

Markets and Reliability Committee  
The Chase Center on the Riverfront, Wilmington, DE  
January 25, 2018  
9:00 a.m. – 1:10 p.m. EPT

## Administration (9:00-9:05)

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

## Endorsements/Approvals (9:05-11:30)

### 1. Draft Minutes (9:05-9:10)

Minutes of the December 21, 2017 meeting of the Markets and Reliability Committee (MRC) were **approved** by acclamation with no objections or abstentions.

### 2. PJM Manuals (9:10-9:50)

- A. Ms. Sue Glatz presented proposed revisions to PJM Manual 14F: Competitive Planning Process and the Operating Agreement to incorporate changes regarding Cost Containment developed during the Special PC sessions. On behalf of LS Power, the Office of the People's Counsel for the District of Columbia, the Delaware Division of the Public Advocate, the Maryland Office of People's Counsel, the West Virginia Consumer Advocate Division of the Public Service Commission, the PJM Industrial Consumers Coalition, and AMP, Ms. Sharon Segner, LS Power, proposed and Mr. Erik Heinle, Office of the People's Counsel for the District of Columbia, seconded an alternate proposal extending cost containment provisions beyond initial construction related costs. Following discussion the main motion **failed** in a sector-weighted vote with 1.71 in favor. Ms. Tonja Wicks, Duquesne Light Company, moved and Ms. Adrien Ford, ODEC, seconded that a vote on the alternate motion be deferred to no later than the May 2018 MRC meeting, and to refer the issues surrounding cost containment to the Planning Committee to address the deficiencies identified in the presentation on the alternate motion, discuss the components of the PJM proposal, and other outstanding issues raised by stakeholders. The motion to defer was **approved** by acclamation with one objection and one abstention.
- B. Mr. Nicole Scott reviewed the proposed changes to Manual 38: Operations Planning.
- C. Mr. Mike Hoke reviewed the proposed changes to Manual 40: Training and Certification Requirements.

Following discussion, the proposed manual revisions in items 2B and C were **endorsed** by acclamation with no objections or abstentions.

### 3. Gas Pipeline Contingencies (9:50-10:20)

Mr. Rich Brown presented a draft problem statement and issue charge to address costs associated with the operationalizing gas pipeline contingencies initiative. Following discussion, the proposed

problem statement and issue charge were **approved** by acclamation with no objections or abstentions.

4. RERRA Review of Energy Efficiency Participation (10:20-10:40)

Mr. Pete Langbein reviewed the Demand Response Subcommittee proposal for the RERRA review of Energy Efficiency resource participation in the Capacity Market. Following discussion, the proposed Tariff and Reliability Assurance Agreement revisions were **endorsed** by acclamation with one objection and 14 abstentions.

5. Capacity Construct / Public Policy Sr. Task Force (CCPPSTF) (10:40-11:30)

- A. Mr. Stu Bresler discussed a potential PJM recommendation to the PJM Board of Managers regarding FERC filing of a proposal related to the CCPPSTF scope, including a discussion of the updated PJM proposal.
- B. Dr. Joe Bowring provided an update on the proposed Tariff revisions associated with the MOPR-Ex proposal endorsed by the CCPPSTF. Mr. Bob O'Connell, Panda Power Group, moved and Ms. Bruce seconded a motion to defer voting on the main motion and alternate motion until completion of a vote on the PJM proposal. The motion to defer **passed** by acclamation with four objections and no abstentions. Mr. O'Connell moved, and Ms. Bruce seconded that the MRC vote on the PJM Capacity Re-Pricing Proposal as amended and published on January 16, 2018. The PJM proposal **failed** in a sector weighted vote with 1.07 in favor. Following discussion the proposed Tariff revisions associated with the MOPR-Ex proposal **failed** in a sector-weighted vote with 1.17 in favor. Ms. Adrien Ford, ODEC, proposed a friendly amendment to the alternate motion to modify the provisions related to the Public Entity Exemption. Ms. Ruth Ann Price, DE Division of the Public Advocate, and Mr. Steve Lieberman, AMP (the sponsors of the alternate motion), accepted the proposed amendment and therefore it was incorporated into the alternate motion. Mr. Bob O'Connell proposed a friendly amendment to add a new section 7Aiii as follows:

Public Power Entities formed for the purpose of circumventing the MOPR shall not be exempt.

Ms. Ruth Ann Price and Mr. Steve Lieberman accepted the proposed amendment and therefore it was incorporated into the alternate motion. Following discussion, the alternate proposed Tariff revisions **failed** in a sector-weighted vote with 3.02 in favor. Ms. Ruth Ann Price moved and Mr. Steve Lieberman seconded a second alternate motion comprising the alternate motion Tariff revisions as originally posted for this meeting (not including the two accepted friendly amendments in the first alternate motion). Following discussion, the alternate proposed Tariff revisions **failed** in a sector-weighted vote with 3.19 in favor.

## First Readings (11:30-12:30)

6. Tariff Revisions to address Overlapping Congestion (11:30-11:45)

Mr. Tim Horger presented proposed Tariff revisions to address overlapping congestion. The committee will be asked to endorse the proposed Tariff revisions at its next meeting.

## 7. Senior Task Force Charters (11:45-12:00)

- A. Ms. Becky Carroll presented a draft charter for the Summer-Only Demand Response Sr. Task Force (SODRSTF). The committee will be asked to approve the proposed charter revisions at its next meeting.
- B. This item was deferred to a future meeting.

