

DER and Inverter-based Resources Subcommittee

WebEx Only

March 3, 2021

9:00 a.m. – 4:00 p.m. ET

Administration (9:00 – 9:15)

1. Scott Baker opened the meeting and reviewed the agenda.
2. Hamad Ahmed reviewed the meeting participation guidelines. The minutes from the February DIRS meeting and the EDC coordination workshop were approved with 0 objections and 0 abstentions.
3. Scott Baker reviewed the DIRS work plan.
 - Scott discussed various timelines regarding Hybrid Resources and DER aggregation/ FERC Order 2222.
4. Thomas DeVita discussed PJM's request for compliance extension on FERC Order 2222.
 - Thomas indicated that PJM has requested an extension on the FERC Order 2222 until February 1, 2022. Some stakeholders voiced concerns regarding PJM's plan to put forward a straw proposal during March 31st DIRS for FERC Order 2222, especially given this potential extension of the compliance period. PJM welcomed the feedback and vowed to internally discuss further and report out to stakeholders at the next meeting on 3/15 with their plan for issuing a straw proposal.

Order 2222 – EDC Coordination Workshop (9:15 – 12:15)

5. PJM and distribution utility staff discussed aspects of the DER aggregation utility review process and operational coordination framework.
 - a) Pete Langbein, PJM, provided additional thoughts on the DER registration and utility review processes, using use case examples.
 - Pete highlighted proposed DER process emphasizing that the process is a work in progress. Pete discussed key EDC responsibilities for Order 2222, several use cases for registration process, potential aggregation approach, registration review timeline and settlement/compliance.
 - b) Utility presentations - First Energy discussed roles and responsibilities for EDCs. Duquesne discussed the 60-day EDC registration process and PPL reviewed examples of real time override scenarios and implications of system constraints.

Order 2222 – Discussion on compliance directives (1:00 – 2:30)

6. Stakeholders continued discussion around potential solutions related to the market participation requirements for DER and DER aggregation.
 - a) Madelyn Beban presented PJM staff initial thoughts on metering and telemetry.

- Madelyn put forth PJM’s initial thoughts around metering and telemetry requirements and opened the floor for stakeholder discussion. Madelyn discussed existing metering requirements and used aggregation cases. Stakeholders discussed the benefits and drawbacks to having individual-DER level telemetry, as opposed to just aggregated telemetry. Stakeholders requested additional discussion and use cases/examples on this topic at a future meeting.
- b) Betty Watson, Modern Energy, sought additional feedback on the proposed solutions put forward by Advanced Energy Management Alliance at the last meeting.
- Betty briefly discussed several topics from last meeting and opened the floor for discussion among stakeholders.

Solar-Battery Hybrid Resources (2:30 – 3:25)

7. Stakeholders reviewed progress on the solar-battery hybrid solutions matrix and discussed next steps towards recommending a proposal to the MIC (and OC).
 - Andrew Levitt, PJM, reviewed a new design component “number of resources for MOPR purposes” and discussed verbally the status quo for that item. PJM staff also made changes to package A regarding the solution option for “modeling Energy/Ancillary Services”. PJM Stakeholders requested education around the reserve issue and MOPR status quo and requested more time to discuss the solution matrix. A post-meeting version of the matrix will be posted.
 - Ken Foladare, representing Tangibl, reviewed an additional package proposal regarding reserves.

[Issue Tracking: Solar-Battery Hybrid Resources](#)

Action items and next meeting agenda (3:25 – 3:30)

8. The facilitation team will review action items from the meeting and take requests for future agenda items.

Future Meeting Dates

March 15, 2021 – EDC Workshop	9:00 – 11:00	WebEx
March 31, 2021	9:00 – 4:00	WebEx
April 16, 2021 – EDC Workshop	10:00 – 12:00	WebEx
April 28, 2021	9:00 – 4:00	WebEx
May 05, 2021 – EDC Workshop	1:00 – 3:00	WebEx
May 17, 2021	9:00 – 4:00	WebEx
June 28, 2021	9:00 – 4:00	WebEx
July 23, 2021	9:00 – 4:00	WebEx
August 16, 2021	9:00 – 12:00	TBD
September 14, 2021	9:00 – 12:00	TBD
October 13, 2021	9:00 – 12:00	TBD
November 16, 2021	9:00 – 12:00	TBD
December 14, 2021	9:00 – 12:00	TBD

