

Markets and Reliability Committee
The Chase Center, Wilmington, DE
March 21, 2019
9:00 a.m. – 11:50 a.m. EPT

Administration (9:00-9:10)

Ms. Suzanne Daugherty and Mr. Dave Anders welcomed stakeholders and provided the Anti-trust and Code of Conduct announcements.

Mr. Stu Bresler discussed the status of the 2022/2023 Base Residual Auction scheduled to be run in 2019. Mr. Bresler noted the FERC finding in that the current rules for the auction are not just and reasonable, and that the FERC has not acted upon PJM's related compliance filing. He discussed potential options including:

- Request that FERC approve a further delay of the auction schedule
- Request that FERC approve executing the auction with existing rules
- Make a Section 205 filing with an alternative rate to be used for this auction only

Mr. Bresler invited stakeholder input and recommendations. Mr. Bresler also solicited feedback regarding PJM's intent to suspend collecting data required to support PJM's proposal at FERC in the MOPR docket.

Consent Agenda (9:10-9:20)

Items A through D were **approved/endorsed** by acclamation with no objections or abstentions.

- A. Draft minutes of the February 21, 2019 meeting of the Markets and Reliability Committee (MRC).
- B. Proposed revisions to Manual 13: Emergency Operations updated to reflect language in the new version of NERC EOP-004-4 and more accurately reflect OE-417 requirements.
- C. Proposed revisions to Manual 20 Resource Adequacy Analysis resulting from a periodic cover-to-cover review, removing outdated references, and updating references to ReliabilityFirst's standards.
- D. Proposed revisions to Manual 37: Reliability Coordination resulting from a periodic cover-to-cover review and incorporating an updated Appendix D.

Endorsements/Approvals (9:20-10:00)

1. Deficiency Cure Periods (9:20-9:30)

Ms. Susan McGill presented updates to Manual 14A: New Services Request Process and the OATT associated with deficiency cure periods at the end of the queue and identify potential areas of improvement. Following discussion the committee **endorsed** the proposed revisions by acclamation with no objections or abstentions.

2. Fuel Security Problem Statement and Issue Charge (9:30-10:00)

Mr. Tim Horger reviewed the proposed Fuel Security problem statement and issue charge, including the posted “compromise” update. Mr. Erik Heinle, DC Office of the Peoples’ Counsel, discussed the proposed alternate Energy Security problem statement and issue charge, noting that PJM had addressed their concerns in the proposed compromise update. Mr. Heinle withdrew the proposed alternate problem statement and issue charge.

Ms. Marji Philips, Direct Energy, proposed a friendly amendment to change the Expected Duration of Work Timeline as follows:

The activities of the group are expected to begin in April 2019, ~~and be completed by the end of 2019.~~ By the end of the 3rd quarter 2019 the group will complete key work activities #1 - #3 and expected deliverable #1 and will report to the MRC their recommendations. ~~The remainder of the key work activities and deliverables will be completed by the end of 2019.~~ **At that time the MRC will establish the timeline for completion of the remaining work activities and deliverables to be completed no later than June 1, 2020.** This will be a high priority issue and will meet a minimum of once per month.

Mr. Horger indicated that this was considered friendly, and therefore it was incorporated into the proposed issue charge.

Mr. Bob O’Connell, Panda, moved an alternate issue charge which added/modified the following Key Work Activities:

2. Quantify via study the probability of occurrence of any scenario that might present a risk of fuel insecurity.
6. Analyze and quantify the market responses to any conditions that could lead to fuel insecurity identified in 4 above
7. Assess whether is the current market construct is sufficient to cure the energy/fuel insecurity identified in 4 above.
9. Determine and compare potential mechanisms, ~~including costs,~~ to ensure and value fuel/energy security **and their associated costs and benefit to cost ratio** in PJM and consider recommendations from relevant studies and assessments that are technically feasible.

