Meeting Minutes
PJM Interconnection
Energy Storage Resources in RPM Discussion
PJM Conference and Training Center
Valley Forge, PA
June 10, 2014
1:00 PM - 3:00 PM

Members Present:

Tom Rutigliano Achieving Equilibrium LLC
David Canter AEP
Mark Smith AEP Energy Partners, Inc. (AEP Retail)
Takis Laios American Electric Power
Chris Norton American Municipal Power, Inc.
Brock Ondayko Appalachian Power Company
Mike Berlinski Beacon Power, LLC
Joseph Kerecman Calpine Energy Services, L.P.
Stewart Harris Carmen Group
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 Horstmann Dayton Power & Light Company
Catharine Lacy Dominion Virginia Power
Nancy Connelly Duke Energy
Kenneth Jennings Duke Energy Business Services LLC
Chuck Dugan East Kentucky Power Cooperative, Inc.
Katherine Hamilton Energy Storage Association
Rebecca Stadelmeyer Exelon Business Services Company, LLC
Grant Marchewka FirstEnergy Corporation
Jim Benchcheck FirstEnergy Solutions Corporation
Michael Borgatti Gable and Associates
David Pratzon GT Power Group
John Webster Icetec.com, Inc.
Kenneth Foladare IMG Midstream LLC
Dennis Worthem Independent Observer from Ohio
Robert O’Connell JPMorgan Ventures Energy Corporation
Megan Wisersky Madison Gas & Electric Company
Ralph De Geeter Maryland Public Service Commission
Kevin Dean  
McNees Wallace & Nurick LLC

George Kogut  
New York Power Authority

David Applebaum  
NextEra Energy Power Marketing, LLC

Anoop Shah  
NextEra Energy Power Marketing, LLC

Edgar Garcia  
Noble Americas Energy Solutions LLC

Brian Hamilton  
North American Electric Reliability Corporation

Neal A. Fitch  
NRG Power Marketing LLC

Fred Heizer  
Ohio PUC

William Kouam Kamwa  
Other

John Brodbeck  
Potomac Electric Power Company

Tom Hoatson  
Riverside Generating, LLC

Kevin Gorman  
The Highlands Energy Group LLC

Louis Slade  
Virginia Electric & Power Company

**PJM Staff Present:**

Michael Herman, Facilitator  
PJM Interconnection, LLC

Aaron Berner  
PJM Interconnection, LLC

Adam Keech  
PJM Interconnection, LLC

Andrew Gledhill  
PJM Interconnection, LLC

Dave Pomian  
PJM Interconnection, LLC

David Anders  
PJM Interconnection, LLC

Ed Hoey  
PJM Interconnection, LLC

Francis Barrett  
PJM Interconnection, LLC

Jennifer Tribulski  
PJM Interconnection, LLC

Jerry Bell  
PJM Interconnection, LLC

Jim Kirby  
PJM Interconnection, LLC

Joseph Ciabattoni  
PJM Interconnection, LLC

Laura Walter  
PJM Interconnection, LLC

Michael Olaleye  
PJM Interconnection, LLC

Mike Ward  
PJM Interconnection, LLC

Murty Bhavaraju  
PJM Interconnection, LLC

Patricio Rocha-Garrido  
PJM Interconnection, LLC

Paul Scheidecker  
PJM Interconnection, LLC

Risa Holland  
PJM Interconnection, LLC

Tom Falin  
PJM Interconnection, LLC

Jason Quevada, Secretary  
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 roughly calls for monthly meetings until August 2014, leaving time for any recommended proposal to be implemented in advance of the May 2015 Base Residual Auction.

3. **DESIGN COMPONENTS**

   PJM continued gathering design components from the members, and will continue to solicit further design components in future meetings. PJM will make available the initial design component matrix on the meeting’s website.

4. **ACTION ITEMS**

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

   - Should topic of allowing energy storage resources to collocate with intermittent resources and provide capacity as one unit be discussed under this problem statement?
   - If an energy storage resource charges during a specific hour, is that netted out for a make whole payment?

   According to section 4.2 of manual 28 (Operating Agreement Accounting): “If the resource’s pool-scheduled Regulation offer price (plus lost opportunity costs, including shoulder hours’ lost opportunity costs, for generators) is greater than its Regulation Clearing Price credit for that hour, then the resource receives an additional credit equal to the amount that its Regulation offer price (plus lost opportunity costs, including shoulder hours’ lost opportunity costs, for generators) is in excess of its Regulation Clearing Price credit.” The regulation market clearing price is intended to cover the scenario as long as the energy storage resource in question is pool scheduled for regulation (If an energy storage resource charges during a specific hour). This is because regulation is priced in real-time every five minutes and where the clearing price is determined as the most expensive (offer + LOC) of all resources pool scheduled providing regulation at the time.

   - 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? (waiting on a response from Jerry for the exact wording of this one)
   - 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?
   - Can PJM discuss the process for determining the capacity value of a resource based on continuous time capability
   - More definition around the status quo for "Method of availability to PJM as a generating resource"
   - Has IEEE done any work on assessing the availability of Energy Resources
5. **FUTURE MEETINGS**

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<td>July 2, 2014</td>
<td>9:00am – 1:00pm</td>
<td>Webinar/CTC, Norristown, PA</td>
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<td>July 23, 2014</td>
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<tr>
<td>August 15, 2015</td>
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<td>August 29, 2015</td>
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