Author: Hamad Ahmed

WebEx meeting Attendance

Name	Company Name	Sector
Aguilera, Jorge	Duke Energy Ohio, Inc. (EDC)	Transmission Owner
Ahmed, Hamad	PJM Interconnection	None
Ainspan, Malcolm	NRG Curtailment Solutions, Inc.	Other Supplier
Allen, William	Commonwealth Edison Company	Transmission Owner
Anders, David	PJM Interconnection	None
Anderson, Jared	American Transmission Company - Retired	
Arnold, Katelyn	PPL Electric Utilities Corp. dba PPL Utilities (LSE)	Transmission Owner
Arsalan, Qamar	Public Service Electric & Gas Company	Transmission Owner
Baker, Jeff	PJM Connect	
Baker, Scott	PJM Interconnection	None
Barker, Jason	Exelon Business Services Company, LLC	Transmission Owner
Baur, Sean	GlidePath Power Operations LLC	Generation Owner
Bayless, Charles	North Carolina Electric Membership Corporation	Electric Distributor
Beam, George	PPL Elec Utilities Corp dba PPL Utilities (PPL POLR Small C&I)	Transmission Owner
Beban, Madalyn	PJM Interconnection	None
Benchek, Jim	FirstEnergy Corporation	
Bennett, Stephen	PJM Interconnection	None

Bernabeu, Emanuel	PJM	
Berner, Aaron	PJM Interconnection	None
Bernstein, Matthew	PJM Interconnection	None
Berton, Tyler	AEP Appalachian Transmission Company, Inc.	Transmission Owner
Besz, Matthew	PPL Electric Utilities Corp. dba PPL Utilities (TO)	Transmission Owner
Bhana, Rajesh	Exelon Business Services Company, LLC	Transmission Owner
Bielak, Donnie	PJM Interconnection	None
Borgatti, Michael	PJM Committee Voting Generic Account	
Borkoski, John	MD Public Service Commission	
Bowring, Joe	Monitoring Analytics	
Boyle, Glen	PJM Interconnection	None
Breidenbaugh, Aaron	Rodan Energy Solutions (USA) Inc.	Other Supplier
Brodbeck, John	EDP Renewables North America LLC	Generation Owner
Brooks, Richard	Reliable Energy Analytics LLC	
Bryson, Michael	PJM Internal	
Buhler, Thomas	PJM Connect	
Burdis, Tim	PJM Interconnection	None

Campbell, Bruce	Enerwise Global Technologies, LLC	Other Supplier
Canter, David	Appalachian Power Company (AEP Generation)	Transmission Owner
Carmean, Gregory	Organization of PJM States, Inc.	
Cavan, Peter	Direct Energy Business Marketing, LLC	Other Supplier
Chakragiri, Mohan	ENGIE Energy Marketing NA, Inc. (Bluestone)	Other Supplier
Cham, Edrissa	Savion, LLC	
Chang, Sean	Shell Energy North America (US), L.P.	Other Supplier
Chappelle, Laura	Ali	
Chee, Yee Hong	MCG Energy Solutions	
Chen, Yang	PJM Interconnection	None
Chocarro Aguirrebengoa, Iker	RWE Renewables Americas, LLC	Generation Owner
Christopher, Mahila	Public Utilities Commission of Ohio	
Cobb, Jacqueline	PJM	
Cocco, Michael	Old Dominion Electric Cooperative	Electric Distributor
Connelly, Nancy	Duke Energy Ohio, Inc.	Transmission Owner
Coyle, Billy	Dominion Virginia Power	Transmission Owner
Croop, Danielle	PJM Interconnection	None
Currier ES, Jeff	Dominion Virginia Power	Transmission Owner

Dailey, Michael	Northern Virginia Electric Cooperative (NOVEC)	Electric Distributor
D'Alessandris, Louis	American Transmission Systems, Inc.	Transmission Owner
Davis, Elizabeth	PJM Interconnection	None
Davis, James	Dominion Energy Generation Marketing, Inc.	Generation Owner
DeBleekere, Tricia	Minnesota Public Utilities Commission	
Delaney, Liz	Borrego Solar	
DeLosa, Joseph	New Jersey Board of Public Utilities	
Denby, Brett	Northern Virginia Electric Cooperative (NOVEC)	Electric Distributor
DeVita, Thomas	PJM Interconnection	None
DiNicola, Laura	firstenergy	
Diong, Mamadou	Dominion Virginia Power	Transmission Owner
Dixon, Chad	Customized Energy Solutions, Ltd.	None
Dolan, Ryan	Dayton Power & Light Company (The) (EDC)	Transmission Owner
Domian, Christin	Duquesne Light Company	Transmission Owner
Downs, Jere	PJM Connect	
Drom, Rick	Rick Drom	
Dropkin, Ilyana	PJM Interconnection	None
Dugan, Chuck	East Kentucky Power Cooperative, Inc.	Transmission Owner