Mr. O’Connell’s proposed alternate issue charge modified the Deliverables as follows:

1. A recommendation to the MRC on whether market or operational changes are needed to ensure current or future fuel/energy security **if any are needed.**
3. Revisions to the Operating Agreement, Open Access Transmission Tariff, and manuals to implement the recommended enhancements **if any are needed.**

Additionally, Mr. O’Connell’s proposed alternate issue charge modified the Expected Duration of Work Timeline as follows:

The activities of the group are expected to begin in April 2019, and be completed by the end of **August of 2020**~~2019.~~ ~~By the end of the 3rd quarter 2019 the group will complete key work activities~~

~~#1 – #3 and expected deliverable #1 and will report to the MRC their recommendations. The remainder of the key work activities and deliverables will be completed by the end of 2019. This will be a high priority issue and will meet a minimum of once per month.~~

Ms. Daugherty ruled that the motion was out of order, as problem statements and issue charges may be offered by a Member, PJM or the IMM without a motion or second being required by a Member. She added that Mr. O’Connell’s proposed issue charge could be offered as an alternate motion that would be voted upon should the compromise motion fail. Mr. O’Connell moved and Ms. Ruth Price seconded an appeal of the decision of the Chair. Following discussion the appeal of the decision of the Chair failed in a sector-weighted vote with 0.98 in favor.

Mr. David Scarpignato, Calpine, proposed a friendly amendment to change “Fuel/Energy” to Fuel/Energy/Resource” throughout both the proposed compromise issue charge. Mr. Horger and Mr. Heinle indicated that this was considered friendly, and therefore it was incorporated into the proposed compromise issue charge.

Mr. Horger presented an updated compromise issue charge incorporating the elements of the original compromise issue charge and Mr. O’Connell’s proposed alternate issue charge. He indicated that this had the support of PJM. Mr. Heinle and Mr. O’Connell also indicated their support.

Following discussion the committee **approved** the proposed problem statement and updated compromise issue charge by acclamation with one objection and one abstention.

First Readings (10:00-11:35)

3. PJM Manuals (10:00-10:20)

- A. Ms. Andrea Yeaton reviewed updates to Manual 11: Energy & Ancillary Services Market Operations due to addition of location fields in DR Hub. The committee will be asked to endorse these revisions at its next meeting.
- B. Ms. Susan Kenney reviewed updates to Manual 11: Energy & Ancillary Services Market Operations as part of the biennial review. The committee will be asked to endorse these revisions at its next meeting.
- C. Mr. Jerry Bell and Patricio Rocha-Garrido presented proposed revisions to Manual 21: Rules & Procedures for Determination of Generating Capability, including the revisions from the recent ELCC Analysis discussions. The committee will be asked to endorse these revisions at its next meeting.

4. Must Offer Exception Process (10:20-10:45)

- A. Mr. Pat Bruno provided a second first read of the MRC main motion for the Must Offer Exception Process and provided a update of Market Implementation Committee (MIC) activities.
- B. Ms. Sharon Midgley, Exelon, reviewed an alternate proposal endorsed by the MIC at its March meeting.

The committee will be asked to endorse the main motion and any alternate proposals at its next meeting.

5. PJM Transmission Service and Merchant Facility Business Practices Update (10:45-10:55)

- A. Mr. Chris Advena provided a first read on the revisions to the PJM Regional Business Practices document associated with the new OASIS application. The committee will be asked to endorse these revisions at its next meeting.
- B. Mr. Advena also provided an informational update on the corresponding changes to the Merchant Facilities Practices document also associated with the new OASIS.

6. Market Efficiency Process Enhancement Task Force (10:55-11:05)

Mr. Brian Chmielewski presented the Market Efficiency phase 2 proposal developed at the Market Efficiency Process Enhancement Task Force (MEPETF) and the associated proposed Manual and Operating Agreement revisions. The Committee will be asked to endorse the proposal and proposed revisions at its next meeting.

7. FTR Forfeiture Hourly Component (11:05-11:20)

Mr. Brian Chmielewski provided a first read to address an issue identified in the FTR Forfeiture hourly cost component calculations. The proposed solution will also be presented. The committee will be asked to endorse these revisions at its next meeting.

8. Carbon Pricing Problem Statement / Issue Charge (11:20-11:35)

Mr. Michael Borgatti, Gable Associates, presented a proposed problem statement and issue charge related to carbon pricing. The Committee will be asked to endorse these documents at its next meeting.

Informational Updates (11:35-11:50)

9. Gas Contingency Compensation (11:35-11:50)

Mr. Thomas DeVita provided an informational update on next steps related to the FERC Order ER19-664 and reviewed the Emergency Operating Instruction Compensation problem statement and issue charge.

