power GP LLC, and Hazle Spindle, LLC; GlidePath Power Solutions LLC; GlidePath Power LLC (together with GlidePath Power Solutions LLC, “GlidePath”); and Energy Storage Association (“ESA”).<sup>1</sup> These parties enter into

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<sup>1</sup> Subsidiaries of AES, Duke, EDF, Invenergy, NextEra, RES, or GlidePath listed as “Immediate Affected Battery Owners” in Table 2.2 of the Settlement also join the Settlement as Settling Parties and signatories to the Settlement.

this Settlement to resolve all outstanding issues in Docket Nos. EL17-64-000 and EL17-65-000 (collectively, the “Regulation Complaints”).

## **ARTICLE I BACKGROUND**

On April 13, 2017, ESA filed a Complaint against PJM under sections 205 and 206 of the Federal Power Act (“FPA”)<sup>2</sup> in Docket No. EL17-64-000 (“ESA Complaint”).<sup>3</sup> The ESA Complaint alleged that PJM had unilaterally implemented a series of changes to its Regulation market that were arbitrary, capricious, and unduly discriminatory to ESA’s members who participate in the Regulation market. ESA requested that the Commission: (i) direct PJM to file for review under section 205 of the FPA revisions to its Open Access Transmission Tariff (“Tariff”) that set forth the methodology by which PJM calculates the benefits factor used in clearing resources in the Regulation market and justify the reasonableness of its benefits factor calculations; (ii) direct PJM to eliminate the Regulation procurement cap set forth in the PJM business practice manuals; and (iii) direct PJM to file for review under Section 205 of the FPA revisions to its Tariff that set forth the parameters governing the design of its long-established Regulation D frequency Regulation signal (“Regulation D Signal”), and to revert to its prior Regulation D Signal until such time as it receives Commission approval for any changes.

On April 14, 2017, RES and Invenergy (“RES/Invenergy”) filed a Complaint against PJM under FPA sections 205 and 206 in Docket No. EL17-65-000

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<sup>2</sup> 16 U.S.C. §§ 824d, 824e

<sup>3</sup> Complaint of Energy Storage Association, Docket No. EL17-64-000 (Apr. 13, 2017).



(“RES/Invenergy Complaint”).<sup>4</sup> The RES/Invenergy Complaint alleged that PJM had made unilateral, unreasonable and unduly discriminatory changes to its Regulation D Signal, which adversely affected the complainants’ storage facilities. The RES/Invenergy Complaint requested that the Commission (i) find that PJM’s decision to modify its Regulation D Signal was unjust and unreasonable, resulting in discriminatory treatment of the complainants and adverse impacts on their projects; and (ii) direct that PJM revert to using the original Regulation D Signal and codify any new procedures for treatment of fast response supply in the Tariff.

PJM filed an Answer and Motion to Consolidate the Regulation Complaints on May 15, 2017. A number of parties intervened and filed comments on the Regulation Complaints on May 15, 2017. The Independent Market Monitor for PJM (“IMM”) filed Comments on the Regulation Complaints on May 25, 2017. RES/Invenergy filed an Answer to PJM’s Answer and Motion to Consolidate and other filed comments on May 31, 2017 in Docket No. EL17-65-000. ESA filed an Answer to PJM’s Answer and Motion to Consolidate and other filed comments on June 2, 2017 in Docket No. EL17-64-000. The IMM filed an Answer to the Answers of ESA and RES/Invenergy on June 12, 2017. PJM filed an Answer to the Answers of ESA and RES/Invenergy on June 27, 2017.

On July 25, 2017, ESA filed a Motion Requesting Appointment of Settlement Judge in Docket No. EL17-64-000. RES/Invenergy filed a similar Motion in Docket No. EL17-65-000. PJM filed Comments on the Motions on August 9, 2017. RES/Invenergy filed a response to PJM’s Comments on August 21, 2017. AES filed Comments in response to

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<sup>4</sup> Complaint of Renewable Energy Systems Americas and Invenergy Storage Development LLC, Docket No. EL17-65-000 (Apr. 14, 2017).

PJM's Answer and in Support of the Motions filed by ESA and RES/Invenergy on August 30, 2017.

On March 30, 2018, the Commission issued its Order on Complaints and Establishing Technical Conference in Docket Nos. EL17-64-000 and EL17-65-000 ("March 30 Order").<sup>5</sup> The March 30 Order (i) granted the ESA Complaint in part; (ii) directed Commission staff to convene a technical conference to explore issues related to the Regulation Complaints; and (iii) established refund effective dates for Docket Nos. EL17-64-000 and EL17-65-000 pursuant to FPA Section 206(b).

On May 3, 2018, the Commission issued a Notice of Technical Conference in Docket Nos. EL17-64-000, EL17-65-000, ER18-87-000, and ER18-87-001. On May 18, 2018, PJM, ESA, and RES/Invenergy filed a joint request for the appointment of a settlement judge and to postpone scheduling the Technical Conference and the collection of related information until conclusion of settlement judge proceedings. AES filed comments in support of the joint request while the IMM filed comments in opposition, on May 24, 2018.

On May 30, 2018, the Commission issued its Order Establishing Settlement Procedures and Postponing Technical Conference Docket Nos. EL17-64-000, EL17-65-000, ER18-87-000, and ER18-87-001 ("May 30 Order").<sup>6</sup> The May 30 Order directed the Chief Judge to appoint a settlement judge in Docket Nos. EL17-64-000 and EL17-65-000. The May 30 Order further held the technical conference in abeyance until further order. On June 6, 2018, the Commission issued an Order of the Chief Judge designating Judge

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<sup>5</sup> *Energy Storage Ass'n v. PJM Interconnection, L.L.C.*, 162 FERC ¶ 61,296 (2018).