Dumitriu, Nicolae	PJM Interconnection	None
Elkins, Rachel	American Transmission Systems, Inc.	Transmission Owner
Ellis, David	Public Service Electric & Gas Company	Transmission Owner
Ericson, Christine	Illinois Commerce Commission	
Everngam, Scott	Blue Horseshoe Energy LLC	
fan, zhenyu	PJM Interconnection	None
Fee, George	Appalachian Power Company (AEP Generation)	Transmission Owner
Felt, Justin	Baltimore Gas and Electric Company (Residential)	
Filomena, Guy	Customized Energy Solutions, Ltd.	None
Fleisher, Madeline	Dickinson Wright PLLC	
Foladare, Kenneth	Geenex Solar LLC	Generation Owner
Foley, Sheila	PJM Interconnection	None
Ford, Adrien	Old Dominion Electric Cooperative	Electric Distributor
Foster Cronin, Denise	East Kentucky Power Cooperative, Inc.	Transmission Owner
Frogg, Darrell	PJM Interconnection	None
Gahimer, Michael	Indiana Office of Utility Consumer Counselor (IN OUCC)	
Garcia, Luis	Public Service Electric & Gas Company	Transmission Owner
Garnett, Bryan	Duke Energy Ohio, Inc.	Transmission Owner
Gates, Jill	PJM Interconnection	
Gates, Terry	Appalachian Power Company (AEP Generation)	Transmission Owner

Genuario, Gabrielle	PJM Interconnection	None
Gilani, Rehan	ConEdison Energy, Inc.	Other Supplier
Glatz, Suzanne	PJM Interconnection	None
Glazer, Craig	PJM Interconnection	None
Goldberger, Nitzan	Borrego	
Good, Megan	Pennsylvania Public Utility Commission	
Greening, Michele	PJM Interconnection	None
Greiner, Gary	PSEG Energy Resources and Trade LLC	Other Supplier
Guistwhite, Jeffrey	PJM Interconnection	
Guntle, Vince	American PowerNet Management, L.P.	End-Use Customer
Hanser, Erik	Michigan Public Service Commission	
Hartman, Gary	PPL Electric Utilities Corp. dba PPL Utilities (LSE)	Transmission Owner
Hasan, Prusha	Advanced Energy Economy	
Hatch, Kevin	PJM Interconnection	None
Hauske, Thomas	PJM Interconnection	None
Heinle, Frederick	Office of the Peoples Counsel	
Heitmeyer, Chad	Appalachian Power Company (AEPSCO)	Transmission Owner
Herel, Suzanne	PJM Interconnection	None
Hoatson, Tom	West Deptford Energy, LLC	Generation Owner

Hohenshilt, Jennifer	Talen Energy Marketing, LLC	Generation Owner
Holdbrook, Ruth	Northern Virginia Electric Cooperative (NOVEC)	Electric Distributor
Horning, Lynn Marie	Customized Energy Solutions, Ltd.	None
Horstmann, John	Dayton Power & Light Company (The)	Transmission Owner
Hsia, Eric	PJM Interconnection	None
Hugee, Jacquelynn	PJM Interconnection	None
Hull, Gerit	American Municipal Power, Inc.	Electric Distributor
Hyzinski, Tom	gtpgghyzinsk	
Iler, Arthur	Indiana Office of Utility Consumer Counselor	
Jardot, Gina	NRG Curtailment Solutions, Inc.	Other Supplier
Jens, Thomas	Black Oak Capital, LLC	Other Supplier
Jett, William	Duke Energy Business Services LLC	Transmission Owner
Jha, Monica	PCI	
Johnson, Augustus	Dominion Virginia Power (EDC)	Transmission Owner
Johnson, Bethany	PPL Electric Utilities Corp. dba PPL Utilities (TO)	Transmission Owner
Johnson, Carl	Customized Energy Solutions, Ltd.	None
Johnson, Nathaniel	Appalachian Power Company (AEP Generation)	Transmission Owner
Johnston, David	Other	