Future Agenda Items (11:50)

Future Meeting Dates

April 25, 2019	9:00 a.m.	Valley Forge, PA
May 30, 2019	9:00 a.m.	Valley Forge, PA
June 27, 2019	9:00 a.m.	Wilmington, DE

July 25, 2019	9:00 a.m.	Wilmington, DE
August 22, 2019	9:00 a.m.	Wilmington, DE
September 26, 2019	9:00 a.m.	Valley Forge, PA
October 31, 2019	9:00 a.m.	Wilmington, DE
December 5, 2019	9:00 a.m.	Wilmington, DE
December 19, 2019	9:00 a.m.	Valley Forge, PA

Author: D.A. Anders

Chair & Secretary

Daugherty	Suzanne	PJM Interconnection	N/A
Anders	David	PJM Interconnection	N/A

Voting Members

Last Name	First Name	Organization	Sector
Ament	Todd	Cube Hydro Partners, LLC	Generation Owner
Barker	Jason	Exelon Business Services Company, LLC	Transmission Owner
Benchek	Jim	American Transmission Systems, Inc.	Transmission Owner
Bleiweis	Bruce	DC Energy, LLC	Other Supplier
Borgatti	Michael	Carolina Solar Energy III, LLC	Other Supplier
Borgatti	Michael	Covanta Energy Group, LLC	Generation Owner
Borgatti	Michael	Edgecombe Genco, LLC	Generation Owner
Borgatti	Michael	Hazleton Generation, 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	Other Supplier
Borgatti	Michael	York County Solid Waste and Refuse Authority	Generation Owner
Bruce	Susan	Air Products & Chemicals, Inc.	End-Use Customer
Bruce	Susan	ArcelorMittal USA LLC	End-Use 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-Use Customer
Bruce	Susan	Letterkenny Industrial Development Authority - PA	Electric Distributor

Bruce	Susan	Linde, LLC	End-Use Customer
Bruce	Susan	MeadWestvaco Corporation	End-Use Customer
Bruce	Susan	Praxair, Inc.	End-Use Customer
Bruce	Susan	Procter & Gamble Paper Products Company (The)	Generation Owner
Bruce	Susan	Trustees of the University of Pennsylvania	End-Use Customer
Bruce	Susan	Wellsboro Electric Company	Electric Distributor
Campbell	Bruce	MidAtlantic Power Partners, LLC	Other Supplier
Canter	David	Appalachian Power Company	Transmission Owner
Chocarro	Iker	E.ON Climate & Renewables North America Inc.	Generation Owner
Davis	James	Virginia Electric & Power Company	Transmission Owner
Dugan	Chuck	East Kentucky Power Cooperative, Inc.	Transmission Owner
Evrard	David	Pennsylvania Office of Consumer Advocate	End-Use Customer
Fitch	Neal	NRG Power Marketing, LLC	Generation Owner
Foladare	Kenneth	Geenex Solar LLC	Generation Owner
Ford	Adrien	Old Dominion Electric Cooperative	Electric Distributor
Garnett	Bryan	Duke Energy Business Services LLC	Transmission Owner
Greiner	Gary	Public Service Electric & Gas Company	Transmission 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
Helms	Joseph	Rainbow Energy Marketing Corporation	Other Supplier
Hoatson	Tom	Renaissance Power & Gas, Inc.	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
Huang	James	Rockland Electric Company	Transmission

			Owner
Hyzinski	Thomas	Dynegy Marketing and Trade, LLC	Generation Owner
Hyzinski	Thomas	GenOn Energy Management, LLC	Generation Owner
Jens	Tom	Black Oak Capital, LLC	Other Supplier
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
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
Kauffman	Brian	Enel X North America, Inc.	Other Supplier
Keenan	Matthew	Elwood Energy, LLC	Generation Owner
Kelly	Stephen	Brookfield Energy Marketing LP	Other Supplier
Kilgallen	Kevin	Avangrid Renewables, LLC	Generation Owner
Kilgallen	Kevin	EDP Renewables North America, LLC	Generation Owner