<sup>6</sup> *Energy Storage Ass'n v. PJM Interconnection, L.L.C.*, 163 FERC ¶ 61,157 (2018).

Lawrence Brenner to preside over settlement procedures. Following Judge Brenner's retirement in September 2018, the Commission issued an Order of the Chief Judge Making Substitute Designation of Settlement Judge designating Judge Suzanne Krolikowski to preside over settlement procedures on October 1, 2018.

Settling Parties and intervenors including the IMM, Dominion Energy Services, Inc., and American Municipal Power, Inc. participated in settlement conferences throughout June, July, and August of 2018. Settling Parties also engaged in ongoing informal settlement discussions throughout the settlement negotiation period. Settling Parties reached a settlement in principle in August 2018, and this Settlement memorializes the terms of the settlement in principle.

NOW, THEREFORE, in consideration of the promises and the mutual covenants and agreements contained herein, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Settling Parties, intending to be legally bound, agree as follows:

## **ARTICLE II DEFINITIONS**

**2.1 Tariff Definitions:** Capitalized terms not otherwise defined in this Settlement will have the meaning specified in the Tariff or the Amended and Restated Operating Agreement of PJM Interconnection, L.L.C. ("Operating Agreement").

**2.1.1 Affected Battery:** An "Affected Battery" is any short-duration battery unit interconnected with the PJM system that: (i) was operational prior to January 9, 2017; (ii) is designed to converge to neutrality within fifteen (15) minutes; (iii) was adversely affected by the January 9, 2017 implementation of the 30-minute conditional neutrality of PJM's

frequency regulation signal; and (iv) continues to actively participate in the PJM Regulation market as of August 27, 2018. The list of Affected Batteries identified and agreed-upon as of the date of this Settlement are set forth in Section 2.2 below, and include the identified flywheel energy storage frequency regulation plant.

**2.1.2 Affected Battery Owner:** An “Affected Battery Owner” is any legal or natural person that directly or indirectly owns or controls an Affected Battery or is owned or controlled by a legal or natural person that directly or indirectly owns or controls an Affected Battery. An Affected Battery Owner that directly owns or controls an Affected Battery may be referred to as an “Immediate Affected Battery Owner.” The ultimate U.S.-based upstream owner of an Affected Battery may be referred to as an “Ultimate Upstream Affected Battery Owner.”

**2.1.3 Settlement Regulation Signal:** The Settlement Regulation Signal is the 30-minute conditional neutrality regulation signal in effect as of October 1, 2018. Consistent with current practice by PJM under the Tariff, the Settlement Regulation Signal will be subject to intensity changes according to system condition, but the intensity of the signal neutrality bias function under and parameters and design of the PJM Regulation Conditional Neutrality Controller will remain as it was on October 1, 2018, throughout the term of this Settlement.

**2.1.4 Maximum Recent Regulation Offer:** An Affected Battery’s “Maximum Recent Regulation Offer” is its single maximum hourly-offered megawatts (“MW”) offered into the Regulation market over the most recent 100 hours

prior to October 1, 2018, during which the Affected Battery provided Regulation service and where there was not a full or partial outage of the Affected Battery; PJM will work in good faith and expeditiously with the Immediate Affected Battery Owner of each Affected Battery to determine those hours during which there was a full or partial outage of the Immediate Affected Battery Owner's Affected Battery.

**2.1.5 Original Battery Capacity:** An Affected Battery's "Original Battery Capacity," as identified in the chart provided in Section 2.2 of this Settlement, is the original installed MW capacity of the applicable Affected Battery, including any restorations, as tested and certified pursuant to sections 4.5.1 (Regulation Qualification Test) and 4.5.2 (Certifying Regulating Resource) of PJM Manual 12<sup>7</sup> on or before January 9, 2017.

**2.1.6 Settling Party:** A "Settling Party" is any person or entity that meets one or more of the following criteria: (a) any signatory to this Settlement; or (b) an Affected Battery Owner that meets the qualifications in Section 2.1.2 of this Settlement and that has complied with the opt-in procedures provided in Section 5.2.1, below.

**2.2 Identified Affected Batteries and Affected Battery Owners:** Table 2.2 below sets forth a non-exhaustive list and short description of entities that will be considered Affected Battery Owners and facilities that will be considered Affected

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<sup>7</sup> *PJM Manual 12: Balancing Operations (Rev. 35)*, PJM Interconnection, L.L.C., 49-51 (May 25, 2016), <https://www.pjm.com/-/media/documents/manuals/archive/m12/m12V35-balancing-operations-08-25-2016.ashx>.

Batteries for the purposes and duration of this Settlement. Each Immediate Affected Battery Owner and its Ultimate Upstream Affected Battery Owner(s) identified in Table 2.2 are signatories to the Settlement and agree to be bound by all the terms of the Settlement. All subsidiaries of named Affected Battery Owners will also be treated as Affected Battery Owners, consistent with the definition in Section 2.1.2, above. Note that Affected Batteries (and their Affected Battery Owners) not listed here may voluntarily participate in the Regulation market under this Settlement by complying with the provisions of Section 5.2.1, below.

