

Seasonal Capacity Resources Senior Task Force (SCRSTF)

PJM Conference and Training Center

July 11, 2016

9:30 a.m. – 4:00 p.m. EPT

Meeting #8

Administration

1. Mr. Scott Baker opened the meeting and reviewed the agenda.
2. Mr. Joe Callis reviewed the meeting guidelines, performed roll call and reviewed the draft minutes of the June 21 meeting. Minutes were approved and posted as final.

Solution Options for Demand Resources

1. Mr. Murty Bhavaraju, PJM, discussed a proposed solution option for non-summer Demand Response measurement and verification. Stakeholders requested additional time at the next meeting to continue discussing the solution options for demand resources.

Solution Options for Aggregate Resources

1. Mr. Adam Keech, PJM, provided a brief update on comments by Andy Ott on the seasonal resources participation in RPM at the MRC.
2. Mr. Keech also discussed draft resource aggregation business rules and solution options. Stakeholders discussed solution options for design components focused on Aggregated Resources.
3. Mr. Aaron Berner, PJM discussed winter deliverability analysis associated with wind resources and answered questions from the stakeholders regarding CIR calculations for seasonal resources.

Solution Options for Seasonal Products

1. Mr. Tom Rutigliano, WeatherBug, presented solutions options for an alternative Capacity Performance product.
2. Mr. Jim Wilson, on behalf of the NJ Division of Rate Counsel, PA Office of Consumer Advocate, MD Office of People's Counsel, DC Office of People's Counsel, DE Division of the Public Advocate, and the Sustainable FERC Project, presented a proposal to develop a seasonal capacity market.

Follow-up Action Items from the June 21st meeting (3:30 - 3:45)

1. Mr. Tom Falin, PJM, provided a brief response to the Base Capacity Analysis presented at the June 6 SCRSTF meeting.

Action Items and Future Agenda Items (3:45 – 4:00)

1. PJM will post an updated matrix prior to the next meeting which will include all the proposed

solutions options presented in the meetings thus far in matrix form.

Future Meeting Dates

| | | |
|--------------------|-----------------------|---|
| August 1, 2016 | 9:30 a.m. – 4:00 p.m. | PJM Conference & Training Center/ WebEx |
| August 12, 2016 | 9:30 a.m. – 4:00 p.m. | PJM Conference & Training Center/ WebEx |
| August 22, 2016 | 1:00 p.m. – 4:30 p.m. | PJM Conference & Training Center/ WebEx |
| September 8, 2016 | 9:30 a.m. – 4:00 p.m. | PJM Conference & Training Center/ WebEx |
| September 23, 2016 | 9:30 a.m. – 4:00 p.m. | PJM Conference & Training Center/ WebEx |
| October 14, 2016 | 9:30 a.m. – 4:00 p.m. | PJM Conference & Training Center/ WebEx |
| October 26, 2016 | 9:30 a.m. – 4:00 p.m. | PJM Conference & Training Center/ WebEx |
| November 16, 2016 | 9:30 a.m. – 4:00 p.m. | PJM Conference & Training Center/ WebEx |
| November 29, 2016 | 9:30 a.m. – 4:00 p.m. | PJM Conference & Training Center/ WebEx |
| December 19, 2016 | 9:30 a.m. – 4:00 p.m. | PJM Conference & Training Center/ WebEx |

Author: B. Keshavamurthy

In Attendance (In Person)

| Last Name | First Name | Company | Sector |
|-----------|------------|---------------------------------------|--------------------|
| Baker | Scott | PJM Interconnection, LLC | Not Applicable |
| Barker | Jason | Exelon Business Services Company, LLC | Transmission Owner |
| Bastian | Jeff | PJM Interconnection, LLC | Not Applicable |
| Berner | Aaron | PJM Interconnection, LLC | Not Applicable |
| Bhavaraju | Murty | PJM Interconnection, LLC | Not Applicable |
| Borgatti | Michael | Gabel and Associates | Not Applicable |
| Bruce | Susan | McNees Wallace & Nurick LLC | Not Applicable |
| Bruno | Patrick | PJM Interconnection, LLC | Not Applicable |
| Callis | Joe | PJM Interconnection, LLC | Not Applicable |
| Campbell | Bruce | EnergyConnect, Inc. | Other Supplier |
| Carmean | Gregory | OPSI | Not Applicable |
| Carroll | Rebecca | PJM Interconnection, LLC | Not Applicable |
| Chen | Jennifer | Natural Resources Defense Council | Not Applicable |
| Doremus | Steven | EnerNOC, Inc. | Other Supplier |
| Fabiano | Janell | PJM Interconnection, LLC | Not Applicable |
| Falin | Tom | PJM Interconnection, LLC | Not Applicable |
| Fitch | Neal | NRG Power Marketing LLC | Generation Owner |
| Greiner | Gary | PSEG Energy Resources and Trade LLC | Other Supplier |
| Griffiths | Dan | Consumer Advocates of PJM States | Not Applicable |
| Guerry | Katie | EnerNOC, Inc. | Other Supplier |
| Hendrzak | Chantal | PJM Interconnection, LLC | Not Applicable |
| Jacobs | Mike | Xtreme Power | Not Applicable |
| Johnson | Carl | Customized Energy Solutions, Ltd. | Not Applicable |
| Kauffman | Brian | NRG Curtailment Solutions | Other Supplier |