Joshipura, Neil	Virginia State Corporation Commission	
Kalle, Issiaga	Tibiri Energy Group, llc	
Kauffman, Brian	Enel X North America, Inc.	Other Supplier
Kelly, Stephen	Brookfield Renewable Trading and Marketing LP (BSMH)	Other Supplier
Kent, Janessa	Duquesne Light Company	Transmission Owner
Kimmel, David	PJM Interconnection	None
Kirk, Ryan	Appalachian Power Company (AEP Generation)	Transmission Owner
Koehler, Nicolas	Appalachian Power Company (AEP Transmission)	Transmission Owner
Kogut, George	New York Power Authority	Other Supplier
Lee, Lori Murphy	PJM Interconnection	None
Levitt, Andrew	PJM Interconnection	None
Levitt, Benjamin	IHS Markit	
Lieberman, Steven	American Municipal Power, Inc.	Electric Distributor
LOWE, CONNIE	Dominion Virginia Power	Transmission Owner
Luo, Xiaochuan	ISO New England Inc	
Lyakhovich, Leonid	Public Service Electric & Gas Company	Transmission Owner
Mabry, David	McNees Wallace & Nurick LLC	
Mangonon, Roletto	Rockland Electric Company	Transmission Owner
Mariam, Yohannes	Office of the People's Counsel for the District of Columbia	

martin, Valerie	Federal Energy Regulatory Commission	
mason, julie	Duke Energy Ohio, Inc.	Transmission Owner
Matheson, Eric	Non-member	
Mattson, Lisa	Pivot Energy	
McGlynn, Paul	PJM Interconnection	None
McInerney, Timothy	Commonwealth Edison Company	Transmission Owner
Midgley, Sharon	Exelon Business Services Company, LLC	Transmission Owner
Morelli, Lisa	PJM Interconnection	None
Muhl, Nancy	PJM Interconnection	None
Nix, Emma	Jersey Green Energy LLC	Other Supplier
Norton, Chris	American Municipal Power, Inc.	Electric Distributor
nyemko, masha	PJM Interconnection	None
O'Hara, Christopher	PJM	
Okenfuss, James	Savion, LLC	
Ondayko, Brock	AEP Energy Partners, Inc. (AEP Gen Resources)	Transmission Owner
Pakela, Greg	DTE Energy Trading, Inc.	Other Supplier
Parker, Amanda	Pennsylvania Electric Company	Electric Distributor
Parkison, Sara	University of Delaware	

Phillips, Darlene	PJM Interconnection	None
Pieniasek, Marie	NRG Curtailment Solutions, Inc.	Other Supplier
Pilong, Christopher	PJM Interconnection	None
Placide, Scott	Potomac Electric Power Company	Electric Distributor
Polka, Joseph	Duquesne Light Company	Transmission Owner
Poulos, Greg	PJM Committee Voting Generic Account	
Pratt, Nicholas	PPL Electric Utilities Corp. dba PPL Utilities (TO)	Transmission Owner
Price, Ruth	Delaware Division of the Public Advocate	
Proconiar, Jason	Buckeye Power, Inc.	Electric Distributor
Purdie, Michael	Dominion Virginia Power	Transmission Owner
Rainey, John	Northern Virginia Electric Cooperative (NOVEC)	Electric Distributor
Reagan, Ryann	New Jersey Board of Public Utilities	
REILLY, Jim	Reilly Associates	
Robinson, Becky	vistra energy	
Rodriguez, Tomas	Organization of PJM States, Inc.	
Rohrbach, John	Wabash Valley Power Association, Inc.	Electric Distributor
Rooney, Alexa	PPL Electric Utilities Corp. dba PPL Utilities (TO)	Transmission Owner
Rosenblatt, Alex	Duquesne Light Company	Transmission Owner
Rouland, James	PPL Electric Utilities Corp. dba PPL Utilities (LSE)	Transmission Owner

Roychowdhury, Rajarshi	Dayton Power & Light Company (Default)	Transmission Owner
Rumsey, Amanda	PPL Electric Utilities Corp. dba PPL Utilities (TO)	Transmission Owner
Rutigliano, Tom	Natural Resources Defense Council	
Sailers, Bruce	Duke Energy Ohio, Inc. (EDC)	
Salet, Sal	PPL Electric Utilities Corp. dba PPL Utilities (LSE)	
Sasser, Jonathan	Customized Energy Solutions, Ltd.	None
Scarpignato, David	Calpine Energy Services, L.P.	Generation Owner
Scheirer, Alexandra	PJM Interconnection	None
Schisler, Kenneth	Enerwise Global Technologies, LLC	
Schuyler, Ken	PJM Interconnection	None
Seireg, Bahaa	Rockland Electric Company	Transmission Owner
Sells, Scott	East Kentucky Power Cooperative, Inc.	Transmission Owner
Shearer, Evan	Duke Energy Business Services LLC	Transmission Owner
Shukla, Tanmay	Environmental Law and Policy Center	
Sims, Ryan	Interstate Gas Supply, Inc.	Other Supplier
Singh, Mohit	Commonwealth Edison Company	Transmission Owner
Skumanich, Bill	RTR Energy Solutions LLC	None
Smith, Mark	AEP Energy Partners, Inc. (AEP Retail)	Transmission Owner
Solomon, Greg	Peak Power Inc	