**Table 2.2:  
Affected Batteries**

<b>Immediate Affected Battery Owner</b>	<b>Ultimate Upstream Affected Battery Owner</b>	<b>Location of Identified Affected Battery</b>	<b>Original Capacity of Identified Affected Battery</b>
AES ES Tait, LLC	The AES Corporation	Allegheny Power Systems (facility known as Warrior Run)	10 MW
AES Laurel Mountain, LLC	The AES Corporation	Allegheny Power Systems	32 MW
Duke Energy Beckjord Storage, LLC	Duke Energy Corporation	New Richmond, OH – Duke Energy Ohio Kentucky	Two 2 MW batteries (modeled separately with separate performance scores)
McHenry Battery Storage, LLC	EDF Renewables, Inc.	McHenry, IL – ComEd	20 MW
Beech Ridge Energy Storage LLC	Invenergy Investment Company LLC	WV – Allegheny Power	31.5 MW
Grand Ridge Energy Storage LLC	Invenergy Investment Company LLC	Lasalle County, IL – ComEd	31.5 MW

<b>Immediate Affected Battery Owner</b>	<b>Ultimate Upstream Affected Battery Owner</b>	<b>Location of Identified Affected Battery</b>	<b>Original Capacity of Identified Affected Battery</b>
Grand Ridge Energy IV LLC	Invenergy Investment Company LLC	Lasalle County, IL – ComEd	4.5 MW
Meyersdale Storage, LLC	GlidePath Power Solutions LLC, GlidePath Power LLC	Somerset County, PA – Penelec	18 MW
FPL Energy Illinois Wind, LLC	NextEra Energy, Inc.	Dekalb County, IL – ComEd (facility known as Lee DeKalb Battery)	20 MW
Green Mountain Storage, LLC	NextEra Energy, Inc.	Somerset County, PA – Penelec	10.4 MW
Energy Storage Holdings, LLC	NextEra Energy, Inc.	Gloucester County, NJ – PSEG (facility known as Mantua Creek)	2 MW
Battery Utility of Ohio, LLC	Renewable Energy Systems Americas, Inc.	Sunbury, OH – AEP Ohio	4 MW
Joliet Battery Storage LLC	Renewable Energy Systems Americas, Inc.	Joliet, IL – ComEd	20 MW
West Chicago Battery Storage LLC	Renewable Energy Systems Americas, Inc.	West Chicago, IL – ComEd	20 MW
Hazle Spindle, LLC	Convergent Energy and Power LP, Convergent Energy and Power GP LLC	Hazle Township, PA – PPL	20 MW

### **ARTICLE III**

#### **SCOPE OF SETTLEMENT**

The terms provided in this Settlement constitute full and complete resolution of all issues raised in Docket Nos. EL17-64-000 and EL17-65-000, including but not limited to disputes regarding historical signal changes, any question of whether PJM complied with its own Tariff in administering Affected Batteries' participation in PJM's Regulation market, and whether any Affected Battery experienced damage as a result of PJM's administration of its Regulation market. The Commission's approval of this Settlement resolves the above-referenced proceedings.

### **ARTICLE IV**

#### **SETTLEMENT TERM**

The Settlement will become effective on the first day of the first month beginning at least ninety (90) days after the date of a Commission order approving the Settlement ("Settlement Effective Date"). The terms and conditions governing the Affected Batteries' participation in the Regulation market set forth in Sections 5.1 through 5.5.2 will terminate forty-two (42) months after the Settlement Effective Date. The remaining rights and obligations under this Settlement shall remain in full force and effect until such time as the obligations set forth in Section 5.6 of this Settlement have been fully satisfied.

### **ARTICLE V**

#### **AFFECTED BATTERY PARTICIPATION IN REGULATION MARKET**

**5.1 Tariff Still In Effect:** The terms and conditions of the Tariff and Operating Agreement will apply to all Settling Parties, including Affected Batteries and Affected Battery Owners, throughout the Settlement term; provided, however, that during the Settlement: (i) to the extent the operative provisions in this Settlement under this Article



V conflict with other provisions of the Tariff or Operating Agreement, Article V shall govern, and (ii) the terms of this Settlement will apply notwithstanding any revisions that may be made to sections of the Attachment K-Appendix of the Tariff, or section 1.11.4 of Schedule 1 of the Operating Agreement, or to provisions of PJM's business practice manuals respecting participation in the Regulation market, as those provisions and manuals were in effect on October 1, 2018. For the avoidance of doubt, Settling Parties clarify that if an Affected Battery is in a Suspension Period as described in Section 5.5, below, such Affected Battery will be subject for the duration of such suspension to all of terms and conditions of the Tariff and the Operating Agreement as they are then in effect and the provisos in (i) and (ii) above shall not apply. Except as set forth in this Article V, the Tariff and Operating Agreement will continue to apply to Affected Batteries and Affected Battery Owners, including for the purposes of ordinary and customary market settlements for Regulation and other services under the Tariff, bill corrections, rebillings, and related matters.

**5.2 Participation in the PJM Regulation Market:** For the duration of this Settlement term articulated in Article IV, Affected Batteries may participate in the PJM Regulation market utilizing the Settlement Regulation Signal. During the term of the Settlement, each Affected Battery may offer MW into the Regulation market not to exceed its Original Battery Capacity, as set forth in the table in Section 2.2, above; provided, however, that for any Affected Battery offering MW into the Regulation market above its Maximum Recent Regulation Offer but less than or equal to its Original Battery Capacity, the total Regulation capability of the Affected Battery must be confirmed through a successful retest under section 4.5.4 of PJM Manual 12 (Increasing

Regulation Capability on a Resource).<sup>8</sup> The successful retest performance score determined using the Settlement Regulation Signal will not supersede the Baseline Performance Score as defined in Section 5.3 below. In the absence of a successful retest as described above, an Affected Battery's maximum offered MW into the Regulation market during the Settlement may not exceed the Affected Battery's Maximum Recent Regulation Offer.