## 8. PJM Manuals (12:00-12:30)

- A. Mr. Jeff McLaughlin presented proposed revisions to PJM Manual 2: Transmission Service Request. These changes correspond to Tariff revisions endorsed by the MRC at its December 21, 2017 meeting. The committee will be asked to endorse the manual revisions at its next meeting.
- B. Mr. Rami Dirani presented conforming revisions to Manual 11: Energy & Ancillary Services Market Operations to clarify the Energy Offer Verification process. The committee will be asked to endorse the manual revisions at its next meeting.
- C. Ms. Nicole Militello presented proposed revisions to Manual 12: Balancing Operations. The committee will be asked to endorse the manual revisions at its next meeting.
- D. Mr. Michael Herman presented proposed revisions to PJM Manual 14B: Regional Transmission Planning Process identified in its periodic review. The committee will be asked to endorse the manual revisions at its next meeting.
- E. Ms. Rebecca Stadelmeyer presented proposed revisions to Manual 14D: Generator Operational Requirements. The committee will be asked to endorse the manual revisions at its next meeting.
- F. Ms. Terri Esterly presented proposed revisions to Manual 18: PJM Capacity Market. The committee will be asked to endorse the manual revisions at its next meeting.

## Informational Updates (12:30-1:10)

### 9. FERC Docket AD18-07-000 (12:30-12:45)

Mr. Chris O'Hara discussed the recent FERC Order Terminating Rulemaking Proceeding, Initiating New Proceeding, and establishing Additional Procedures.

### 10. Cold Weather Operations (12:45-1:00)

Mr. Chris Piong provided a summary of operations during the extreme cold weather recently experienced in the PJM region.

### 11. Uplift Allocation to Up-to-Congestion (UTC) Transactions (1:10)

Mr. Stu Bresler discussed the recent FERC order on PJM's filing proposing an uplift allocation to UTC transactions and potential paths forward.

## Future Agenda Items (1:10)

No new future agenda items were identified.

## Future Meeting Dates

|                    |           |                  |
|--------------------|-----------|------------------|
| February 22, 2018  | 9:00 a.m. | Wilmington, DE   |
| March 22, 2018     | 9:00 a.m. | Wilmington, DE   |
| April 19, 2018     | 9:00 a.m. | Wilmington, DE   |
| May 24, 2018       | 9:30 a.m. | Valley Forge, PA |
| June 21, 2018      | 9:00 a.m. | Wilmington, DE   |
| July 26, 2018      | 9:00 a.m. | Wilmington, DE   |
| August 23, 2018    | 9:00 a.m. | Valley Forge, PA |
| September 27, 2018 | 9:00 a.m. | Valley Forge, PA |
| October 25, 2018   | 9:00 a.m. | Wilmington, DE   |
| December 6, 2018   | 9:00 a.m. | Wilmington, DE   |
| December 20, 2018  | 9:30 a.m. | Valley Forge, PA |

Author: D. A. Anders

| Chair/Secretary |         |                     |                |
|-----------------|---------|---------------------|----------------|
| Anders          | David   | PJM Interconnection | Not Applicable |
| Daugherty       | Suzanne | PJM Interconnection | Not Applicable |

| Voting Participants |            |  |                    |
|---------------------|------------|--|--------------------|
| Last Name           | First Name | Company                                      | Sector             |
| Benchek             | Jim        | American Transmission Systems, Inc.          | Transmission Owner |
| Bickerstaff         | Dean       | Hartree Partners L.P.                        | Generation Owner   |
| Bleiweis            | Bruce      | DC Energy, LLC                               | Other Supplier     |
| Bleiweis            | Bruce      | Perdisco Trading, LLC                        | Other Supplier     |
| Borgatti            | Michael    | Covanta Energy Group, LLC                    | Generation Owner   |
| Borgatti            | Michael    | Jersey Green Energy, LLC                     | Other Supplier     |
| Borgatti            | Michael    | Longview Power, LLC                          | Generation Owner   |
| Borgatti            | Michael    | Moxie Freedom LLC                            | Generation Owner   |
| Borgatti            | Michael    | Newark Energy Center, LLC                    | Generation Owner   |
| Borgatti            | Michael    | NextEra Energy Marketing, LLC                | Generation Owner   |
| Borgatti            | Michael    | York County Solid Waste and Refuse Authority | Generation Owner   |
| Brodbeck            | John       | EDP Renewables North America, LLC            | Generation Owner   |
| Bruce               | Susan      | Air Products & Chemicals, Inc.               | End User Customer  |
| Bruce               | Susan      | ArcelorMittal USA LLC                        | End User Customer  |

