DRAFT
Meeting Minutes
PJM Interconnection
Energy Storage Resources in RPM Discussion
PJM Conference and Training Center
Valley Forge, PA
July 23, 2014
9:00 AM - 12:00 PM

Members Present:

Tom Rutigliano Achieving Equilibrium LLC
Joe Karrasch AEP
Thomas Fecho AEP
Phil Cox AES
Brian Perusse AES
Takis Laios American Electric Power
Chris Norton American Municipal Power, Inc.
Kevin Patten Appalachian Power Company
Brock Ondayko Appalachian Power Company
John Fernandes Baltimore Gas and Electric
Rehan Gilani ConEdison Energy, Inc.
Bill Dugan Customized Energy Solutions, Ltd.
Carl Johnson Customized Energy Solutions, Ltd.
Judith Judson McQueeney Customized Energy Solutions, Ltd.
John Farber DE Public Service Commission
Steve Steffel Delmarva Power & Light Company
Catharine Lacy Dominion Virginia Power
Kenneth Jennings Duke Energy Business Services LLC
Steve Steinkuhl Duke Energy Business Services LLC
Rebecca Stadelmeyer Exelon Corp.
Melanie Sanders Exelon Business Services Company, LLC
Martin Bolan FirstEnergy Solutions Corporation
Jim Benchek FirstEnergy Solutions Corporation
David Pratzen GT Power Group
Derek Hagaman GT Power Group
John Webster Icetec.com, Inc.
Kenneth Foladare IMG Midstream LLC
Alex Ma Invenenergy
Robert O’Connell JPMorgan Ventures Energy Corporation
Cody Hill  LS Power  
Megan Wisersky  Madison Gas & Electric Company  
Fred Rohs  Marina Energy, LLC  
Ralph De Geeter  Maryland Public Service Commission  
Kevin Dean  McNees Wallace & Nurick LLC  
Tom Blair  Monitoring Analytics, LLC  
Howard Haas  Monitoring Analytics, LLC  
George Kogut  New York Power Authority  
Jung Suh  Noble Americas Energy Solutions LLC  
Brian Hamilton  North American Electric Reliability Corporation  
John Hoeplinger  NRG Energy  
Neal Fitch  NRG Power Marketing LLC  
Fred Heizer  Ohio PUC  
John Brodbeck  Potomac Electric Power Company  
Mollie Maher  PPL EnergyPlus, L.L.C.  
Michele Greening  PPL EnergyPlus, L.L.C.  
Mark Brozina  Primary Power LLC  
John Citrolo  PSE & G Energy Resources and Trade LLC  
Nicole Swan  Public Service Electric & Gas Company  
Al Grisolia  Public Service Electric & Gas Company  
Frank Czigler  Public Service Electric & Gas Company  
Tom Hoatson  Riverside Generating, LLC  
Steven Lichtin  Stasis Energy, LLC  
Louis Slade  Virginia Electric & Power Company  

**PJM Staff Present:**

Michael Herman, Facilitator  PJM Interconnection, LLC  
Bhavana Keshavamurthy  PJM Interconnection, LLC  
Bridgid Cummings  PJM Interconnection, LLC  
Eric Hsia  PJM Interconnection, LLC  
Janell Fabiano  PJM Interconnection, LLC  
Jeffrey Bastian  PJM Interconnection, LLC  
Jennifer Tribulski  PJM Interconnection, LLC  
Jerry Bell  PJM Interconnection, LLC  
Keyur Patel  PJM Interconnection, LLC  
Michael Bryson  PJM Interconnection, LLC  
Michael Sobotka  PJM Interconnection, LLC  
Michael Ward  PJM Interconnection, LLC  
Murty Bhavaraaju  PJM Interconnection, LLC  
Scott Baker  PJM Interconnection, LLC  
Tom Falin  PJM Interconnection, LLC
1. **ADMINISTRATION**

Mr. Herman called the meeting to order and then asked Mr. Quevada to call the roll. Mr. Herman then asked for additional items for the agenda, and there were no suggestions.

2. **DISCUSS TARGETED WORK PLAN**

Mr. Herman reviewed a targeted work plan for the discussion. The plan has moved to bi-monthly meetings until August 2014, leaving time for any recommended proposal to be implemented in advance of the May 2015 Base Residual Auction.

3. **EDUCATION/ACTION ITEMS**

PJM provided education and led discussions on topics as listed in the meeting’s agenda. Education will be on-going as requested by the members for future meetings.

- PJM led a discussion on the question: How are advanced energy storage resources treated in NYISO, CAISO and other entities, specifically with respect to time capability and other design components in our Matrix?
- PJM addressed the topic of allowing energy storage resources to collocate with intermittent resources and provide capacity as one unit under this problem statement. PJM feels this is within scope, and is open to suggestions for additional Design Components and Solutions options for inclusion in the Matrix.
- PJM addressed the question: If a unit schedules 5 starts in a given week and uses all of those up by Wednesday, are they forced to take an outage? This topic is currently under consideration for inclusion at the Operating Committee.
- Should Run of River Hydro Resources have their ICAP limited? This question was determined to be out of scope for this problem statement.
- PJM addressed the analysis performed by ESA regarding the 20 Coincident peaks, the 3.3 MWh, and the effective load carrying capability.
- PJM addressed the representation of Status Quo in the Matrix. The Matrix has been updated to include two status quo columns, 1 for how Advanced Energy Storage Resources and Other Storage Resources are treated in PJM today, and one for how units in RPM are treated today. Please note that the current the status quo for Advanced Energy Storage Resources to participate in RPM is that they are not directly able to participate as a capacity product.
- Where is the topic of Pumped Storage maximum power output over 1 hour referred to in PJM manuals? This topic is covered in PJM Manual 21, Appendix A, Section B (4).
- Can PJM provide education on Metering/Telemetry requirements? We are working with our SME’s to provide education on this topic at the August 15th meeting. Please See M11 and M14D for a detailed description.
- What is the status quo of the Make Resource Available design component/How will the interconnection process (and determination of rating) work for Energy Storage Resources?

4. **OPTIONS MATRIX**

PJM led a discussion on solution options and solicited member feedback in an effort to consolidate design components as listed in the options matrix. PJM also led discussions regarding its preferred package. The updated
design component matrix will be made available on the meeting’s website. PJM will be polling the members to solicit their input in future meetings.

5. ACTION ITEMS

Through discussion, several action items (and questions) were identified for PJM to discuss in future meetings:

- PJM will provide an update on the status of the topic under consideration for the OC: If a unit schedules 5 starts in a given week and uses all of those up by Wednesday, are they forced to take an outage? Also on this topic to be discussed is how this situation is handled in eDart and in GADS.
- PJM will provide education on Metering and Telemetry requirements.
- PJM will provide education on the interconnection process and determination of ratings for Energy Storage Resources.
- PJM will update the status quo for the Test Requirements Design component to reflect multiple market products.
- Does MOPR need to be addressed in Energy Storage Resource discussions?
- Look into the defined term Energy Storage Resources, and determine if it applies as we use it in the matrix.

6. FUTURE MEETINGS

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Location</th>
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<tbody>
<tr>
<td>August 15, 2015</td>
<td>9:00am – 1:00pm</td>
<td>Webinar/CTC, Norristown, PA</td>
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<tr>
<td>August 29, 2015</td>
<td>9:00am – 1:00pm</td>
<td>Webinar/CTC, Norristown, PA</td>
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Author: Jason Quevada, PJM
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