For the avoidance of doubt, Settling Parties clarify that during this Settlement, in the event an Affected Battery makes an offer into the Regulation market in excess of the Affected Battery's Original Battery Capacity, that offer and the entire amount of MW offered into the Regulation market by the Affected Battery in that offer shall not be subject to the terms of Sections 5.2, 5.3, 5.4, and 5.5 of this Settlement, and instead shall be subject to the full terms, and conditions of the Tariff, Operating Agreement, and PJM business practice manuals then in effect.

**5.2.1 Voluntary Participation by Unlisted Affected Batteries:** An Affected Battery not listed as an Identified Affected Battery in Section 2.2, above, may opt in to this Settlement in order to participate in the Regulation market under this Section 5.2 as set forth herein. An Affected Battery Owner that is not an Identified Affected Battery Owner under the Settlement but that would like to have an Affected Battery it owns or controls participate in the Regulation market under this Section 5.2 must identify its battery to PJM as an Affected Battery, demonstrate its

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<sup>8</sup> *PJM Manual 12: Balancing Operation (Rev. 38)*, PJM Interconnection, L.L.C., 53 (Apr. 20, 2018), <https://www.pjm.com/-/media/documents/manuals/m12.ashx> ("PJM Manual 12 Rev. 38").

eligibility as an Affected Battery to the satisfaction of PJM, and agree to abide by the terms of this Settlement including, but not limited to, Section 5.6, below, before it may participate in the Regulation market under this section. Additionally, an Affected Battery's Ultimate Upstream Affected Battery Owner(s) must also agree to abide by the terms of the Settlement, including but not limited to Section 5.6, below, before the Affected Battery may participate in the Regulation market under this section. Such opt-in by an Affected Battery Owner and its Ultimate Upstream Affected Battery Owner must be provided on the Opt-in Form attached (as Attachment A) to this Settlement, endorsed by PJM, and filed with the Commission as a notification in Docket Nos. EL17-64-000 and EL17-65-000. Such opt-in notice will take effect on the first day of the first month following its filing with the Commission. Once effective, this opt-in notice will cause the Ultimate Upstream Affected Battery Owner opting in to the Settlement, as well as its subsidiaries, to become Settling Parties, and they will be subject to the rights and obligations of the Settlement for the remainder of the Settlement term set forth in Article IV, above.

**5.3 Evaluation.** During the Settlement term, PJM shall evaluate each Affected Battery's performance utilizing a resource-specific 100-hour average performance score under the 30-minute conditional neutrality Regulation signal (the "Baseline Performance Score"). The Baseline Performance Score for each Affected Battery shall be calculated by PJM and consist of a rolling average actual hourly performance score for the last 100 hours a resource has operated as of October 1, 2018.

**5.4 Compensation.** During the Settlement, assuming an Affected Battery meets the Baseline Performance Score criteria set forth below, PJM agrees to treat offers from the Affected Battery as having cleared the Regulation D market, regardless of whether such offers do, in fact, clear, provided such offers are made as price takers, either as self-scheduled Regulation with a zero offer or as a zero priced Regulation offer. Each Affected Battery agrees to follow PJM’s Regulation signal and provide Regulation service as if its offer had cleared and PJM will compensate the Affected Batteries for participation in the Regulation market utilizing the greater of (i) the Affected Battery’s current five-minute interval performance score, or (ii) the Affected Battery’s resource-specific rolling average actual hourly performance score for the last 100 hours a resource operated prior to the January 9, 2017 implementation of the 30-minute conditional neutrality of PJM’s frequency regulation signal (the “Historic Performance Score”). For the avoidance of doubt, Settling Parties clarify that nothing herein would prevent an Affected Battery from making a non-zero offer into the Regulation D market, but if such non-zero offer does not clear, the Affected Battery would not be compensated for that offer. Furthermore, the Settling Parties agree that during the term of this Settlement Regulation Credits as defined in PJM Manual 28, section 4.2<sup>9</sup> as it was in effect on October 1, 2018, shall be utilized to determine compensation for each Affected Battery. Further, the calculation of the Performance Score as defined in Tariff, Attachment K-

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<sup>9</sup> *PJM Manual 28: Operating Agreement Accounting (Rev. 80)*, PJM Interconnection, L.L.C., 28-31 (June 1, 2018), <https://www.pjm.com/-/media/documents/manuals/archive/m28/m28v80-operating-agreement-accounting-06-01-2018.ashx>.

Appendix, section 3.2.2(k) and PJM Manual 12, section 4.5.6;<sup>10</sup> and the Mileage Ratio as defined in PJM Manual 11, section 3.2.7<sup>11</sup> shall be performed in accordance with the Tariff as it was in effect on October 1, 2018.