|          |         |  |                      |
|----------|---------|--|----------------------|
| Bruce    | Susan   | Gerdau Ameristeel Energy, Inc.                         | Other Supplier       |
| Bruce    | Susan   | Industrial Energy Users-Ohio                           | Other Supplier       |
| Bruce    | Susan   | Kimberly-Clark Corporation                             | Generation Owner     |
| Bruce    | Susan   | Lehigh Portland Cement Company                         | End User Customer    |
| Bruce    | Susan   | Letterkenny Industrial Development Authority - PA      | Electric Distributor |
| Bruce    | Susan   | Linde, LLC   | End User Customer    |
| Bruce    | Susan   | MeadWestvaco Corporation                               | End User Customer    |
| Bruce    | Susan   | Praxair, Inc.  | End User Customer    |
| Bruce    | Susan   | Procter & Gamble Paper Products Company (The)          | Generation Owner     |
| Bruce    | Susan   | Trustees of the University of Pennsylvania             | End User Customer    |
| Bruce    | Susan   | Wellsboro Electric Company                             | Electric Distributor |
| Bursaw   | Chris   | CP Energy Marketing (US) Inc.                          | Other Supplier       |
| Campbell | Bruce   | Enerwise Global Technologies, Inc.                     | Other Supplier       |
| Campbell | Bruce   | MidAtlantic Power Partners, LLC                        | Other Supplier       |
| Carrier  | Ron     | Direct Energy Business                                 | Generation Owner     |
| Carrier  | Ron     | Direct Energy Business, LLC                            | Other Supplier       |
| Crystle  | Gil     | UGI Development Company                                | Generation Owner     |
| Davis    | James   | Virginia Electric & Power Company                      | Transmission Owner   |
| Davis    | James   | Dominion Energy Marketing, Inc.                        | Generation Owner     |
| Dugan    | Chuck   | East Kentucky Power Cooperative, Inc.                  | Transmission Owner   |
| Elkins   | Brian   | Greene Energy Northeast                                | Generation Owner     |
| Ellison  | Alan    | Grays Ferry Cogeneration Partnership                   | Generation Owner     |
| Evrard   | David   | Pennsylvania Office Of Consumer                        | End User Customer    |
| Fitch    | Neal    | NRG Power Marketing, LLC                               | Generation Owner     |
| Fondacci | Luis    | North Carolina Electric Membership Corporation         | Electric Distributor |
| Ford     | Adrien  | Old Dominion Electric Cooperative                      | Electric Distributor |
| Fuess    | Jay     | Diamond State Generation Partners, LLC                 | Generation Owner     |
| Fuess    | Jay     | Icetec.com, Inc.                                       | Other Supplier       |
| Fuess    | Jay     | Kuehne Chemical Company, Inc.                          | Other Supplier       |
| Fuess    | Jay     | PBF Power Marketing, LLC                               | Generation Owner     |
| Gorman   | Kevin   | Highlands Energy Group                                 | Generation Owner     |
| Gorman   | Kevin   | The Highlands Energy Group, LLC                        | Other Supplier       |
| Greening | Michele | PPL Electric Utilities                                 | Transmission Owner   |
| Greening | Michele | PPL Electric Utilities Corporation d/b/a PPL Utilities | Transmission Owner   |
| Greiner  | Gary    | Public Service Electric & Gas Company                  | Transmission Owner   |
| Hastings | David   | Aspurity Energy, LLC                                   | Other Supplier       |

|            |          |  |                      |
|------------|----------|--|----------------------|
| Hastings   | David    | Mercuria Energy America, Inc.                        | Other Supplier       |
| Hastings   | David    | MICS   | Generation Owner     |
| Hastings   | David    | Northstar Trading Ltd.                               | Other Supplier       |
| Hastings   | David    | Saracen Energy East, L.P.                            | Other Supplier       |
| Hastings   | David    | SESCO Enterprises, LLC                               | Other Supplier       |
| Hastings   | David    | Solios Power Mid-Atlantic Trading, LLC               | Other Supplier       |
| Hastings   | David    | Tenaska Power Services Co.                           | Generation Owner     |
| Helms      | Joseph   | Rainbow Energy Marketing Corporation                 | Other Supplier       |
| Hoatson    | Tom      | Riverside Generating, LLC                            | Generation Owner     |
| 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                            | Transmission Owner   |
| Hurwich    | Mark     | Elliott Bay Energy Trading LLC                       | Generation Owner     |
| Hyzinski   | Thomas   | Carroll County Energy LLC                            | Generation Owner     |
| Hyzinski   | Thomas   | Dynegy Marketing and Trade, LLC                      | Generation Owner     |
| Johnson    | Carl     | Allegheny Electric Cooperative, Inc.                 | Electric Distributor |
| Johnson    | Carl     | American Municipal Power, Inc.                       | Electric Distributor |
| Johnson    | Carl     | Blue Ridge Power Agency, Inc.                        | Electric Distributor |
| Johnson    | Carl     | Borough of Chambersburg                              | Electric Distributor |
| Johnson    | Carl     | Borough of Mont Alto, Pennsylvania                   | Electric Distributor |
| Johnson    | Carl     | Buckeye Power, Inc.                                  | Electric Distributor |
| Johnson    | Carl     | Central Virginia Electric Cooperative                | Electric Distributor |
| Johnson    | Carl     | City of Dover, Delaware                              | Electric Distributor |
| Johnson    | Carl     | Delaware Municipal Electric Corporation, Inc.        | Electric Distributor |
| Johnson    | Carl     | Easton Utilities Commission                          | Electric Distributor |
| Johnson    | Carl     | Energy Cooperative Association of Pennsylvania (The) | Other Supplier       |
| Johnson    | Carl     | Galt Power, Inc.                                     | Other Supplier       |
| Johnson    | Carl     | Hagerstown Light Department                          | Electric Distributor |
| Johnson    | Carl     | Illinois Municipal Electric Agency                   | Electric Distributor |
| Johnson    | Carl     | Indiana Municipal Power Agency                       | Generation Owner     |
| Johnson    | Carl     | Madison Gas & Electric Co.                           | Other Supplier       |
| Johnson    | Carl     | North Carolina Electric Membership Corporation       | Electric Distributor |
| Johnson    | Carl     | North Carolina Municipal Power Agency Number 1       | Other Supplier       |
| Johnson    | Carl     | Northern Illinois Municipal Power Agency             | Electric Distributor |
| Johnson    | Carl     | Northern Virginia Electric Cooperative (NOVEC)       | Electric Distributor |

