

**Markets and Reliability Committee**  
**The Chase Center on the Riverfront, Wilmington, DE**  
**April 27, 2017**  
**9:00 a.m. – 12:30 p.m. EPT**

## Administration

Ms. Daugherty and Mr. Anders welcomed the participants, and provided the announcements and antitrust and code of conduct announcements.

Mr. Tom O'Brien discussed recent phishing attempts and offered recommended precautions that stakeholders should take to protect their systems.

## Endorsements/Approvals

### 1. Draft Minutes

Minutes of the March 23, 2017 meeting of the Markets and Reliability Committee (MRC) were **approved** by acclamation with no objections and one abstention.

### 2. PJM Manuals

A. Mr. Michael Herman presented revisions to Manual 14B: PJM Region Transmission Planning Process. Updates include: correcting wording in the Baseline Thermal Analysis section to match analytical procedures and changing all occurrences of "Special Protection System" to "Remedial Action Scheme" per a change to the NERC glossary of terms. Following discussion, the committee **endorsed** the proposed revisions by acclamation with no objections or abstentions.

### 3. Energy Market Uplift Sr. Task Force (EMUSTF)

Mr. David Anders presented the proposed Phase 3 solution endorsed by the EMUSTF. Ms. Ruta Skucas moved and Mr. Joe Wadsworth seconded that voting on the proposed Phase 3 solution be deferred until FERC has acted on the Phase 2 solution. The motion to defer **failed** in a sector-weighted vote with 1.04 in favor. Ms. Noha Sidhom moved and Mr. Joe Wadsworth seconded an alternate motion to approve the full proposal but separate the filings at FERC into two parts: one filing to address removal of "dead buses", and a second to include the remainder of the proposal. Following discussion, the committee **endorsed** the Phase 3 proposed OA, Tariff and manual revisions in a sector-weighted vote with 4.07 in favor.

### 4. Regulation Market Issues Sr. Task Force (RMISTF)

Mr. Eric Hsia presented the proposed regulation market enhancements endorsed by the RMISTF. Mr. John Horstmann moved and Mike Borgatti seconded that the vote on the proposal be postponed until the June 2017 MRC meeting. The motion to defer **passed** in a sector-weighted vote with 3.76 in favor. The committee will be asked to endorse the proposal at its June, 22, 2017 meeting.

## 5. Capacity Construct / Public Policy Sr. Task Force (CCPPSTF)

Mr. David Anders presented the draft charter for the CCPPSTF. Following discussion, the committee **approved** the proposed charter by acclamation with one objection and two abstentions.

## 6. Seasonal Capacity

Ms. Terri Esterly will present proposed revisions Manual 18: PJM Capacity Market which conform to the recent Enhanced Aggregation FERC order related to seasonal capacity participation in RPM as Capacity Performance resources. Dr. Bowring proposed friendly amendments as follows (amendments in red):

### Section 4.9 Aggregate Resources

- The location of ~~Any~~ replacement capacity specified for an Aggregate Resource must be located in the LDA in which the ~~Aggregate Resource was modeled~~ in accordance with the Replacement Capacity transaction business rules in Section 8.9 of this manual.

Section 5.7.3 Resource Make-whole Payments in Base Residual Auctions (same change would be needed in Section 5.8.3 Resource Make-whole Payments in Incremental Auctions)

Effective with the 2020/2021 Delivery Year, a resource provider that offered and cleared a Seasonal Capacity Performance sell offer for which the sell offer price exceeded the clearing price determined for such resource as a result of the seasonal matching process in the post-processing of the auction results as described in Section 5.7.2 will receive a Resource Make-whole Payment. The Resource Make-whole Payment is equal to the difference between the sell offer price and clearing price for such resource determined as a result of the seasonal matching process, multiplied by the cleared MW quantity.

There was no objection to these proposed amendments and therefore they were incorporated in to the proposed revisions. Following discussion, the committee **endorsed** the proposed revisions by acclamation with no objections and three abstentions.

Mr. Scott Baker provided a final report of the Seasonal Capacity Resources Sr. Task Force (SCRSTF). Stakeholders discussed the potential to sunset the SCRSTF, and may be asked to vote on sunsetting at a future meeting.

## First Readings

## 7. Annual Revenue Requirements for new Black Start Units – Phase 1

Mr. Tom Hauske presented the solution package for the Annual Revenue Requirements for new Black Start units. The committee will be asked to endorse the proposed revisions at its next meeting.

## 8. Pseudo-tied Generators and Dynamic Schedules Meter Correction Proposal

Mr. Ray Fernandez presented the Pseudo-tied Generators and Dynamic Schedules Meter Correction proposal and governing document revisions that was endorsed by the Markets Settlements Subcommittee. The committee will be asked to endorse the proposed revisions at its next meeting.