**5.4.1** In the event PJM transitions to a single Regulation signal as described in Section 5.6, below, during the Settlement, PJM will compensate each Affected Battery participating in the Regulation market under the Settlement and not in a Suspension Period under Section 5.5, below, for participation in the Regulation market utilizing the greater of the current five-minute interval performance score or Historic Performance Score multiplied by the five (5) minute Regulation Market Clearing Price (“RMCP”) and a mileage ratio derived from the greater of the following: (i) the average of the mileage ratios for the last twelve (12) months prior to the mileage ratio becoming incalculable due to PJM’s transition to a single Regulation signal; or (ii) a mileage ratio of 6.576, the average of the monthly mileage ratios from October 2017 to September 2018 (the resulting mileage ratio being referred to as the “Historic Mileage Ratio”).

**5.4.2** In the event that the Regulation Market Performance Clearing Price (“RMPCP”), as defined by PJM Manual 11 as it was in effect on October 1, 2018,<sup>12</sup> is no longer available for an Affected Battery, the RMPCP used

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<sup>10</sup> PJM Manual 12 Rev. 38 at 54-56.

<sup>11</sup> *PJM Manual 11: Energy & Ancillary Service Market Operations (Rev.97)*, PJM Interconnection, L.L.C., 62-70 (July 26, 2018), <https://www.pjm.com/-/media/documents/manuals/archive/m11/m11v97-energy-and-ancillary-services-market-operations-07-26-2018.ashx> (“PJM Manual 11 Rev. 97”).

<sup>12</sup> PJM Manual 11 Rev. 97 at 67.

to determine the Regulation Credits for the said Affected Battery shall be determined using the greater of (i) the average of the RMPCP for the last twelve (12) months prior to the RMPCP becoming unavailable, and (ii) a RMPCP of \$1.73, the average of the RMPCP from October 2017 to September 2018. The Regulation RMPCP credit calculation will be the applicable interval RMPCP multiplied by the applicable Regulation MW, Performance score, and Mileage ratio. The Regulation Market Capability Clearing Price (“RMCCP”) credit calculation will be the interval RMCP minus the applicable RMPCP multiplied by the applicable Regulation MW and Performance score.

**5.5 Suspension.** For each Affected Battery, if at any point during the Settlement term the average hourly performance score for the last 100 hours a resource has operated is lower than the Baseline Performance Score by more than or equal to seven percent (7%), the terms of this Settlement shall be suspended only as to that Affected Battery (the “Suspension Period”). An Affected Battery shall remain in suspension until such time as it achieves an average performance score for the last 100 hours the resource has operated greater than or equal to the Baseline Performance Score while following the Settlement Regulation Signal. For avoidance of doubt, Settling Parties agree that an Affected Battery’s participation in the PJM Regulation market during the Suspension Period shall be governed by the Tariff and the Operating Agreement and relevant PJM business practice manuals that exist while the Suspension Period occurs; however, the calculation of the Performance Score as defined in Tariff, Attachment K-Appendix,

section 3.2.2(k) and PJM Manual 12, section 4.5.6<sup>13</sup> shall be performed under the same terms as it would if the Affected battery were not in a Suspension Period. Furthermore, the Settling Parties agree that during the Suspension Period the Affected Battery will follow the Settlement Regulation Signal. Participation in the PJM Regulation market during a Suspension Period is not subject to retroactive financial adjustment.

**5.5.1** For the avoidance of doubt, Settling Parties further clarify that they understand that an Affected Battery that is in a Suspension Period is not eligible for compensation under Section 5.4, above.

**5.5.2** In the event PJM transitions to a single Regulation signal as described in Section 5.6, below, an Affected Battery in a Suspension Period will still be subject to and treated in accordance with this Section 5.5.

**5.6 Future Regulation Market Enhancements.** PJM intends to file, pursuant to Section 205 of the Federal Power Act, revisions to its Tariff and Operating Agreement to implement enhancements to the Regulation market, which may include elimination of the Regulation D Signal and operation of the Regulation market using a single regulation signal that is technology agnostic with no firm commitment of neutrality (“Regulation Market Enhancement Filing”). The Regulation Market Enhancement Filing will not affect the terms or duration of this Settlement. Each Affected Battery Owner agrees that it will not file any pleadings in opposition to or pursue any other litigation or administrative proceedings opposing the elimination of the Regulation D Signal or initial implementation of a single Regulation signal as part of PJM’s Regulation Market Enhancement Filing on the basis that PJM’s proposal: (i) utilizes a single regulation

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<sup>13</sup> PJM Manual 12 Rev. 38 at 54-56.

signal; or (ii) employs a signal that is not designed to be energy-neutral. The Settling Parties acknowledge that this Settlement does not prohibit any Affected Battery Owner from opposing other substantive aspects of the Regulation Market Enhancement Filing, including, but not limited to, opposing specific design characteristics (such as performance measurement and compensation), opposing specific design components of a single signal, opposing settlement calculations such as the removal or modification to the current mileage ratio calculation or the performance scoring calculation, opposing elements of the signal as inconsistent with Order No. 755<sup>14</sup> or other applicable FERC precedent.

**5.7 Binding on All Parties.** The Settlement will be binding on all intervenors, complainants, and respondents in Docket Nos. EL17-64-000 and EL17-65-000, whether or not they are signatories to this Settlement.

## **ARTICLE VI**

### **SETTLEMENT AS ATTACHMENT TO TARIFF**

The Settlement, once approved by the Commission, will be filed through a compliance filing as an attachment to the Tariff and function as the filed rate for Affected Batteries providing Regulation service under the terms of the Settlement.