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|-----------|---------|---|-------------------------|
| Johnson   | Carl    | Old Dominion Electric Cooperative   | Electric Distributor    |
| Johnson   | Carl    | Thurmont Municipal Light Company  | Electric Distributor    |
| Johnson   | Carl    | Town of Williamsport (The)  | Electric Distributor    |
| Johnson   | Carl    | WPPI Energy   | Other Supplier          |
| Keenan    | Matthew | Elwood Energy LLC   | Generation Owner        |
| Kelly     | Stephen | Brookfield  | Generation Owner        |
| Kelly     | Stephen | Brookfield Energy Marketing LP  | Other Supplier          |
| Kilgallen | Kevin   | Avangrid Renewables, LLC  | Generation Owner        |
| Kogut     | George  | New York Power Authority  | Other Supplier          |
| Lieberman | Steven  | American Municipal Power, Inc.  | Electric Distributor    |
| Lieberman | Steven  | Borough of Butler, Butler Electric Division                                 | Electric Distributor    |
| Lieberman | Steven  | Borough of Lavallette, New Jersey   | Electric Distributor    |
| Lieberman | Steven  | Borough of Madison, New Jersey  | Electric Distributor    |
| Lieberman | Steven  | Borough of Milltown, New Jersey   | Electric Distributor    |
| Lieberman | Steven  | Borough of Park Ridge, New Jersey   | Electric Distributor    |
| Lieberman | Steven  | Borough of Pemberton, New Jersey  | Electric Distributor    |
| Lieberman | Steven  | Borough of Seaside Heights, New Jersey                                      | Electric Distributor    |
| Lieberman | Steven  | Borough of South River, New Jersey  | Electric Distributor    |
| Lieberman | Steven  | Vineland Municipal Electric Utility   | Electric Distributor    |
| Logsdon   | Josh    | EXion Energy  | Generation Owner        |
| Long      | Scott   | Allegheny Electric Cooperative  | Electricity Distributor |
| Long      | Scott   | Allegheny Electric Cooperative, Inc.  | Electric Distributor    |
| Melnyk    | Markian | Atlantic Grid Operations A, LLC   | Other Supplier          |
| Midgley   | Sharon  | Exelon Business Services Company, LLC                                       | Transmission Owner      |
| O'Connell | Robert  | PPGI Fund A/B Development, LLC.   | Generation Owner        |
| Pakela    | Greg    | DTE Energy Trading, Inc.  | Other Supplier          |
| Pakula    | Maggie  | Invenergy, LLC  | Generation Owner        |
| Pelletier | Eveline | H.Q. Energy Services (U.S.), Inc.   | Other Supplier          |
| Pelletier | Eveline | HQUS  | Generation Owner        |
| Poulos    | Greg    | Consumer Protection and Advocate Division of the Tennessee Attorney General | End User Customer       |
| Poulos    | Greg    | Delaware Division of the Public Advocate                                    | End User Customer       |
| Poulos    | Greg    | Illinois Citizen Utility Board  | End User Customer       |
| Poulos    | Greg    | Indiana Office of Utility Consumer Counselor (IN OUCC)                      | End User Customer       |
| Poulos    | Greg    | Maryland Office of People's Counsel   | End User Customer       |
| Poulos    | Greg    | New Jersey Division of Rate Counsel   | End User Customer       |
| Poulos    | Greg    | North Carolina Utilities Commission   | End User Customer       |
| Poulos    | Greg    | Office of the Attorney General, Kentucky                                    | End User Customer       |

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| Poulos      | Greg   | Office of the People's Counsel for the District of Columbia | End User Customer       |
| Poulos      | Greg   | Ohio Consumers' Counsel                                     | End User Customer       |
| Poulos      | Greg   | Virginia Division of Consumer Counsel                       | End User Customer       |
| Poulos      | Greg   | West Virginia Consumer Advocate Division                    | End User Customer       |
| Pratzon     | David  | Eastern Generation, LLC                                     | Generation Owner        |
| Pratzon     | David  | Essential Power Rock Springs, LLC                           | Transmission Owner      |
| Pratzon     | David  | Shell Energy North America (US), L.P.                       | Other Supplier          |
| Pratzon     | David  | Twin Eagle Resource Management, LLC                         | Other Supplier          |
| Pratzon     | David  | Wheelabrator Frackville Energy Co., Inc.                    | Generation Owner        |
| Prokop      | Brenda | ITC Interconnection LLC                                     | Transmission Owner      |
| Ramsey      | James  | Suffolk Fund  | Generation Owner        |
| Rohoback    | John   | Southern Maryland Electric Cooperative                      | Electricity Distributor |
| Rohrbach    | John   | Southern Maryland Electric Cooperative, Inc.                | Electric Distributor    |
| Rohrbach    | John   | Wabash Valley Power Association, Inc.                       | Electric Distributor    |
| Rushing     | Nathan | CPV Power Holdings L.P.                                     | Generation Owner        |
| Rushing     | Nathan | CPV Power Holdings, LP                                      | Generation Owner        |
| Rushing     | Nathan | Homer City Generation, L.P.                                 | Generation Owner        |
| Scarpignato | David  | Calpine Energy Services, L.P.                               | Generation Owner        |
| Skucas      | Ruta   | Aeon Energy Trading LLC                                     | Other Supplier          |
| Skucas      | Ruta   | Alphataraxia Palladium LLC                                  | Other Supplier          |
| Skucas      | Ruta   | Ames Energy, LLC  | Other Supplier          |
| Skucas      | Ruta   | Big Bend Trading, LLC                                       | Other Supplier          |
| Skucas      | Ruta   | BJ Energy, LLC  | Other Supplier          |
| Skucas      | Ruta   | Boston Energy Group, Inc.                                   | Other Supplier          |
| Skucas      | Ruta   | Dufossat Capital I, LLC                                     | Other Supplier          |
| Skucas      | Ruta   | Endurance Energy Midwest LLC                                | Other Supplier          |
| Skucas      | Ruta   | Energya VM Gestion de Energia S.L.U.                        | Other Supplier          |
| Skucas      | Ruta   | Falcon Energy, LLC  | Other Supplier          |
| Skucas      | Ruta   | Great Bay Energy III, LLC                                   | Other Supplier          |
| Skucas      | Ruta   | Greene Energy NE LLC  | Other Supplier          |
| Skucas      | Ruta   | Hexis Energy Trading, LLC                                   | Other Supplier          |
| Skucas      | Ruta   | Liberty Hill Power, LLC                                     | Other Supplier          |
| Skucas      | Ruta   | MAG Energy Solutions, Inc.                                  | Other Supplier          |
| Skucas      | Ruta   | Monterey MA, LLC  | Other Supplier          |
| Skucas      | Ruta   | Precept Power LLC   | Other Supplier          |
| Skucas      | Ruta   | Pure Energy, Inc.   | Other Supplier          |
| Skucas      | Ruta   | Red Wolf Energy Trading, LLC                                | Other Supplier          |
| Skucas      | Ruta   | Southard Energy Partners LLC                                | Other Supplier          |