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|---------------|----------|--|----------------------|
| Keech | Adam | PJM Interconnection, LLC | Not Applicable |
| Kerecman | Joe | Calpine Energy Services, L.P. | Generation Owner |
| Keshavamurthy | Bhavana | PJM Interconnection, LLC | Not Applicable |
| Kier | Laura | EnergyHub | Not Applicable |
| Kilgallen | Kevin | Iberdrola | Generation Owner |
| Levitt | Andrew | PJM Interconnection, LLC | Not Applicable |
| Lieberman | Steven | Old Dominion Electric Cooperative | Electric Distributor |
| Mabry | David | McNees Wallace & Nurick LLC | Not Applicable |
| O'Connell | Robert | Main Line Electricity Market Consultants | Not Applicable |
| Pratzon | David | GT Power Group | Not Applicable |
| Rocha Garrido | Patricio | PJM Interconnection, LLC | Not Applicable |
| Rutigliano | Tom | Earth Networks | Other Supplier |
| Schreim | Morris | Maryland Public Service Commission | Not Applicable |
| Sechrist | Erin | PJM Interconnection, LLC | Not Applicable |
| Thomson | Heather | Mid-Atlantic Renewable Energy | Not Applicable |
| Tribulski | Jennifer | PJM Interconnection, LLC | Not Applicable |
| Whitehead | Jeffrey | Direct Energy Business Marketing, LLC | Other Supplier |
| Wilson | James | Wilson Energy Economics | Not Applicable |

In Attendance (WebEx / Teleconference)

| Last Name | First Name | Company | Sector |
|---------------|------------|---|----------------------|
| Ainspan | Malcolm | Energy Curtailment Specialists, Inc. | Other Supplier |
| Barbeau | Andrew | The Accelerate Group | Not Applicable |
| Benchek | Jim | FirstEnergy Solutions Corp. | Transmission Owner |
| Bloom | David | Baltimore Gas and Electric Company | Transmission Owner |
| Boyle | Glen | PJM Interconnection, LLC | Not Applicable |
| Brown | Richard | PJM Interconnection, LLC | Not Applicable |
| Brodbeck | John | EDP Renewables North America, LLC | Other Supplier |
| Carmean | Gregory | OPSI | Not Applicable |
| Chocarro | Iker | E.ON Climate & Renewables North America, LLC | Generation Owner |
| Cocco | Michael | ODEC | Electric Distributor |
| Collins | Leonard | State of Delaware | Not Applicable |
| Croop | Danielle | PJM Interconnection, LLC | Not Applicable |
| Cummings | Bridgid | PJM Interconnection, LLC | Not Applicable |
| D'Alessandris | Lou | FirstEnergy Solutions Corp. | Transmission Owner |
| davis | connie | City of Cleveland, DPU, Div of Cleveland Public Pwr | Electric Distributor |
| DeLosa | Joseph | DE Public Service Commission | Not Applicable |
| DeNavas | Joseph | Potomac Electric Power Company | Electric Distributor |
| Domian | Christin | Mitsubishi Electric Power Products Inc. | Not Applicable |