Kogut	George	New York Power Authority	Other Supplier
Lieberman	Steven	American Municipal Power, Inc.	Electric Distributor
Litchfield	Matt	CPV Power Holdings, LP	Generation Owner
Melnyk	Markian	Atlantic Grid Operations A, LLC	Other Supplier
O'Connell	Robert	PPGI Fund A/B Development, LLC.	Generation Owner
Pakula	Maggie	Invenergy, LLC	Generation Owner
Pelletier	Eveline	H.Q. Energy Services (U.S.), Inc.	Other Supplier
Philips	Marji	Direct Energy Business, LLC	Other Supplier
Picardi	Matthew	Shell Energy North America (US), L.P.	Other Supplier
Poulos	Greg	Consumer Protection and Advocate Division of the Tennessee Attorney General	End-Use Customer
Poulos	Greg	Delaware Division of the Public Advocate	End-Use Customer
Poulos	Greg	Illinois Citizen Utility Board	End-Use Customer
Poulos	Greg	Indiana Office of Utility Consumer Counselor (IN OUCC)	End-Use Customer
Poulos	Greg	Maryland Office of People's Counsel	End-Use Customer
Poulos	Greg	Michigan Department of Attorney General, Environment, Natural Resources, & Agriculture Division	End-Use Customer
Poulos	Greg	New Jersey Division of Rate Counsel	End-Use Customer
Poulos	Greg	Office of the Attorney General, Kentucky	End-Use Customer
Poulos	Greg	Office of the People's Counsel for the District of Columbia	End-Use Customer
Poulos	Greg	Ohio Consumers' Counsel	End-Use Customer
Poulos	Greg	North Carolina Utilities Commission	End-Use Customer
Poulos	Greg	Virginia Division of Consumer Counsel	End-Use Customer
Poulos	Greg	West Virginia Consumer Advocate Division	End-Use Customer
Prokop	Brenda	ITC Interconnection LLC	Transmission Owner
Rohrbach	John	Kentucky Municipal Energy Agency	Other Supplier
Rohrbach	John	Southern Maryland Electric Cooperative, Inc.	Electric Distributor
Rohrbach	John	Wabash Valley Power Association, Inc.	Electric Distributor
Scarpignato	David	Calpine Energy Services, L.P.	Generation Owner
Swalwell	Bradley	Tangent Energy Solutions, Inc.	Other Supplier

Thomas	Amber	PPL Electric Utilities Corporation d/b/a PPL Utilities	Transmission Owner
Vayda	Brian	Borough of Butler, Butler Electric Division	Electric Distributor
Vayda	Brian	Borough of Lavallette, New Jersey	Electric Distributor
Vayda	Brian	Borough of Madison, New Jersey	Electric Distributor
Vayda	Brian	Borough of Milltown, New Jersey	Electric Distributor
Vayda	Brian	Borough of Park Ridge, New Jersey	Electric Distributor
Vayda	Brian	Borough of Pemberton, New Jersey	Electric Distributor
Vayda	Brian	Borough of Seaside Heights, New Jersey	Electric Distributor
Vayda	Brian	Borough of South River, New Jersey	Electric Distributor
Vayda	Brian	Vineland Municipal Electric Utility	Electric Distributor
Wadsworth	Joe	Vitol Inc.	Other Supplier
Whitehead	Jeffrey	Eastern Generation, LLC	Generation Owner
Whitehead	Jeffrey	Essential Power Rock Springs, LLC	Transmission Owner
Whitehead	Jeffrey	Wheelabrator Frackville Energy Co., Inc.	Generation Owner
Wicks	Tonja	Duquesne Light Company	Transmission Owner

Non-Voting Participants

Last Name	First Name	Organization	Sector
Abend	Erik	Erik Abend Consulting	N/A
Anderson	Jared	Platts	N/A
Bagot	Nancy	Electric Power Supply Association	N/A
Bainbridge	Tom	FirstEnergy	Transmission Owner
Bayless	Charles	North Carolina Electric Membership Corporation	Electric Distributor
Benson	Ed	NextEra Energy Marketing, LLC	Other Supplier
Bockhorn	Tim	AES	Generation Owner
Bowring	Joe	Monitoring Analytics	N/A
Boyle	Stephen	Merion Energy Solutions	N/A
Branch	John	Saint Joseph Energy Center	N/A
Brodbeck	John	EDP Renewables North America, LLC	Generation Owner
Cadore	Zoe	American Petroleum Institute (API)	N/A