## **ARTICLE VII**

### **WITHDRAWAL OF COMPLAINT IN DOCKET NO. EL17-64-000**

ESA agrees to withdraw its complaint filed in Docket No. EL17-64-000 with prejudice within ten (10) business days of an order approving this Settlement that is final

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<sup>14</sup> *Frequency Regulation Compensation in the Organized Wholesale Power Market*, Order No. 755, 137 FERC ¶ 61,064 (2011), *reh'g denied*, Order No. 755-A, 138 FERC ¶ 61,123 (2012).



and non-appealable; provided, however, ESA's withdrawal shall be without prejudice with respect to Section 5.6, above, for its members that are not Settling Parties in the proceeding.

## **ARTICLE VIII**

### **COST RECOVERY**

The costs of all Regulation service provided by an Affected Battery and compensated by PJM pursuant to the terms of Sections 5.1 through 5.4 of this Settlement, whether the offer for such service cleared or was only deemed cleared in the Regulation market under Section 5.4, shall be included as part of the Regulation Obligation and recovered through the Regulation Charge set forth in Tariff, Attachment K-Appendix, section 3.2.2(a), and Operating Agreement, Schedule 1.

## **ARTICLE IX**

### **MISCELLANEOUS PROVISIONS**

**9.1 No Admissions or Precedent; Exceptions.** This entire Settlement, and the Settling Parties' performance of their obligations hereunder, are the result of the settlement and compromise of all the claims and actions expressly addressed in this Settlement, and neither the Settlement nor the Settling Parties' performance hereunder shall be deemed to be an admission of any fact or of any liability. It is specifically understood and agreed that the Settlement represents a negotiated settlement in the public interest with respect to the matters agreed to herein for the sole purpose of the settlement of such matters agreed to herein, and the Settling Parties shall not be prejudiced or bound thereby in any proceeding, except as specifically provided for herein. The Settling Parties offer this Settlement solely for the purpose of compromising on the matters set for hearing by the Commission in Docket Nos. EL17-64-000 and EL17-65-000. The Settling Parties

shall not be deemed to have approved, accepted, agreed, or consented to any concept, theory, or principle underlying or supposed to underlie any of the matters provided for herein. Further, the Settlement cannot be used, and no part hereof shall be used, to advance, support, or resist a position taken before the Commission or the courts by any Settling Party except as otherwise provided herein.

**9.2 Entire Agreement.** This Settlement, including any attachments, constitutes the entire agreement between and among the Settling Parties and no other agreement with regard to the matters addressed in this Settlement shall be binding on the Settling Parties except by written amendment to this Settlement. This Settlement is an integrated package. None of the terms of the Settlement are agreed to, acquiesced in, or non-opposed without each of the others. The various provisions of this Settlement are not severable and shall not become operative unless and until the Commission issues as a final order accepting or approving this Settlement as to all its terms and conditions without modification. Except for the terms and conditions enumerated in this Settlement and any attachment hereto, the Settling Parties acknowledge and agree that the Settling Parties have not made any other promises, warranties, or representations to each other or any other participant in the proceedings referenced herein regarding any aspect of the settlement of the matters addressed in this Settlement. Each Settling Party acknowledges that it has read this Settlement and executed it without relying upon any other promise, warranty, or representation, written or otherwise, of the other Settling Party or any other participant in the proceeding or the proceedings referenced herein. Each Settling Party acknowledges that no other participant in this proceeding or in the proceedings referenced herein has made any promise, warranty, or representation.

**9.3 Modification or Condition of Settlement.** The terms and conditions of this Settlement are expressly contingent upon approval or acceptance by the Commission of this Settlement without modification or condition. If the Commission by order conditions its approval or acceptance of this Settlement or requires its modification, this Settlement shall be deemed withdrawn, shall not be considered to be part of the record in this proceeding or the proceedings in Docket Nos. EL17-64-000 and EL17-65-000, shall not become effective, and shall be null and void, unless the Settling Parties, within ten (10) business days (subject to extension by mutual agreement of all the Settling Parties) of issuance of the Commission order approving or accepting this Settlement subject to condition or modification either: (i) accept the Commission's modifications and conditions; or (ii) modify the Settlement to address or obviate the Commission's concerns.

**9.4 Settlement Discussions.** The discussions that have produced this Settlement have been conducted on the explicit understanding, pursuant to Rules 602 and 606 of the Commission's Rules of Practice and Procedure, 18 C.F.R. §§ 385.602 and 385.606, that all settlement communications and discussions shall be privileged and confidential, shall be without prejudice to the position of any Settling Party or participant making such communications or participating in any such discussions, and are not to be used in any manner in connection with this proceeding, the proceedings referenced herein, any other proceeding, or otherwise, except to the extent necessary to enforce the terms of this Settlement or to construe the meaning of the terms used herein.

**9.5 Not Admissible as Evidence.** This Settlement is submitted pursuant to Rule 602 of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.602, and

shall not be admissible in evidence or made a part of the record in any proceeding except as necessary to implement or enforce the Settlement.

**9.6 Further Assurances.** Following execution of this Settlement, each Settling Party shall cooperate with and support, and shall not take any action inconsistent with: (i) the filing of this Settlement with the Commission; and (ii) efforts to obtain Commission approval or acceptance of the Settlement. Consistent therewith, none of the Settling Parties shall seek rehearing of an order approving or accepting the Settlement without modification or condition.

**9.7 Successors and Assigns.** This Settlement is binding upon and for the benefit of the Settling Parties and their successors and assigns.