## 9. Primary Frequency Response Problem Statement and Issue Charge

Mr. David Schweizer reviewed a proposed problem statement and issue charge related to generator Primary Frequency Response requirements. The committee will be asked to approve the proposed problem statement and issue charge at its next meeting.

## 10. Long Term FTRs Problem Statement and Issue Charge

Mr. Asanga Perera discussed a proposed problem statement and issue charge to address enhancements to long-term FTR modeling related to potential congestion impacts for future transmission system changes. The committee will be asked to approve the proposed problem statement and issue charge at its next meeting.

## 11. PJM Manuals

- A. Ms. Nicole Scott reviewed proposed changes to Manual 03: Transmission Operations related to the periodic review of the manual. The committee will be asked to endorse the proposed revisions at its next meeting.
- B. Mr. Brian Chmielewski discussed conforming Manual 06: Financial Transmission Rights revisions related to the FERC Order impacting the annual ARR/FTR process. The committee will be asked to endorse the proposed revisions at its next meeting.
- C. Mr. David Schweizer and Mr. Joe Mulhern presented proposed revisions to the tariff and Manual 14D: Generator Operational Requirements related to requirements for solar parks. The committee will be asked to endorse the proposed revisions at its next meeting.
- D. This item was deferred to a future meeting.
- E. Mr. Glen Boyle reviewed proposed changes to Manual 36: System Restoration related to the periodic review of the manual. The committee will be asked to endorse the proposed revisions at its next meeting.

## Informational Updates

### 12. Automatic Sectionalizing Schemes

Mr. Lagy Mathew provided an update regarding Automatic Sectionalizing Schemes.

### 13. Designated Entity Design Standards Task Force (DEDSTF)

Mr. Herman presented the minimum design requirements document created by the DEDSTF. DEDSTF requirements must be followed for all proposals that will require the signing of a Designated Entity Agreement. Mr. Herman discussed plans for management of these processes in the future.

## 14. BGE Remedial Action Schemes (RAS)

Mr. Eric Yeh, BGE, discussed retirement of Concord RAS and the extension of Mt Washington RAS.

### Future Agenda Items

No new future agenda items were identified.

### Future Meeting Dates

|                    |           |                |
|--------------------|-----------|----------------|
| May 25, 2017       | 9:30 a.m. | Wilmington, DE |
| June 22, 2017      | 9:00 a.m. | Wilmington, DE |
| July 27, 2017      | 9:00 a.m. | Wilmington, DE |
| August 24, 2017    | 9:30 a.m. | Wilmington, DE |
| September 28, 2017 | 9:00 a.m. | Wilmington, DE |
| October 26, 2017   | 9:00 a.m. | Wilmington, DE |
| November 30, 2017  | 9:00 a.m. | Wilmington, DE |
| December 21, 2017  | 9:30 a.m. | Wilmington, DE |

Author: D. A. Anders

#### Chair/Secretary

| Last Name | First Name | Company                  | Role      |
|-----------|------------|--------------------------|-----------|
| Anders    | Dave       | PJM Interconnection, LLC | Secretary |
| Daugherty | Suzanne    | PJM Interconnection, LLC | Chair     |

#### Voters

| Last Name | First Name | Company   | Sector               |
|-----------|------------|---|----------------------|
| Benchek   | Jim        | American Transmission Systems, Inc.                 | Transmission Owner   |
| Bleiweis  | Bruce      | DC Energy, LLC                                      | Other Supplier       |
| Borgatti  | Michael    | Rep.'g Covanta Energy Group, LLC                    | Generation Owner     |
| Borgatti  | Michael    | Rep.'g Elgin Energy Center, LLC                     | Generation Owner     |
| Borgatti  | Michael    | Rep.'g Jersey Green Energy LLC                      | Other Supplier       |
| Borgatti  | Michael    | Rep.'g Longview Power, LLC                          | Generation Owner     |
| Borgatti  | Michael    | Rep.'g Moxie Freedom LLC                            | Generation Owner     |
| Borgatti  | Michael    | Rep.'g Newark Energy Center, LLC                    | Generation Owner     |
| Borgatti  | Michael    | Rep.'g NextEra Energy Marketing, LLC                | Generation Owner     |
| Borgatti  | Michael    | Rep.'g York County Solid Waste and Refuse Authority | Generation Owner     |
| Bruce     | Susan      | Rep.'g Air Products & Chemicals, Inc.               | End User Customer    |
| Bruce     | Susan      | Rep.'g ArcelorMittal USA LLC                        | End User Customer    |
| Bruce     | Susan      | Rep.'g Gerdau Ameristeel Energy, Inc.               | Other Supplier       |
| Bruce     | Susan      | Rep.'g Industrial Energy Users-Ohio                 | Other Supplier       |
| Bruce     | Susan      | Rep.'g Kimberly-Clark Corporation                   | Generation Owner     |
| Bruce     | Susan      | Rep.'g Lehigh Portland Cement Company               | End User Customer    |
| Bruce     | Susan      | Rep.'g Letterkenny Industrial Development Authority | Electric Distributor |