Canter	David	Appalachian Power Company	Transmission Owner
Carmean	Gregory	OPSI	N/A
Chandler	Kent	Kentucky Office Of The Attorney General	End-Use Customer
Chen	Jennifer	Duke University	N/A
Chineapalli	Raj	BP Energy Company	Other Supplier
Chintapalli	Raj	BP Energy Company	Other Supplier
Chocarro	Iker	Eon Climate And Renewables	Generation Owner
Clemence	Walter	NextEra Energy Marketing, LLC	Other Supplier
Colbert	Cathleen	NRG Power Marketing, LLC	Other Supplier
Cocco	Michael	Old Dominion Electric Cooperative	Electric Distributor
Crystle	Gil	UGI Energy Services	Other Supplier
Dalessandris	Lou	FirstEnergy	Transmission Owner
Dasher	Brett	The Energy Authority	Other Supplier
Delaney	Liz	Environmental Defense Fund	N/A
Delosa	Joe	New Jersey Board Of Public Utilities	N/A
Dennis	Jeff	Advanced Energy Economy	N/A
Depillo	Ray	Public Service Electric & Gas Company	Transmission Owner
Dillon	Matt	UGI Development	Generation Owner
Domian	Christin	Duquesne Light Company	Transmission Owner
Evrard	David	Pennsylvania Office Of Consumer Advocate	End-Use Customer
Farnsworth	Byron	Wellsboro Electric Company	Electric Distributor
Fazio	Danielle	Englehart	Other Supplier
Filomena	Guy	Customized Energy Solutions, Ltd.*	None
Fink	Sari	American Wind Energy Association	N/A
Fuess	Christian	PBF Power Marketing, LLC	Generation Owner
Fuller	Daniel	BTD Partners	N/A
Gardner	Michelle	NextEra Energy Marketing, LLC	Other Supplier
Garnett	Bryan	Duke Energy Business Services LLC	Transmission Owner
Garza	Mark	FirstEnergy	Transmission Owner
George	Brian	American Petroleum Institute (API)	N/A
Gilani	Rehan	Con Edison Energy	Other Supplier
Gramlich	Rob	Grid Strategies, LLC	N/A
Guntle	Vince	UGI Energy Services	Other Supplier

Hart	Craig	Avenue Capital	N/A
Hastings	David	Mics	N/A
Hayik	Seth	Monitoring Analytics	N/A
Heidorn	Richard	RTO Insider	N/A
Heinle	Erik	Office of the People's Counsel for the District of Columbia	End-Use Customer
Heisey	Bradley	Tenaska	Generation Owner
Holdbrook	Ruth	NOVEC	Electric Distributor
Horning	Lynn	Customized Energy Solutions, Ltd.*	None
Horton	Dana	Appalachian Power Company	Transmission Owner
Hudis	Gabriella	Gabel Associates	N/A
Huntoon	Steve	Chesapeake Transmission	Other Supplier
Hurwich	Mark	Elliott Bay Energy Trading, LLC	Other Supplier
Hyzinski	Tom	GT Power Group	N/A
Jacobs	Mike	UCS	N/A
Jagtiani	Patricia	NGSA	N/A
Janicki	Diane	Boston Energy Trading And Marketing	Generation Owner
Janssen	Robert	Kelson Energy	N/A
Janssen	Bonnie	Michigan Public Service Commission	N/A
Jens	Tom	Black Oak Capital, LLC	Other Supplier
Jett	William	Duke Energy Business Services LLC	Transmission Owner
Johnston	David	Indiana Utility Regulatory Commission	N/A
Kozhuharov	Dimitar	Delaware Public Service Commission	N/A
Kumar	Nikhil	SIG	Other Supplier
Kupcinski	Candice	Pepco Holdings	N/A
Laios	Takis	Appalachian Power Company	Transmission Owner
Liang-Nicol	Cecilia	FirstEnergy	Transmission Owner
Logan	Sharon	FERC	N/A
Lowe	Connie	Dominion Energy	Generation Owner
Martin	Valerie	FERC	N/A
Matuszak	Alex	UGI Energy Services	Other Supplier
Melnyk	Markian	Atlantic Grid Operations A, LLC	Other Supplier
Mendelsohn	Mark	ETCP	N/A
Merola	Becky	Calpine Solutions	Generation Owner
Metzler	Jakob	CCI	CCO
Midgley	Sharon	Exelon Business Services Company,	Transmission