**9.8 Ambiguities Neutrally Construed.** This Settlement is the result of negotiations among Settling Parties, and has been reviewed by each Settling Party and its respective counsel. Accordingly, this Settlement shall be deemed to be the product of each Settling Party, and no ambiguity shall be construed in favor of or against any Settling Party.

**9.9 Authorizations.** Each person executing this Settlement represents and warrants that he or she is duly authorized and empowered to act on behalf of, and to sign for, the Settling Party for whom he or she has signed.

**9.10 Counterparts.** This Settlement may be executed in one or more counterparts, each of which shall be deemed to be an original and all of which together shall be deemed to be one and the same instrument.

**9.11 Requisite Waivers.** The Commission's approval of this Settlement shall constitute the requisite grant of any waivers of any regulations as may be deemed necessary to permit the implementation of the provisions of this Settlement by its terms.

**9.12 Rules of Construction.** Except as otherwise expressly provided for in this Settlement, the rules of interpretation and construction set forth below shall apply to this Settlement:

**9.12.1** All defined terms in the singular shall have the same meaning when used in the plural and vice versa;

**9.12.2** References to “includes,” “including,” and similar phrases, shall mean “including without limitation.”

**9.12.3** Unless otherwise indicated, references to “Sections” or “Articles” refer to sections or articles in this Settlement.

**9.13 Headings.** The titles and headings of the various sections in this Settlement are for reference purposes only. They are not to be construed or taken into account in interpreting this Settlement, and they do not qualify, modify, or explain the effects of this Settlement.

**9.14 Standard of Review.** This Settlement may be amended only by the agreement or non-opposition of all Settling Parties. The standard of review for any modifications to this Settlement requested by a Settling Party, without the agreement or non-opposition of all other Settling Parties, shall be the “public interest” version of the just and reasonable standard of review. This standard shall apply notwithstanding any contrary provision in the Tariff or Operating Agreement, including section 9.2 of the Tariff or any other provisions that give PJM unilateral filing rights. The standard of review for any modifications to this Settlement requested by any other party, non-party, or the Commission acting *sua sponte*, shall be the most stringent standard permissible under applicable law.

**9.15 No Settled Practice.** This Settlement is made upon the express understanding that it constitutes a negotiated offer of settlement to resolve the issues presented in the underlying hearing in these proceedings. Neither the Settling Parties nor the Commission shall be deemed to have approved, accepted, agreed, or otherwise consented to any ratemaking principle or methodology or to any tariff interpretation or modification or to any other factor or concept underlying or supposed to underlie any of the matters herein, except as previously provided in this Settlement. The Commission's approval of this Settlement shall not constitute precedent nor be used to prejudice any otherwise available rights or arguments of any party in a future proceeding, other than to enforce the terms of the Settlement, and shall not be used as evidence that a particular method is a "long standing practice" as that term is used in *Columbia Gas Transmission Corp. v. FERC*, 628 F.2d 578 (D.C. Cir. 1979), or a "settled practice" as that term is used in *Public Service Commission of New York v. FERC*, 642 F.2d 1335 (D.C. Cir. 1980).

**9.16 Settlement Terms Govern.** To the extent there is any inconsistency between this Settlement and the Explanatory Statement submitted in support hereof, this Settlement shall control.

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**AGREEMENT CONTINUES ON NEXT PAGE**

**WHEREFORE**, the Settling Parties have caused their duly authorized representatives to execute and attest to this Settlement.

Respectfully submitted,



**PJM Interconnection, L.L.C.**

By: /s/ Michael Bryson  
Name: Michael Bryson  
Title: Vice President - Operations

**Energy Storage Association**

By: /s/ Kelly Speakes-Backman  
Name: Kelly Speakes-Backman  
Title: Chief Executive Officer

**AES ES Tait, LLC**

By: /s/ Judi L. Sobecki/rvg  
Name: Judi L. Sobecki  
Title: Secretary and General Counsel

**The AES Corporation**

By: /s/ Randall V. Griffin  
Name: Randall V. Griffin  
Title: Chief Regulatory Counsel

**AES Laurel Mountain, LLC**

By: /s/ Judi L. Sobecki/rvg  
Name: Judi L. Sobecki  
Title: Secretary and General Counsel

**Duke Energy Beckjord Storage, LLC**

By: /s/ Christopher M. Fallon  
Name: Christopher M. Fallon  
Title: Duke Energy, Vice President  
DE Renewables, Authorized  
Signatory

**Duke Energy Corporation**

By: /s/ Robert Caldwell  
Robert Caldwell  
Senior Vice President and President, Duke  
Energy Renewables and Distributed  
Energy, Authorized Signatory

**(Signatures continue next page)**

**McHenry Battery Storage, LLC**

By: EDF Renewables Asset Holdings,  
Inc., its sole Member and Manager

By: /s/ Marty Crotty

Name: Marty Crotty

Title: Executive Vice President, Asset  
Optimization

**EDF Renewables, Inc.**

By: /s/ Marty Crotty

Name: Marty Crotty

Title: Executive Vice President, Asset  
Optimization

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**Beech Ridge Energy Storage LLC**

By: /s/ Alexander C. George  
Name: Alexander C. George  
Title: Senior Vice President, Invenergy  
Investment Company LLC, parent  
company of Beech Ridge Energy Storage  
LLC

**Invenergy Investment Company LLC**

By: /s/ Alexander C. George  
Name: Alexander C. George  
Title: Senior Vice President, Invenergy  
Investment Company LLC, parent  
company of Beech Ridge Energy Storage  
LLC