|           |         |  |                      |
|-----------|---------|--|----------------------|
| Bruce     | Susan   | Rep.'g Linde, LLC  | End User Customer    |
| Bruce     | Susan   | Rep.'g MeadWestvaco Corporation                                    | End User Customer    |
| Bruce     | Susan   | Rep.'g Praxair, Inc.   | End User Customer    |
| Bruce     | Susan   | Rep.'g Procter & Gamble Paper Products Company (The)               | End User Customer    |
| Bruce     | Susan   | Rep.'g Trustees of the University of Pennsylvania                  | End User Customer    |
| Bruce     | Susan   | Rep.'g Wellsboro Electric Company                                  | Electric Distributor |
| Campbell  | Bruce   | Rep.'g Enerwise Global Technologies, Inc.                          | Other Supplier       |
| Campbell  | Bruce   | Rep.'g MidAtlantic Power Partners, LLC                             | Other Supplier       |
| Cocco     | Michael | Old Dominion Electric Cooperative                                  | Electric Distributor |
| Davis     | James   | Virginia Electric & Power Company                                  | Transmission Owner   |
| Day       | Jason   | Oceanside Power LLC  | Other Supplier       |
| Dugan     | Chuck   | East Kentucky Power Cooperative, Inc.                              | Transmission Owner   |
| Ellison   | Alan    | Grays Ferry Cogeneration Partnership                               | Generation Owner     |
| Evrard    | David   | Pennsylvania Office of Consumer Advocate                           | End User Customer    |
| Fitch     | Neal    | NRG Power Marketing, LLC   | Generation Owner     |
| Fuess     | Jay     | Rep.'g Church Hill Solar Farm, LLC                                 | Generation Owner     |
| Fuess     | Jay     | Rep.'g Diamond State Generation Partners, LLC                      | Generation Owner     |
| Fuess     | Jay     | Rep.'g Ictec.com, Inc.   | Other Supplier       |
| Fuess     | Jay     | Rep.'g Kuehne Chemical Company, Inc.                               | Other Supplier       |
| Fuess     | Jay     | Rep.'g PBF Power Marketing, LLC                                    | Generation Owner     |
| Garnett   | Bryan   | Duke Energy Business Services LLC                                  | Transmission Owner   |
| Greening  | Michele | PPL Electric Utilities Corp. dba PPL Utilities (LSE)               | Transmission Owner   |
| Greiner   | Gary    | Public Service Electric & Gas Company                              | Transmission Owner   |
| Griffiths | Dan     | Rep.'g Delaware Division of the Public Advocate                    | End User Customer    |
| Griffiths | Dan     | Rep.'g Illinois Citizens Utility Board                             | End User Customer    |
| Griffiths | Dan     | Rep.'g Indiana Office of Utility Consumer Counselor (IN OUCC)      | End User Customer    |
| Griffiths | Dan     | Rep.'g Maryland Office of People's Counsel                         | End User Customer    |
| Griffiths | Dan     | Rep.'g New Jersey Division of Rate Counsel                         | End User Customer    |
| Griffiths | Dan     | Rep.'g Office of the Attorney General, Kentucky                    | End User Customer    |
| Griffiths | Dan     | Rep.'g Office of the People's Counsel for the District of Columbia | End User Customer    |
| Griffiths | Dan     | Rep.'g Ohio Consumers' Counsel                                     | End User Customer    |
| Griffiths | Dan     | Rep.'g West Virginia Consumer Advocate Division                    | End User Customer    |
| Guerry    | Katie   | EnerNOC, Inc.  | Other Supplier       |
| Hastings  | David   | Rep.'g BioUrja Power, LLC  | Other Supplier       |
| Hastings  | David   | Rep.'g Cargill Power Markets, LLC                                  | Other Supplier       |
| Hastings  | David   | Rep.'g Chesapeake Trading Group, LLC                               | Other Supplier       |
| Hastings  | David   | Rep.'g Mercuria Energy America, Inc.                               | Other Supplier       |
| Hastings  | David   | Rep.'g Northstar Trading Ltd.                                      | Other Supplier       |
| Hastings  | David   | Rep.'g Saracen Energy East LP                                      | Other Supplier       |