		LLC	Owner
Munsch	Kristin	Illinois Citizen Utility Board	End-Use Customer
Nadel	Steven	PPL Electric Utilities Corporation d/b/a PPL Utilities	Transmission Owner
Nallan	Dwarakesh	Daymark Energy Advisors	N/A
Nawaz	Zainab	New Jersey Board Of Public Utilities	N/A
Niewer	Sharon	ATSI	Transmission Owner
Nowell	Cynthia	Potomac Electric Power Co	Electric Distributor
O'Boyle	Brian	Rockland Electric Company	Transmission Owner
Ondayko	Brock	Appalachian Power Company	Transmission Owner
Pelletier	Eveline	HQ Energy Services	Other Supplier
Peoples	John	Duquesne Light Company	Transmission Owner
Phillips	Jennifer	C.P. Crane	Generation Owner
Poulos	Greg	CAPS	N/A
Price	Ruth Ann	Delaware Division of the Public Advocate	End-Use Customer
Quier	David	PPL Electric Utilities Corporation d/b/a PPL Utilities	Transmission Owner
Rayhorn	Caroline	Communion Energy	Other Supplier
Redwine	Arlo	FERC	N/A
Roberts	Casey	Sierra Club	N/A
Robins	Pip	EMC Development Company	Other Supplier
Rutigliano	Tom	NRDC	N/A
Salanek	Alexandra	Monitoring Analytics	N/A
Sasser	Jonathan	Customized Energy Solutions, Ltd.*	None
Schreim	Morris	Maryland Public Service Commission	N/A
Sealaus	Timothy	EMC Development Company	Other Supplier
Segner	Sharon	LS Power	N/A
Seide	Richard	Apex Clean Energy	N/A
Shah	Pulin	Exelon Business Services Company, LLC	Transmission Owner
Shanker	Roy	East Coast Power	N/A
Shparber	Steven	Nelson Mullins	N/A
Sidhom	Noha	Prime Trading	Other Supplier
Sillin	John	FERC	N/A
Singer	Chad	Trane Grid Services	Other Supplier

Smith	Christen	RTO Insider	N/A
Sotkiewicz	Paul	E-Cubed Policy Associates LLC	N/A
Stern	Alex	Public Service Electric & Gas Company	Transmission Owner
Stone	Andy	Gabel Associates	N/A
Sturgeon	John	Duke Energy Business Services LLC	Transmission Owner
Sweeney	Rory	GT Power Group	N/A
Tangirala	Subha	ABB	N/A
Taylor	Robert	Exelon Business Services Company, LLC	Transmission Owner
Thompson	Matthew	XO Energy	Other Supplier
Tibbetts	Maeve	Pierce Atwood	N/A
Toomey	Megan	Talen Energy Marketing, LLC	Generation Owner
Trayers	Barry	Citigroup Energy Inc	Other Supplier
Vayda	Brian	Borough Of Park Ridge New Jersey	Electric Distributor
Walker	Jennifer	Exelon Business Services Company, LLC	Transmission Owner
Wilhite	Chad	FirstEnergy	Transmission Owner
Wilmoth	Emily	Dominion Energy	Generation Owner
Wilson	Bram	Diamond State Generation Partners, LLC	Generation Owner
Wilson	James	Wilson Energy Economics	N/A
Zakaria	Rama	Environmental Defense Fund	N/A
Zevin	Avi	Institute For Policy Integrity	N/A

PJM Participants

Last Name	First Name	Organization	Sector
Advena	Christopher	PJM Interconnection	N/A
Baker	Scott	PJM Interconnection	N/A
Barrett	Francis	PJM Interconnection	N/A
Bastian	Jeff	PJM Interconnection	N/A
Bell	Jerry	PJM Interconnection	N/A
Bennett	Daniel	PJM Interconnection	N/A
Bennett	Stephen	PJM Interconnection	N/A
Berner	Aaron	PJM Interconnection	N/A
Bernstein	Matthew	PJM Interconnection	N/A
Bielak	Donald	PJM Interconnection	N/A