**Grand Ridge Energy Storage LLC**

By: /s/ Alexander C. George  
Name: Alexander C. George  
Title: Senior Vice President, Invenergy  
Investment Company LLC, parent  
company of Beech Ridge Energy Storage  
LLC

**Grand Ridge Energy IV LLC**

By: /s/ Alexander C. George  
Name: Alexander C. George  
Title: Senior Vice President, Invenergy  
Investment Company LLC, parent  
company of Beech Ridge Energy Storage  
LLC

**(Signatures continue next page)**

**FPL Energy Illinois Wind, LLC**

By: /s/ Jessica Wang  
Name: Jessica Wang  
Title: Vice President

**NextEra Energy, Inc.**

By: /s/ Joseph T. Kelliher  
Name: Joseph T. Kelliher  
Title: Exec. Vice President - Federal  
Regulatory Affairs

**Green Mountain Storage, LLC**

By: /s/ Jessica Wang  
Name: Jessica Wang  
Title: Vice President

**Energy Storage Holdings, LLC**

By: /s/ Jessica Wang  
Name: Jessica Wang  
Title: Vice President

**(Signatures continue next page)**

**Meyersdale Storage, LLC**

By: GlidePath Storage Operations LLC,

By: GlidePath Power Operations LLC,

By: GlidePath Power Solutions  
LLC,

By: /s/ Christopher McKissack

Name: Christopher McKissack

Title: Chief Operating Officer

**GlidePath Power Solutions LLC**

By: /s/ Christopher McKissack

Name: Christopher McKissack

Title: Chief Operating Officer

**GlidePath Power LLC**

By: /s/ Daniel J. Foley

Name: Daniel J. Foley

Title: Manager

**(Signatures continue next page)**

**Battery Utility of Ohio, LLC**

By: RES Energy Storage Holdings, LLC,  
its Manager

By: RES America Developments Inc.,  
its Manager

By: /s/ Andrew Oliver  
Name: Andrew Oliver  
Title: Chief Technology Officer

**Renewable Energy Systems Americas,  
Inc.**

By: /s/ Andrew Oliver  
Name: Andrew Oliver  
Title: Chief Technology Officer

**Joliet Battery Storage LLC**

By: Northern Illinois Battery Storage  
Holding LLC, its Manager

By: RES Battery Storage Holding LLC,  
its Manager

By: RES America Developments  
Inc., its Manager

By: /s/ Andrew Oliver  
Name: Andrew Oliver  
Title: Chief Technology Officer

**West Chicago Battery Storage LLC**

By: Northern Illinois Battery Storage  
Holding LLC, its Manager

By: RES Battery Storage Holding LLC,  
its Manager

By: RES America Developments  
Inc., its Manager

By: /s/ Andrew Oliver  
Name: Andrew Oliver  
Title: Chief Technology Officer

**(Signatures continue next page)**

**Hazle Spindle, LLC**

By: /s/ Johannes Rittershausen  
Johannes Rittershausen  
Authorized Signatory

**Convergent Energy and Power LP**

By: /s/ Johannes Rittershausen  
Johannes Rittershausen  
Authorized Signatory

**Convergent Energy and Power GP LLC**

By: /s/ Johannes Rittershausen  
Johannes Rittershausen  
Authorized Signatory

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**ATTACHMENT A**

**OPT-IN FORM FOR VOLUNTARY PARTICIPATION BY UNLISTED  
AFFECTED BATTERIES**

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

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

**NOTICE OF [ULTIMATE UPSTREAM AFFECTED BATTERY OWNER] TO OPT INTO SETTLEMENT**

On \_\_\_\_\_[insert date], 2019, the Federal Energy Regulatory Commission (“Commission”) approved a Settlement Agreement and Offer of Settlement (“Settlement”) by and among PJM Interconnection, L.L.C. (“PJM”) and the Affected Battery Owners.<sup>15</sup> Section 5.2.1 of the Settlement provides that an Affected Battery Owner that is not an Identified Affected Battery Owner under the Settlement but that would like to have an Affected Battery it owns or controls participate in the PJM Regulation market under the Settlement must identify its battery to PJM as an Affected Battery, demonstrate its eligibility as an Affected Battery to the satisfaction of PJM, and agree to abide by all terms of the Settlement before it may participate in the Regulation market under this Settlement. \_\_\_\_\_ [Ultimate Upstream Affected Battery Owner] hereby notifies the Commission that its subsidiary,

<sup>15</sup> Capitalized terms are defined in the Settlement.

\_\_\_\_\_ [Immediate Affected Battery], owns and operates the Affected Battery identified in Exhibit A to this Notice. \_\_\_\_\_ [Ultimate Upstream Affected Battery Owner] has fully complied with the requirements of Section 5.2.1 of the Settlement to PJM's satisfaction and hereby elects to opt-in to the Settlement and agrees to be bound by all terms and conditions of the Settlement for the remainder of the Settlement term. This opt-in notice will take effect on \_\_\_\_\_, 20\_\_ [insert first day of the first month following its filing with the Commission].

Respectfully submitted,

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Representing: \_\_\_\_\_

Endorsed by:

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Representing: PJM Interconnection, L.L.C.

**EXHIBIT A – AFFECTED BATTERY IDENTIFYING INFORMATION**

<b>Immediate Affected Battery Owner</b>	<b>Ultimate Upstream Affected Battery Owner</b>	<b>Location of Identified Affected Battery</b>	<b>Original Capacity of Identified Affected Battery</b>