|            |          |   |                      |
|------------|----------|---|----------------------|
| Hastings   | David    | Rep.'g SESCO Enterprises, LLC                         | Other Supplier       |
| Hastings   | David    | Rep.'g Solios Power Mid-Atlantic Trading LLC          | Other Supplier       |
| Helms      | Joseph   | Rainbow Energy Marketing Corporation                  | Other Supplier       |
| Hoatson    | Tom      | West Deptford Energy, LLC                             | Generation Owner     |
| Hohenshilt | Jennifer | Talen Energy Marketing, LLC                           | Generation Owner     |
| Horstmann  | John     | Dayton Power & Light Company (The)                    | Transmission Owner   |
| Horton     | Dana     | Appalachian Power Company (AEP Generation)            | Transmission Owner   |
| Hurwich    | Mark     | Elliott Bay Energy Trading, LLC                       | Other Supplier       |
| Johnson    | Carl     | Rep.'g Blue Ridge Power Agency, Inc.                  | Electric Distributor |
| Johnson    | Carl     | Rep.'g Borough of Chambersburg                        | Electric Distributor |
| Johnson    | Carl     | Rep.'g Borough of Mont Alto, Pennsylvania             | Electric Distributor |
| Johnson    | Carl     | Rep.'g Buckeye Power, Inc.                            | Electric Distributor |
| Johnson    | Carl     | Rep.'g Central Virginia Electric Cooperative          | Electric Distributor |
| Johnson    | Carl     | Rep.'g City of Dover, Delaware                        | Electric Distributor |
| Johnson    | Carl     | Rep.'g Delaware Municipal Electric Corporation, Inc.  | Electric Distributor |
| Johnson    | Carl     | Rep.'g Easton Utilities Commission                    | Electric Distributor |
| Johnson    | Carl     | Rep.'g Energy Cooperative Association of PA           | Other Supplier       |
| Johnson    | Carl     | Rep.'g Galt Power, Inc.                               | Other Supplier       |
| Johnson    | Carl     | Rep.'g Hagerstown Light Department                    | Electric Distributor |
| Johnson    | Carl     | Rep.'g Illinois Municipal Electric Agency             | Electric Distributor |
| Johnson    | Carl     | Rep.'g Indiana Municipal Power Agency                 | Generation Owner     |
| Johnson    | Carl     | Rep.'g Madison Gas & Electric Co.                     | Other Supplier       |
| Johnson    | Carl     | Rep.'g North Carolina Electric Membership Corporation | Electric Distributor |
| Johnson    | Carl     | Rep.'g North Carolina Municipal Power Agency # 1      | Other Supplier       |
| Johnson    | Carl     | Rep.'g Northern Virginia Electric Cooperative (NOVEC) | Electric Distributor |
| Johnson    | Carl     | Rep.'g Thurmont Municipal Light Company               | Electric Distributor |
| Johnson    | Carl     | Rep.'g Town of Williamsport (The)                     | Electric Distributor |
| Johnson    | Carl     | Rep.'g WPPI Energy                                    | Other Supplier       |
| Kelly      | Stephen  | Brookfield Energy Marketing LP                        | Other Supplier       |
| Kilgallen  | Kevin    | Avangrid Renewables, LLC                              | Generation Owner     |
| Knies      | Heather  | LM Power, LLC   | Other Supplier       |
| Kogut      | George   | New York Power Authority                              | Other Supplier       |
| Landis     | Daniel   | Hemsworth Capital LP                                  | Other Supplier       |
| Lieberman  | Steven   | American Municipal Power, Inc.                        | Electric Distributor |
| Long       | Scott    | Allegheny Electric Cooperative, Inc.                  | Electric Distributor |
| Ma         | Alex     | Invenergy, LLC  | Generation Owner     |
| Marhoefer  | Jay      | Intelligent Generation LLC                            | Other Supplier       |
| Melnyk     | Markian  | Atlantic Grid Operations A, LLC                       | Other Supplier       |
| Midgley    | Sharon   | Exelon Business Services Company, LLC                 | Transmission Owner   |