Boyle	Glen	PJM Interconnection	N/A
Bresler	Stu	PJM Interconnection	N/A
Bruno	Patrick	PJM Interconnection	N/A
Bruno	Joshua	PJM Interconnection	N/A
Bryson	Mike	PJM Interconnection	N/A
Buehler	Susan	PJM Interconnection	N/A
Burdis	Tim	PJM Interconnection	N/A
Burlew	Jim	PJM Interconnection	N/A
Chal	Hungpo	PJM Interconnection	N/A
Chao	Hung-Po	PJM Interconnection	N/A
Chmielewski	Brian	PJM Interconnection	N/A
Croop	Danielle	PJM Interconnection	N/A
Davis	Elizabeth	PJM Interconnection	N/A
DeVita	Thomas	PJM Interconnection	N/A
Dolan	James	PJM Interconnection	N/A
Drauschak	Lisa	PJM Interconnection	N/A
Duane	Vince	PJM Interconnection	N/A
Fabiano	Janell	PJM Interconnection	N/A
Falin	Tom	PJM Interconnection	N/A
Fernandes	Anisha	PJM Interconnection	N/A
Foster	Denise	PJM Interconnection	N/A
Foster	Neel	PJM Interconnection	N/A
Franks	Chris	PJM Interconnection	N/A
Genuario	Gabby	PJM Interconnection	N/A
Glatz	Sue	PJM Interconnection	N/A
Glazer	Craig	PJM Interconnection	N/A
Gledhill	Andrew	PJM Interconnection	N/A
Greening	Michele	PJM Interconnection	N/A
Haque	Asim	PJM Interconnection	N/A
Hauske	Thomas	PJM Interconnection	N/A
Helm	Gary	PJM Interconnection	N/A
Hendrzak	Chantal	PJM Interconnection	N/A
Herel	Suzanne	PJM Interconnection	N/A
Herling	Steve	PJM Interconnection	N/A
Herman	Michael	PJM Interconnection	N/A
Hilderbrand	Rebecca	PJM Interconnection	N/A
Holland	Risa	PJM Interconnection	N/A
Holter	Natasha	PJM Interconnection	N/A
Horger	Tim	PJM Interconnection	N/A

Hsia	Eric	PJM Interconnection	N/A
Jason	McGovern	PJM Interconnection	N/A
Kenney	Susan	PJM Interconnection	N/A
Keshavamurthy	Bhavana	PJM Interconnection	N/A
Kimmel	David	PJM Interconnection	N/A
Langbein	Pete	PJM Interconnection	N/A
Larocque	Matthew	PJM Interconnection	N/A
Laung	Thincar	PJM Interconnection	N/A
Lee	Lori	PJM Interconnection	N/A
Lu	Chen	PJM Interconnection	N/A
Malladi	Brinda	PJM Interconnection	N/A
McGill	Susan	PJM Interconnection	N/A
Mcglynn	Paul	PJM Interconnection	N/A
Mcgovern	Jason	PJM Interconnection	N/A
McLaughlin	Jeffrey	PJM Interconnection	N/A
Messina	Emmy	PJM Interconnection	N/A
Mooney	Molly	PJM Interconnection	N/A
Muhl	Nancy	PJM Interconnection	N/A
Nix	Emma	PJM Interconnection	N/A
O'Hara	Chris	PJM Interconnection	N/A
O'Neill	Jack	PJM Interconnection	N/A
Pacella	Chris	PJM Interconnection	N/A
Patel	Anita	PJM Interconnection	N/A
Patel	Keyur	PJM Interconnection	N/A
Perera	Asanga	PJM Interconnection	N/A
Phillips	Darlene	PJM Interconnection	N/A
Pilong	Chris	PJM Interconnection	N/A
Pilong	Melissa	PJM Interconnection	N/A
Pincus	Steven	PJM Interconnection	N/A
Quevada	Jason	PJM Interconnection	N/A
Reynolds	John	PJM Interconnection	N/A
Ritchie	Sandra	PJM Interconnection	N/A
Rocha-Garrido	Patricio	PJM Interconnection	N/A
Rogers	Sarah	PJM Interconnection	N/A
Scheidecker	Paul	PJM Interconnection	N/A
Schuyler	Ken	PJM Interconnection	N/A
Schweizer	David	PJM Interconnection	N/A
Seiler	Ken	PJM Interconnection	N/A
Shields	Jeffrey	PJM Interconnection	N/A

Slusser	Jeff	PJM Interconnection	N/A
Snow	Jim	PJM Interconnection	N/A
Souder	Michelle	PJM Interconnection	N/A
Squilla	Angelica	PJM Interconnection	N/A
Stadelmeyer	Rebecca	PJM Interconnection	N/A
Starkov	Stefan	PJM Interconnection	N/A
Swimm	Nora	PJM Interconnection	N/A
Tacka	Natalie	PJM Interconnection	N/A
Tribulski	Jen	PJM Interconnection	N/A
Velasco	Cheryl	PJM Interconnection	N/A
Walter	Laura	PJM Interconnection	N/A
Ward	Michael	PJM Interconnection	N/A
Warshel	Kim	PJM Interconnection	N/A
Watkin	Erik	PJM Interconnection	N/A
Williams	Stanley	PJM Interconnection	N/A
Xu	Xu	PJM Interconnection	N/A
Yeaton	Andrea	PJM Interconnection	N/A