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| Skucas    | Ruta    | Taller Cube, LLC                        | Other Supplier     |
| Skucas    | Ruta    | Velocity American Energy Master I, L.P. | Other Supplier     |
| Skucas    | Ruta    | XO Energy MA, L.P.                      | Other Supplier     |
| Skucas    | Ruta    | Yasmin Partners LLC                     | Other Supplier     |
| Sturgeon  | John    | Duke Energy                             | Generation Owner   |
| Swalwell  | Bradley | Tangent Energy Solutions, Inc.          | Other Supplier     |
| Trayers   | Barry   | Citigroup Energy, Inc.                  | Other Supplier     |
| Wadsworth | Joe     | Vitol Inc.                              | Other Supplier     |
| Whitehead | Jeffrey | EnerNOC, Inc.                           | Other Supplier     |
| Wicks     | Tonja   | Duquesne Light Company                  | Transmission Owner |
| Wilkie    | Brian   | Rockland Electric Company               | Transmission Owner |
| Wood      | Gordon  | ETC Endure Energy L.L.C.                | Other Supplier     |
| Chocarro  | Iker    | E.ON Climate Renewals                   | Generation Owner   |

## Non-Voting Participants

| Last Name  | First Name | Company                               | Sector               |
|------------|------------|---------------------------------------|----------------------|
| Ament      | Todd       | Cube Hydro Partners, LLC              | Generation Owner     |
| Anderson   | Jared      | Platts                                | Media                |
| Baer       | Mitchell   | ACCCE                                 | Not Applicable       |
| Bagot      | Nancy      | Electric Power Supply Association     | Not Applicable       |
| Bainbridge | Tom        | First Energy                          | Transmission Owner   |
| Barker     | Jason      | Exelon Business Services Company, LLC | Transmission Owner   |
| Bayless    | Charles    | NCEMC                                 | Electric Distributor |
| Belmont    | Caroline   | P.A. Consulting                       | Not Applicable       |
| Bloodworth | Michelle   | ACCCE                                 | Not Applicable       |
| Bloom      | David      | Exelon Business Services Company, LLC | Transmission Owner   |
| Bonner     | Charles    | Virginia Electric & Power Company     | Transmission Owner   |
| Bowring    | Joe        | Monitoring Analytics                  | Not Applicable       |
| Brinkley   | Nate       | Greene Energy NE LLC                  | Other Supplier       |
| Brown      | David      | NJ BPU                                | Not Applicable       |
| Canter     | David      | Appalachian Power Company             | Transmission Owner   |
| Carmean    | Gregory    | OPSI                                  | Not Applicable       |
| Chandler   | Kent       | Kentucky Attorney Generals Office     | Not Applicable       |
| Cocco      | Michael    | Old Dominion Electric Cooperative     | Electric Distributor |
| Cockrell   | Justin     | VECO Power Trading                    | Other Supplier       |
| Coffey     | Cecelia    | FERC                                  | Not Applicable       |
| Collins    | Ryan       | Wright & Talisman                     | Not Applicable       |
| Conn       | Jeff       | Big Bend Trading, LLC                 | Other Supplier       |
| Coppola    | Ej         | Greene Energy NE LLC                  | Other Supplier       |

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|-----------|-----------|---|-------------------------|
| Cox       | Phil      | Appalachain Power Company                                   | Transmission Owner      |
| Cox       | William   | EXion Energy  | Generation Owner        |
| Delosa    | Joe       | Delaware Public Service Commission                          | Not Applicable          |
| Depillo   | Ray       | Public Service Electric & Gas Company                       | Transmission Owner      |
| Dillon    | Matthew   | UGI Development Company                                     | Generation Owner        |
| Dolan     | Ryan      | American Municipal Power                                    | Electric Distributor    |
| Domian    | Christin  | Duquesne Light Company                                      | Transmission Owner      |
| Drom      | Rick      | Eckert Seamans  | Not Applicable          |
| Engleman  | Michael   | Engleman Fallon LLC   | Not Applicable          |
| Esposito  | Patricia  | A2A Energy  | Not Applicable          |
| Fields    | William   | Maryland Office of People's Counsel                         | End User Customer       |
| Filomena  | Guy       | Customized Energy Solutions, Ltd.*                          | Not Applicable          |
| Foladare  | Kenneth   | Tangibl   | Not Applicable          |
| Fort      | Jim       | Energy Authority  | Other Supplier          |
| Foxan     | Timothy   | Osaka Gas USA   | Not Applicable          |
| Francoeur | Rene      | Red Wolf Energy Trading, LLC                                | Other Supplier          |
| Gebolys   | Debbie    | Public Utilities Commission Of Ohio                         | Not Applicable          |
| Gibelli   | Stephen   | NextEra Energy Marketing                                    | Generation Owner        |
| Gilani    | Rehan     | ConEdison Energy  | Other Supplier          |
| Godson    | Gloria    | Exelon Business Services Company, LLC                       | Transmission Owner      |
| Grau      | Patrick   | Dynegy  | Generation Owner        |
| Gusick    | Tim       | Eastern Generation, LLC                                     | Generation Owner        |
| Haas      | Howard    | Monitoring Analytics  | Not Applicable          |
| Hanser    | Erick     | Michigan Public Service Commission                          | Not Applicable          |
| Harmon    | Mike      | Ameren  | Other Supplier          |
| Heinle    | Frederick | Office of the People's Counsel for the District of Columbia | End User Customer       |
| Heisey    | Bradley   | Generation Owner  | Generation Owner        |
| Hitch     | George    | Dominion Energy   | Generation Owner        |
| Holland   | Cynthia   | New Jersey Board Of Public Utilities                        | Not Applicable          |
| Hollis    | Gabriel   | NextEra Energy Transmission                                 | Other Supplier          |
| Hudis     | Gabriella | Gabel Associates  | Not Applicable          |
| Janicki   | Diane     | Boston Energy Trading And Marketing                         | Generation Owner        |
| Jardot    | Gina      | Essential Power Rock Springs                                | Generation Owner        |
| Jerecman  | Joe       | Calpine Energy Services, L.P.                               | Generation Owner        |
| Jett      | William   | Duke Energy   | Generation Owner        |
| Johnston  | David     | Indiana Utility Regulatory Commission                       | Not Applicable          |
| Jones     | Ryan      | Allegheny Electric Cooperative                              | Electricity Distributor |
| Kandic    | Milan     | Dynasty Power   |                         |
| Kauffman  | Brian     | NRG Curtailment Solutions, Inc.                             | Other Supplier          |
| Kinser    | Cynthia   | Tennessee Attorney General                                  | Not Applicable          |