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|-------------|---------|---|----------------------|
| O'Connell   | Robert  | PPGI Fund A/B Development, LLC                      | Generation Owner     |
| Pakela      | Greg    | DTE Energy Trading, Inc.                            | Other Supplier       |
| Pratzon     | David   | Rep.'g Eastern Generation, LLC                      | Generation Owner     |
| Pratzon     | David   | Rep.'g Essential Power Rock Springs, LLC            | Transmission Owner   |
| Pratzon     | David   | Rep.'g Wheelabrator Frackville Energy Co., Inc.     | Generation Owner     |
| Pratzon     | David   | Rep.'g WM Renewable Energy, L.L.C.                  | Generation Owner     |
| Prokop      | Brenda  | ITC Interconnection LLC                             | Transmission Owner   |
| Ramsey      | James   | Suffolk Fund LLC                                    | Other Supplier       |
| Rohrbach    | John    | Rep.'g Southern Maryland Electric Cooperative, Inc. | Electric Distributor |
| Rohrbach    | John    | Rep.'g Wabash Valley Power Association, Inc.        | Electric Distributor |
| Rutigliano  | Tom     | Rep.'g Achieving Equilibrium LLC                    | Other Supplier       |
| Rutigliano  | Tom     | Rep.'g Demansys Energy, LLC                         | Other Supplier       |
| Rutigliano  | Tom     | Rep.'g Earth Networks, Inc.                         | Other Supplier       |
| Rutigliano  | Tom     | Rep.'g EMC Development Company, Inc.                | Other Supplier       |
| Scarpignato | David   | Calpine Energy Services, L.P.                       | Generation Owner     |
| Scoglietti  | Barbara | Tangent Energy Solutions, Inc.                      | Other Supplier       |
| Shanker     | Roy     | H.Q. Energy Services (U.S.), Inc.                   | Other Supplier       |
| Skucas      | Ruta    | Rep.'g Aesir Power, LLC                             | Other Supplier       |
| Skucas      | Ruta    | Rep.'g Ames Energy, LLC                             | Other Supplier       |
| Skucas      | Ruta    | Rep.'g Automated Algorithms, LLC                    | Other Supplier       |
| Skucas      | Ruta    | Rep.'g Bartram Lane LLC                             | Other Supplier       |
| Skucas      | Ruta    | Rep.'g Big Bend Trading, LLC                        | Other Supplier       |
| Skucas      | Ruta    | Rep.'g BJ Energy, LLC                               | Other Supplier       |
| Skucas      | Ruta    | Rep.'g Blackout Power Trading Inc.                  | Other Supplier       |
| Skucas      | Ruta    | Rep.'g Boston Energy Group, Inc.                    | Other Supplier       |
| Skucas      | Ruta    | Rep.'g Conch Energy Trading, LLC                    | Other Supplier       |
| Skucas      | Ruta    | Rep.'g Dufossat Capital I, LLC                      | Other Supplier       |
| Skucas      | Ruta    | Rep.'g Ebrfuel, LLC                                 | Other Supplier       |
| Skucas      | Ruta    | Rep.'g Elmagin Power Fund LLC                       | Other Supplier       |
| Skucas      | Ruta    | Rep.'g Endurance Energy Midwest LLC                 | Other Supplier       |
| Skucas      | Ruta    | Rep.'g Energya VM Gestion de Energia S.L.U.         | Other Supplier       |
| Skucas      | Ruta    | Rep.'g Falcon Energy, LLC                           | Other Supplier       |
| Skucas      | Ruta    | Rep.'g Great Bay Energy III, LLC                    | Other Supplier       |
| Skucas      | Ruta    | Rep.'g Greene Energy, LLC                           | Other Supplier       |
| Skucas      | Ruta    | Rep.'g Hexis Energy Trading, LLC                    | Other Supplier       |
| Skucas      | Ruta    | Rep.'g Liberty Hill Power LLC                       | Other Supplier       |
| Skucas      | Ruta    | Rep.'g Mac Trading, Inc                             | Other Supplier       |
| Skucas      | Ruta    | Rep.'g MAG Energy Solutions, Inc.                   | Other Supplier       |
| Skucas      | Ruta    | Rep.'g MET MA, LLC                                  | Other Supplier       |

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|-----------|---------|--|--------------------|
| Skucas    | Ruta    | Rep.'g Monterey MA, LLC                      | Other Supplier     |
| Skucas    | Ruta    | Rep.'g Precept Power LLC                     | Other Supplier     |
| Skucas    | Ruta    | Rep.'g Pure Energy, Inc.                     | Other Supplier     |
| Skucas    | Ruta    | Rep.'g Red Wolf Energy Trading, LLC          | Other Supplier     |
| Skucas    | Ruta    | Rep.'g RJUMR Energy Partners Corp.           | Other Supplier     |
| Skucas    | Ruta    | Rep.'g Solea Energy, LLC                     | Other Supplier     |
| Skucas    | Ruta    | Rep.'g Southard Energy Partners LLC          | Other Supplier     |
| Skucas    | Ruta    | Rep.'g Strom Power, LLC                      | Other Supplier     |
| Skucas    | Ruta    | Rep.'g Velocity American Energy Master I, LP | Other Supplier     |
| Skucas    | Ruta    | Rep.'g XO Energy MA, L.P.                    | Other Supplier     |
| Skucas    | Ruta    | Rep.'g Yasmin Partners LLC                   | Other Supplier     |
| Trayers   | Barry   | Citigroup Energy, Inc.                       | Other Supplier     |
| Vaudreuil | Greg    | Mosaic Power                                 | Other Supplier     |
| Wadsworth | Joe     | Vitol Inc.                                   | Other Supplier     |
| Whitehead | Jeffrey | Direct Energy Business, LLC                  | Other Supplier     |
| Wicks     | Tonja   | Duquesne Light Company                       | Transmission Owner |
| Wood      | Gordon  | ETC Endure Energy L.L.C.                     | Other Supplier     |
| Yu        | Joel    | Rockland Electric Company                    | Transmission Owner |