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| Dugan | Chuck | East Kentucky Power Cooperative, Inc. | Transmission Owner |
| Endress | Eric | PJM Interconnection, LLC | Not Applicable |
| Erbrick | Michael | Dhast Co | Not Applicable |
| Esposito | Pati | TransCanada Power Marketing Ltd. | Other Supplier |
| Evrard | David | Pennsylvania Office of the Consumer Advocate | Not Applicable |
| Farber | John | DE Public Service Commission | Not Applicable |
| Feierabend | Rick | Dominion Virginia Power | Not Applicable |
| Feliks | Kent | AEP | Transmission Owner |
| Filomena | Guy | Customized Energy Solutions, Ltd. | Not Applicable |
| Foladare | Kenneth | IMG Midstream LLC | Generation Owner |
| Garnett | Bryan | Duke Energy Ohio, Inc. | Transmission Owner |
| Gebolys | Debbie | Public Utilities Commission of Ohio (The) | Not Applicable |
| Gledhill | Andrew | PJM Interconnection, LLC | Not Applicable |
| Greening | Michele | Talen Energy Marketing, LLC | Generation Owner |
| Horstmann | John | Dayton Power & Light Company (The) | Transmission Owner |
| Horton | Dana | Appalachian Power Company | Transmission Owner |
| Hsia | Eric | PJM Interconnection, LLC | Not Applicable |
| Hyzinski | Tom | Talen Energy Marketing, LLC | Generation Owner |
| Jackson | Michaela | EDF Trading North America, LLC | Other Supplier |
| Jardot | Gina | Essential Power Rock Springs, LLC | Transmission Owner |
| Kaczanowski | Marek | Baltimore Gas and Electric Company | Transmission Owner |
| Keefer | Brian | Dominion Energy Marketing, Inc. | Generation Owner |
| Kelly | Stephen | Brookfield Energy Marketing LP | Other Supplier |
| Kolo | Elta | GTM | Not Applicable |
| Korad | Akshay | MISO | Not Applicable |
| Lacy | Catharine | Dominion Virginia Power | Not Applicable |
| Langbein | Pete | PJM Interconnection, LLC | Not Applicable |
| Lyser | Shelly | Rockland Electric Company | Transmission Owner |
| Marton | David | FirstEnergy Solutions Corp. | Transmission Owner |
| Marzewski | Skyler | Monitoring Analytics, LLC | Not Applicable |
| Matheson | Doug | EnerNOC, Inc. | Other Supplier |
| Matzen | Jeff | Dominion Retail, Inc. | Not Applicable |
| McCaffree | Matt | Comverge Inc. | Not Applicable |
| Midgley | Sharon | Exelon Business Services Company, LLC | Transmission Owner |
| Miller | John | Commonwealth Edison Company | Transmission Owner |
| Norton | Chris | American Municipal Power, Inc. | Electric Distributor |
| Ondayko | Brock | Appalachian Power Company | Transmission Owner |
| Ozkan | Deniz | Atlantic Grid Operations A, LLC | Other Supplier |
| Peters | James | ITC Holdings | Transmission Owner |
| Powers | Sean | Linde Energy Services, Inc. | End User Customer |

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| Price | Ruth | Division of the Public Advocate of the State of Delaware | End User Customer |
| Quevada | Jason | PJM Interconnection, LLC | Not Applicable |
| Reynolds | John | PJM Interconnection, LLC | Not Applicable |
| Rugh | Chris | EverPower Commercial Services, LLC | Generation Owner |
| Sasser | Jonathan | Customized Energy Solutions, Ltd. | Not Applicable |
| Scarpignato | David | Calpine Energy Services, L.P. | Generation Owner |
| Schuyler | Ken | PJM Interconnection, LLC | Not Applicable |
| Schneider | Jon | FirstEnergy Corporation | Not Applicable |
| Scoglietti | Barbara | Tangent Energy Solutions, Inc. | Other Supplier |
| Seide | Richard | Apex Clean Energy | Not Applicable |
| Shanker | Roy | Hydro Quebec | Not Applicable |
| Singer | Chad | Fellon McCord | Not Applicable |
| Sitaraman | Nicole | Office of the Peoples Counsel for the District of Columbia | End User Customer |
| Tripoli | Matthew | IMG Midstream LLC | Generation Owner |
| Ward | Michael | PJM Interconnection, LLC | Not Applicable |
| Wilmoth | Emily | Dominion Virginia Power | Not Applicable |
| Wilson | James | Wilson Energy Economics | Not Applicable |
| Wisersky | Megan | MG&E | Other Supplier |
| Womack | Robert | IPKeys Power Partners, LLC | Other Supplier |
| Wynn | Laura | SMXB Law | Not Applicable |
| Yu | Joel | Rockland Electric Company | Transmission Owner |