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|-------------|-----------|--|-------------------------|
| Knernschild | Jenjira   | Old Dominion Electric Cooperative                        | Electric Distributor    |
| Knies       | Heather   | LM Power   |                         |
| Kormos      | Mike      | Exelon Business Services Company, LLC                    | Transmission Owner      |
| Kothakpu    | Rakesh    | Imes Illinois Electrical                                 | Not Applicable          |
| Kresowik    | Mark      | Sierra Club  |                         |
| Leasure     | Jill      | Keystone Conemaugh Project Office                        | Not Applicable          |
| Liang-Nicol | Cecilia   | FirstEnergy  |                         |
| Logan       | Sharon    | FERC   | N/A                     |
| Logan       | Alan      | Zion   |                         |
| Logston     | Sebastian | EXion Energy   | Generation Owner        |
| Lowe        | Connie    | Dominion Virginia Power                                  | Not Applicable          |
| Mabry       | David     | MWN  | Not Applicable          |
| Mariam      | Yohannes  | OPC-DC   | Not Applicable          |
| Marinelli   | Richard   | Public Service Electric & Gas Company                    | Transmission Owner      |
| Martin      | Valerie   | FERC   | Not Applicable          |
| Martinez    | Michael   | ETC Endure Energy  | Other Supplier          |
| Marton      | Dave      | FirstEnergy Solutions Corp.                              | Transmission Owner      |
| McAdams     | Julius    | Red Wolf Energy Trading, LLC                             | Other Supplier          |
| Mcalister   | Lisa      | American Municipal Power                                 | Electric Distributor    |
| Mcrae       | Todd      | Dynasty Power  | Other Supplier          |
| Merola      | Becky     | Calpine Energy Services, L.P.                            | Generation Owner        |
| Miller      | John      | CoMed  | Transmission Owner      |
| Moncayo     | Jorge     | FERC   | Not Applicable          |
| Moore       | John      | NRDC   | Not Applicable          |
| Murray      | Kevin     | IEU Ohio   | Other Supplier          |
| Nadel       | Steven    | PPL Electric Utilities                                   | Transmission Owner      |
| Nader       | Jordan    | RunnerStone LLC  | Not Applicable          |
| Nawaz       | Zainab    | New Jersey Board Of Public Utilities                     | Not Applicable          |
| Olenick     | Cory      | Inertia Power  | Other Supplier          |
| Olinger     | Robert    | GenOps   | Other Supplier          |
| Ondayko     | Brock     | Appalachain Power Company                                | Transmission Owner      |
| Peoples     | John      | Duquesne Light Company                                   | Transmission Owner      |
| Philips     | Marji     | Direct Energy Business Marketing                         | Other Supplier          |
| Price       | Mark      | DC Energy, LLC   | Other Supplier          |
| Price       | Ruth Ann  | Division of the Public Advocate of the State of Delaware | End User Customer       |
| Rainey      | Frank     | PEI Power Corporation                                    | Generation Owner        |
| Reams       | William   | Allegheny Electric Cooperative                           | Electricity Distributor |
| Rismiller   | Randy     | Illinois Commerce Commission                             | Not Applicable          |
| Robinson    | Maria     | Advanced Energy Economy                                  | Not Applicable          |
| Rothey      | Kristin   | American Municipal Power                                 | Electric Distributor    |