### Non-Voters

| Last Name   | First Name | Company                                 | Sector             |
|-------------|------------|---|--------------------|
| Ainspan     | Malcolm    | Energy Curtailment Specialists, Inc.    | Other Supplier     |
| Allen       | Wesley     | Red Wolf Energy Trading, LLC            | Other Supplier     |
| Altun       | Rukiye     | ABB                                     | Not Applicable     |
| Barker      | Jason      | Exelon Business Services Company, LLC   | Transmission Owner |
| Batta       | Michael    | Dominion Energy Marketing, Inc.         | Generation Owner   |
| Berlinski   | Mike       | Customized Energy Solutions, Ltd.*      | Not Applicable     |
| Bolan       | Martin     | FirstEnergy Solutions Corp.             | Transmission Owner |
| Bowring     | Joe        | Monitoring Analytics, LLC               | Not Applicable     |
| Burwen      | Jason      | Energy Storage                          | Not Applicable     |
| Carmean     | Gregory    | OPSI                                    | Not Applicable     |
| Cockrell    | Justin     | DC Energy LLC                           | Other Supplier     |
| Constantine | Michael    | TrueLight Commodities, LLC              | Other Supplier     |
| Currier     | Jeff       | Dominion Virginia Power                 | Not Applicable     |
| Day         | Jason      | Oceanside Power LLC                     | Other Supplier     |
| Delosa      | Joseph     | DE Public Service Commission            | Not Applicable     |
| Dickson     | Douglas    | New Jersey Board of Public Utilities    | Not Applicable     |
| Dillon      | Matthew    | UGI Development Company                 | Generation Owner   |
| Domian      | Christin   | Mitsubishi Electric Power Products Inc. | Not Applicable     |
| Eirich      | Chris      | GBE Energy Marketing, Inc.              | Other Supplier     |



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|-------------|-------------|--|----------------------|
| Elkins      | Brian       | Greene Energy NE LLC                                       | Other Supplier       |
| Esposito    | Patricia    | TransCanada Power Marketing Ltd.                           | Generation Owner     |
| Farber      | John        | DE Public Service Division                                 | Not Applicable       |
| Filomena    | Guy         | Customized Energy Solutions, Ltd.                          | Not Applicable       |
| Foladare    | Kenneth     | Tangibl  | Not Applicable       |
| Fondacci    | Luis        | North Carolina Electric Membership Corporation             | Electric Distributor |
| Fordney     | Jason       | RTO Insider  | Not Applicable       |
| Foxen       | Timothy     | Osaka Gas USA  | Not Applicable       |
| Gallagher   | William     | A.F. Mensah, Inc.  | Other Supplier       |
| Gebolys     | Debbie      | Public Utilities Commission of Ohio (The)                  | Not Applicable       |
| Gilani      | Rehan       | ConEdison Energy, Inc.                                     | Other Supplier       |
| Godson      | Gloria      | Potomac Electric Power Company                             | Electric Distributor |
| Haas        | Howard      | Monitoring Analytics, LLC                                  | Not Applicable       |
| Hagaman     | Derek       | GT Power Group   | Not Applicable       |
| Hamilton    | Brian       | North American Electric Reliability Corporation            | Not Applicable       |
| Hanser      | Erik        | Michigan Public Service Commission                         | Not Applicable       |
| Harmon      | Mike        | Union Electric Company d/b/a Ameren Missouri               | Other Supplier       |
| Hebert      | Christopher | Beacon Power, LLC  | Other Supplier       |
| Hitch       | George      | Dominion Energy Marketing, Inc.                            | Generation Owner     |
| Horning     | Lynn        | LMH Energy   | Not Applicable       |
| Hudis       | Gabriella   | Gabel Associates   | Not Applicable       |
| Huntoon     | Stephen     | NextEra Energy Power Marketing, LLC                        | Generation Owner     |
| Hyatt       | John        | Monitoring Analytics, LLC                                  | Not Applicable       |
| Hyzinski    | Thomas      | Consultant   | Not Applicable       |
| Janicki     | Diane       | Boston Energy Trading & Marketing, LLC                     | Generation Owner     |
| Jardot      | Gina        | Essential Power Rock Springs, LLC                          | Transmission Owner   |
| Jett        | William     | Duke Energy Business Services LLC                          | Generation Owner     |
| Jones       | Ryan        | Allegheny Electric Cooperative, Inc.                       | Electric Distributor |
| Kazerooni   | Hamid       | Talen Energy Marketing, LLC                                | Generation Owner     |
| Kraemer     | Neil        | XO Energy MA, LP   | Other Supplier       |
| Kuehnle     | Leanne      | The Federal Energy Regulatory Commission                   | Not Applicable       |
| Kuhn        | Tyler       | DC Energy LLC  | Other Supplier       |
| Lange       | Nathan      | RTO Energy Trading, LLC                                    | Other Supplier       |
| Liang-Nicol | Cecilia     | Monongahela Power Company d/b/a Allegheny Power            | Transmission Owner   |
| Libbos      | Robin       | FirstEnergy Solutions Corp.                                | Transmission Owner   |
| Logan       | Sharon      | The Federal Energy Regulatory Commission                   | Not Applicable       |
| Lowe        | Connie      | Dominion Virginia Power                                    | Not Applicable       |
| Mabry       | David       | McNees Wallace & Nurick LLC                                | Not Applicable       |
| Mariam      | Yohannes    | Office of the Peoples Counsel for the District of Columbia | End User Customer    |

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|------------|-----------|--|----------------------|
| Martin     | Valerie   | The Federal Energy Regulatory Commission                 | Not Applicable       |
| McAdams    | Julius    | Red Wolf Energy Trading, LLC                             | Other Supplier       |
| Mcalister  | Lisa      | American Municipal Power, Inc.                           | Electric Distributor |
| Mcrae      | Todd      | Dynasty Power, Inc.                                      | Other Supplier       |
| Olenick    | Cory      | West Oaks Energy, LP                                     | Other Supplier       |
| Ondayko    | Brock     | Appalachain Power Company                                | Transmission Owner   |
| Pakela     | Greg      | DTE Energy Trading, Inc.                                 | Other Supplier       |
| Peoples    | John      | Duquesne Light Company                                   | Transmission Owner   |
| Picardi    | Matthew   | Shell Energy North America (US), LP                      | Other Supplier       |
| Poulus     | Greg      | Consumer Advocates of PJM States, Inc.                   | Not Applicable       |
| Price      | Ruth Ann  | Division of the Public Advocate of the State of Delaware | End User Customer    |
| Rainey     | Frank     | PEI Power Corporation                                    | Generation Owner     |
| Rajan      | Abhijit   | Dominion Resources                                       | Not Applicable       |
| Ramsey     | James     | Suffolk Fund LLC   | Other Supplier       |
| Riehl      | John      | The Federal Energy Regulatory Commission                 | Not Applicable       |
| Robins     | Pip       | EMC Development Company, Inc.                            | Other Supplier       |
| Rothey     | Kristin   | American Municipal Power, Inc.                           | Electric Distributor |
| Ruck       | Andrew    | PSEG Energy Resources and Trade, LLC                     | Other Supplier       |
| Salaneck   | Alexandra | Monitoring Analytics, LLC                                | Not Applicable       |
| Sasser     | Jonathan  | Customized Energy Solutions, Ltd.                        | Not Applicable       |
| Scavo      | Robert    | Oceanside Power LLC                                      | Other Supplier       |
| Schneider  | Jon       | FirstEnergy Solutions Corp.                              | Transmission Owner   |
| Schreim    | Morris    | Maryland Public Service Commission                       | Not Applicable       |
| Sheehan    | Shawn     | Energy Endeavors, LLC                                    | Other Supplier       |
| Sidhom     | Noha      | Inertia Power I, LLC                                     | Other Supplier       |
| Steele     | Robert    | Acorn Energy Trading, LLC                                | Other Supplier       |
| Stern      | Alex      | Public Service Electric & Gas Company                    | Transmission Owner   |
| Stewart    | Travis    | Gabel Associates   | Not Applicable       |
| Sweeney    | Rory      | RTO Insider  | Not Applicable       |
| Tangirala  | Subha     | ABB  | Not Applicable       |
| Tatum      | Ed        | American Municipal Power, Inc.                           | Electric Distributor |
| Thompson   | Matt      | XO Energy MA, LP   | Other Supplier       |
| Thomson    | Heather   | Mid-Atlantic Renewable Energy                            | Not Applicable       |
| Tibbetts   | Maeve     | Pierce Atwood  | Not Applicable       |
| Walker     | Jennifer  | Exelon Business Services Company, LLC                    | Transmission Owner   |
| Waskiewicz | Michael   | Hartree Partners, LP                                     | Other Supplier       |
| Wilhite    | Chad      | FirstEnergy Solutions Corp.                              | Transmission Owner   |
| Williams   | Amber     | New York State Electric & Gas Corporation                | Other Supplier       |
| Wilmoth    | Emily     | Dominion Virginia Power                                  | Not Applicable       |

|            |           |  |                    |
|------------|-----------|--|--------------------|
| Wilson     | James     | Wilson Energy Economics                    | Not Applicable     |
| Wisersky   | Megan     | Madison Gas & Electric Company             | Other Supplier     |
| Xenopoulos | Damon     | Brickfield, Burchette, Ritts & Stone, P.C. | Not Applicable     |
| Yeh        | Eric      | Baltimore Gas and Electric Company         | Transmission Owner |
| York       | Katherine | Tennessee Valley Authority                 | Other Supplier     |