|            |           |                                       |                         |
|------------|-----------|---------------------------------------|-------------------------|
| Ruck       | Andrew    | Public Service Electric & Gas Company | Transmission Owner      |
| Rutigliano | Tom       | EMC                                   | Other Supplier          |
| Saini      | Ishwar    | Macquarie Energy                      | Other Supplier          |
| Sasser     | Jonathan  | Customized Energy Solutions, Ltd.*    | None                    |
| Schneider  | Jen       | First Energy                          | Transmission Owner      |
| Schreim    | Morris    | Maryland Public Service Commission    | Not Applicable          |
| Schum      | Alice     | Illinois Municipal Electric Agency    | Electric Distributor    |
| Seelaus    | Tim       | PMC Development Company               | Other Supplier          |
| Segner     | Sharon    | LS Power Transmission                 | Not Applicable          |
| Shah       | Pulin     | Exelon Business Services Company, LLC | Transmission Owner      |
| Shealy     | Erin      | GDS Associates                        | Not Applicable          |
| Shelton    | Chris     | Dayton Power & Light Company          | Generation Owner        |
| Sillin     | John      | FERC                                  | Not Applicable          |
| Skucas     | Ruta      | Pierce Atwood                         | Not Applicable          |
| Steele     | Robert    | Hyllgarth Energy                      |                         |
| Stern      | Alexander | Public Service Electric & Gas Company | Transmission Owner      |
| Stewart    | Travis    | Gable and Associates                  | Not Applicable          |
| Stone      | Andy      | Gabel Associates                      | Not Applicable          |
| Stover     | James     | PPL Electric Utilities                | Transmission Owner      |
| Stubbe     | Judy      | Duke Energy Business Services LLC     | Transmission Owner      |
| Stuchell   | Jeff      | FirstEnergy                           | Transmission Owner      |
| Suh        | Jung      | Calpine Solutions                     | Other Supplier          |
| Sweeney    | Rory      | RTO Insider                           | Media                   |
| Taylor     | Robert    | Exelon Business Services Company, LLC | Transmission Owner      |
| Thomas     | Glen      | GT Power Group                        | Not Applicable          |
| Thompson   | Matthew   | XO Energy                             | Other Supplier          |
| Tibbetts   | Maeve     | Pierce Atwood                         | Not Applicable          |
| Tsao       | Stephanie | S&P Global                            | Media                   |
| Tyler      | Catherine | Monitoring Analytics                  | Not Applicable          |
| Vanderlaan | Bill      | Illinois Commerce Commission          | Not Applicable          |
| VanSteel   | James     | Michigan Public Service Commission    | Not Applicable          |
| Vargo      | Daniel    | Allegheny Electric Cooperative        | Electricity Distributor |
| Von        | Frederico | NextEra                               | Generation Owner        |
| Vu         | John      | NextEra                               | Generation Owner        |
| Walker     | Jennifer  | Exelon Business Services Company, LLC | Transmission Owner      |
| Walters    | Joshua    | NRDC                                  | Not Applicable          |
| Waskiewicz | Michael   | Hartree Partners L.P.                 | Generation Owner        |
| Weaver     | David     | Exelon Business Services Company, LLC | Transmission Owner      |
| Wesley     | Allen     | Red Wolf Energy Trading, LLC          | Other Supplier          |
| Wilmoth    | Emily     | Virginia Electric & Power Company     | Not Applicable          |
| Wilson     | Bram      | PBF Power Marketing, LLC              | Generation Owner        |

|            |       |                               |                      |
|------------|-------|-------------------------------|----------------------|
| Wilson     | James | Wilson Energy Economics       | Not Applicable       |
| Wisersky   | Megan | Madison Gas & Electric Co.    | Other Supplier       |
| Wolfe      | Alice | Blue Ridge Power Agency, Inc. | Electric Distributor |
| Xenopoulos | Damon | SMXB                          | Not Applicable       |
| Yang       | Ben   | ONCEPT                        |                      |

## PJM Participants

| Last Name   | First Name | Company                               | Sector         |
|-------------|------------|---------------------------------------|----------------|
| Anastasio   | Elizabeth  | PJM Interconnection                   | Not Applicable |
| Anders      | David      | PJM Interconnection                   | Not Applicable |
| Barrett     | Francis    | PJM Interconnection                   | Not Applicable |
| Berner      | Aaron      | PJM Interconnection                   | Not Applicable |
| Bhavaraju   | Murty      | PJM Interconnection                   | Not Applicable |
| Blackwell   | Terry      | PJM Interconnection Board of Managers | Not Applicable |
| Boyle       | Glen       | PJM Interconnection                   | Not Applicable |
| Bresler     | Stu        | PJM Interconnection                   | Not Applicable |
| Brown       | Richard    | PJM Interconnection                   | Not Applicable |
| Bruno       | Joshua     | PJM Interconnection                   | Not Applicable |
| Bruno       | Patrick    | PJM Interconnection                   | Not Applicable |
| Bryson      | Mike       | PJM Interconnection                   | Not Applicable |
| Buck        | Rachel     | PJM Interconnection                   | Not Applicable |
| Budney      | David      | PJM Interconnection                   | Not Applicable |
| Buehler     | Susan      | PJM Interconnection                   | Not Applicable |
| Burdis      | Tim        | PJM Interconnection                   | Not Applicable |
| Burlew      | Jim        | PJM Interconnection                   | Not Applicable |
| Carroll     | Rebecca    | PJM Interconnection                   | Not Applicable |
| Caven       | Augustine  | PJM Interconnection                   | Not Applicable |
| Chmielewski | Brian      | PJM Interconnection                   | Not Applicable |
| Ciabattoni  | Joseph     | PJM Interconnection                   | Not Applicable |
| Connell     | Jason      | PJM Interconnection                   | Not Applicable |
| Coyne       | Suzanne    | PJM Interconnection                   | Not Applicable |
| Daugherty   | Suzanne    | PJM Interconnection                   | Not Applicable |
| Davis       | Elizabeth  | PJM Interconnection                   | Not Applicable |
| Dirani      | Rami       | PJM Interconnection                   | Not Applicable |
| Dolan       | James      | PJM Interconnection                   | Not Applicable |
| Dotter      | Ray        | PJM Interconnection                   | Not Applicable |
| Driscoll    | Maryellen  | PJM Interconnection                   | Not Applicable |
| Duane       | Vince      | PJM Interconnection                   | Not Applicable |
| Egan        | Amanda     | PJM Interconnection                   | Not Applicable |

|             |            |                     |                |
|-------------|------------|---------------------|----------------|
| Endress     | Eric       | PJM Interconnection | Not Applicable |
| Esterly     | Theresa    | PJM Interconnection | Not Applicable |
| Fabiano     | Janell     | PJM Interconnection | Not Applicable |
| Falin       | Thomas     | PJM Interconnection | Not Applicable |
| Fitzpatrick | Brian      | PJM Interconnection | Not Applicable |
| Flynn       | Paul       | PJM Interconnection | Not Applicable |
| Foley       | Pauline    | PJM Interconnection | Not Applicable |
| Foster      | Denise     | PJM Interconnection | Not Applicable |
| Franks      | Ed         | PJM Interconnection | Not Applicable |
| Freeman     | Jennifer   | PJM Interconnection | Not Applicable |
| Furnholm    | Whitney    | PJM Interconnection | Not Applicable |
| Glatz       | Suzanne    | PJM Interconnection | Not Applicable |
| Gledhill    | Andrew     | PJM Interconnection | Not Applicable |
| Handlin     | Michael    | PJM Interconnection | Not Applicable |
| Hauske      | Thomas     | PJM Interconnection | Not Applicable |
| Helm        | Gary       | PJM Interconnection | Not Applicable |
| Hendrzak    | Chantal    | PJM Interconnection | Not Applicable |
| Herling     | Steve      | PJM Interconnection | Not Applicable |
| Herman      | Michael    | PJM Interconnection | Not Applicable |
| Hoke        | Michael    | PJM Interconnection | Not Applicable |
| Horger      | Tim        | PJM Interconnection | Not Applicable |
| Hsia        | Eric       | PJM Interconnection | Not Applicable |
| Hugee       | Jacquelynn | PJM Interconnection | Not Applicable |
| Keech       | Adam       | PJM Interconnection | Not Applicable |
| Kelley      | Michael    | PJM Interconnection | Not Applicable |
| Kenney      | Susan      | PJM Interconnection | Not Applicable |
| King        | Kendra     | PJM Interconnection | Not Applicable |
| Langbein    | Pete       | PJM Interconnection | Not Applicable |
| Larocque    | Matthew    | PJM Interconnection | Not Applicable |
| Long        | Amanda     | PJM Interconnection | Not Applicable |
| Lu          | Chen       | PJM Interconnection | Not Applicable |
| Manion      | Evelyn     | PJM Interconnection | Not Applicable |
| McGlynn     | Paul       | PJM Interconnection | Not Applicable |
| McLaughlin  | Jeffrey    | PJM Interconnection | Not Applicable |
| McLaverty   | Megan      | PJM Interconnection | Not Applicable |
| Militello   | Nicole     | PJM Interconnection | Not Applicable |
| Monzon      | Stephanie  | PJM Interconnection | Not Applicable |
| Nix         | Emma       | PJM Interconnection | Not Applicable |
| O'Hara      | Chris      | PJM Interconnection | Not Applicable |
| O'Neill     | Jack       | PJM Interconnection | Not Applicable |
| Ott         | Andrew     | PJM Interconnection | Not Applicable |

|               |          |                                       |                |
|---------------|----------|---------------------------------------|----------------|
| Park          | Jinny    | PJM Interconnection                   | Not Applicable |
| Patel         | Anita    | PJM Interconnection                   | Not Applicable |
| Patel         | Keyur    | PJM Interconnection                   | Not Applicable |
| Perera        | Asanga   | PJM Interconnection                   | Not Applicable |
| Pilong        | Melissa  | PJM Interconnection                   | Not Applicable |
| Pilong        | Chris    | PJM Interconnection                   | Not Applicable |
| Pincus        | Steven   | PJM Interconnection                   | Not Applicable |
| Ritchie       | Sandra   | PJM Interconnection                   | Not Applicable |
| Robinson      | Evelyn   | PJM Interconnection                   | Not Applicable |
| Rocha-Garrido | Patricio | PJM Interconnection                   | Not Applicable |
| Rogers        | Sarah    | PJM Interconnection Board of Managers | Not Applicable |
| Scheidecker   | Paul     | PJM Interconnection                   | Not Applicable |
| Schmitt       | Jeff     | PJM Interconnection                   | Not Applicable |
| Schuyler      | Ken      | PJM Interconnection                   | Not Applicable |
| Schweizer     | David    | PJM Interconnection                   | Not Applicable |
| Scott         | Nicole   | PJM Interconnection                   | Not Applicable |
| Scweizer      | David    | PJM Interconnection                   | Not Applicable |
| Seiler        | Ken      | PJM Interconnection                   | Not Applicable |
| Slusser       | Jeff     | PJM Interconnection                   | Not Applicable |
| Souder        | Dave     | PJM Interconnection                   | Not Applicable |
| Souder        | Michelle | PJM Interconnection                   | Not Applicable |
| Souder        | Rich     | PJM Interconnection                   | Not Applicable |
| Stadlmeyer    | Rebecca  | PJM Interconnection                   | Not Applicable |
| Stefanowicz   | Vincent  | PJM Interconnection                   | Not Applicable |
| Strella       | Lauren   | PJM Interconnection                   | Not Applicable |
| Swimm         | Nora     | PJM Interconnection                   | Not Applicable |
| Tacka         | Natalie  | PJM Interconnection                   | Not Applicable |
| Tribulski     | Jen      | PJM Interconnection                   | Not Applicable |
| Velasco       | Cheryl   | PJM Interconnection                   | Not Applicable |
| Walter        | Laura    | PJM Interconnection                   | Not Applicable |
| Ward          | Michael  | PJM Interconnection                   | Not Applicable |
| Williams      | Stanley  | PJM Interconnection                   | Not Applicable |