#### PJM Attendees

| Last Name   | First Name | Company                  | Sector         |
|-------------|------------|--------------------------|----------------|
| Almgren     | Ake        | PJM Board of Managers    | Not Applicable |
| Anastasio   | Elizabeth  | PJM Interconnection, LLC | Not Applicable |
| Barrett     | Francis    | PJM Interconnection, LLC | Not Applicable |
| Bastian     | Jeff       | PJM Interconnection, LLC | Not Applicable |
| Bhavaraju   | Murty      | PJM Interconnection, LLC | Not Applicable |
| Blackwell   | Terry      | PJM Board of Managers    | Not Applicable |
| Bresler     | Stu        | PJM Interconnection, LLC | Not Applicable |
| Brown       | Rich       | PJM Interconnection, LLC | Not Applicable |
| Bruno       | Patrick    | PJM Interconnection, LLC | Not Applicable |
| Bryson      | Mike       | PJM Interconnection, LLC | Not Applicable |
| Budney      | David      | PJM Interconnection, LLC | Not Applicable |
| Callis      | Joe        | PJM Interconnection, LLC | Not Applicable |
| Carroll     | Rebecca    | PJM Interconnection, LLC | Not Applicable |
| Chao        | Hungpo     | PJM Interconnection, LLC | Not Applicable |
| Chmielewski | Brian      | PJM Interconnection, LLC | Not Applicable |
| Ciabattoni  | Joseph     | PJM Interconnection, LLC | Not Applicable |
| Croop       | Danielle   | PJM Interconnection, LLC | Not Applicable |
| Dotter      | Ray        | PJM Interconnection, LLC | Not Applicable |
| Driscoll    | Mary Ellen | PJM Interconnection, LLC | Not Applicable |
| Duane       | Vince      | PJM Interconnection, LLC | Not Applicable |
| Endress     | Eric       | PJM Interconnection, LLC | Not Applicable |
| Esterly     | Theresa    | PJM Interconnection, LLC | Not Applicable |
| Fereshetian | Damon      | PJM Interconnection, LLC | Not Applicable |
| Fernandez   | Ray        | PJM Interconnection, LLC | Not Applicable |
| Foster      | Denise     | PJM Interconnection, LLC | Not Applicable |
| Glatz       | Suzanne    | PJM Interconnection, LLC | Not Applicable |
| Gresh       | Leslie     | PJM Interconnection, LLC | Not Applicable |
| Hauske      | Tom        | PJM Interconnection, LLC | Not Applicable |
| Herling     | Steve      | PJM Interconnection, LLC | Not Applicable |
| Herman      | Michael    | PJM Interconnection, LLC | Not Applicable |
| Holland     | Risa       | PJM Interconnection, LLC | Not Applicable |
| Horger      | Tim        | PJM Interconnection, LLC | Not Applicable |

|            |           |                          |                |
|------------|-----------|--------------------------|----------------|
| Hsia       | Eric      | PJM Interconnection, LLC | Not Applicable |
| Keech      | Adam      | PJM Interconnection, LLC | Not Applicable |
| Kimmel     | David     | PJM Interconnection, LLC | Not Applicable |
| Koza       | Frank     | PJM Interconnection, LLC | Not Applicable |
| Larocque   | Matt      | PJM Interconnection, LLC | Not Applicable |
| Mathew     | Lagy      | PJM Interconnection, LLC | Not Applicable |
| Monzon     | Stephanie | PJM Interconnection, LLC | Not Applicable |
| Murphy     | Shaun     | PJM Interconnection, LLC | Not Applicable |
| O'Brien    | Tom       | PJM Interconnection, LLC | Not Applicable |
| Ott        | Andrew    | PJM Interconnection, LLC | Not Applicable |
| Patel      | Keyur     | PJM Interconnection, LLC | Not Applicable |
| Phillips   | Darlene   | PJM Interconnection, LLC | Not Applicable |
| Pilong     | Chris     | PJM Interconnection, LLC | Not Applicable |
| Pincus     | Steven    | PJM Interconnection, LLC | Not Applicable |
| Ritchie    | Sandra    | PJM Interconnection, LLC | Not Applicable |
| Schmitt    | Jeff      | PJM Interconnection, LLC | Not Applicable |
| Schuyler   | Ken       | PJM Interconnection, LLC | Not Applicable |
| Scott      | Nicole    | PJM Interconnection, LLC | Not Applicable |
| Shparber   | Steve     | PJM Interconnection, LLC | Not Applicable |
| Souder     | Dave      | PJM Interconnection, LLC | Not Applicable |
| Souder     | Michelle  | PJM Interconnection, LLC | Not Applicable |
| Stadlmeyer | Rebecca   | PJM Interconnection, LLC | Not Applicable |
| Stotesbury | Christina | PJM Interconnection, LLC | Not Applicable |
| Swimm      | Nora      | PJM Interconnection, LLC | Not Applicable |
| Tribulski  | Jen       | PJM Interconnection, LLC | Not Applicable |
| Velasco    | Cheryl    | PJM Interconnection, LLC | Not Applicable |
| Volinsky   | Sheila    | PJM Interconnection, LLC | Not Applicable |
| Weiss      | Glenn     | PJM Interconnection, LLC | Not Applicable |
| Williams   | Stan      | PJM Interconnection, LLC | Not Applicable |
| Zamojcin   | Ann       | PJM Interconnection, LLC | Not Applicable |