Solomon, Greg	Pennsylvania Public Utility Commission	
Sorrels, James	AEP Appalachian Transmission Company, Inc.	Transmission Owner
Stefanowicz, Vincent	PJM Interconnection	None
Stern, Alexander	Public Service Electric & Gas Company	Transmission Owner
Strella, Lauren	PJM Interconnection	None
Stupar, Rob	Invenergy Energy Management LLC	Generation Owner
Suh, Jung	Calpine Energy Solutions, LLC	Other Supplier
Sun, Haibin	Exelon Business Services Company, LLC	Transmission Owner
Svenson, Heather	Public Service Electric & Gas Company	Transmission Owner
Swalwell, Brad	Tangent Energy Solutions, Inc.	Other Supplier
Sweeney, Rory	GT Power Group, LLC	None
Swenson, Kristin	Midcontinent Independent Sys Op, Inc. (CTS)	
Tacka, Natalie	PJM Interconnection	None
Taylor, Robert	Commonwealth Edison Company	Transmission Owner
Teeter, Valerie	Exelon Business Services Company, LLC	Transmission Owner
Thundiyil, Kevin	Exelon Generation Co., LLC (NEV_XLON)	Generation Owner
Tighe, Andrea	CAPS	

Tobia, James	FirstEnergy Services	
Tyler, Catherine	Monitoring Analytics	
Walker, Jacqueline	Duke Energy Business Services LLC	
Walter, Laura	PJM Interconnection	None
Watson, Betty	Affirmed Energy LLC	Other Supplier
Weber, Adam	Union Electric Company d/b/a Ameren Missouri	Other Supplier
Wehnes, Kathleen	Maryland Department of the Environment	
Wehr, Christopher	Ohio Edison Company (EDC)	Electric Distributor
White, Brett	Brett White	
White, Earnest	Virginia State Corporation Commission	
Whitehead, Jeffrey	GT Power Group	
Wicks, Tonja	Duquesne Light Company	Transmission Owner
Willey, Amy	Delaware Public Service Commission	
Wilmoth ES, Emily	Dominion Virginia Power	Transmission Owner
Wisersky, Megan	Madison Gas & Electric Co.	Other Supplier
Wisniewski, Christian	Centrica Business Solutions	
Wray, Gizelle	Solar Energy Industries Association (SEIA)	
Xenopoulos, Damon	Other	

Yeaton, Andrea	PJM Interconnection	None
Yoo, Kyungjin	Monitoring Analytics	
Yoo, Kyungjin	Monitoring Analytics	
Yu, Joel	Enchanted Rock	
Zhang, Mike	PJM Interconnection	None

Antitrust:

You may not discuss any topics that violate, or that might appear to violate, the antitrust laws including but not limited to agreements between or among competitors regarding prices, bid and offer practices, availability of service, product design, terms of sale, division of markets, allocation of customers or any other activity that might unreasonably restrain competition. If any of these items are discussed the chair will re-direct the conversation. If the conversation still persists, parties will be asked to leave the meeting or the meeting will be adjourned.

Code of Conduct:


As a mandatory condition of attendance at today's meeting, attendees agree to adhere to the PJM Code of Conduct as detailed in PJM Manual M-34 section 4.5, including, but not limited to, participants' responsibilities and rules regarding the dissemination of meeting discussion and materials.

Public Meetings/Media Participation:

Unless otherwise noted, PJM stakeholder meetings are open to the public and to members of the media. Members of the media are asked to announce their attendance at all PJM stakeholder meetings at the beginning of the meeting or at the point they join a meeting already in progress. Members of the Media are reminded that speakers at PJM meetings cannot be quoted without explicit permission from the speaker. PJM Members are reminded that "detailed transcriptional meeting notes" and white board notes from "brainstorming sessions" shall not be disseminated. Stakeholders are also not allowed to create audio, video or online recordings of PJM meetings. PJM may create audio, video or online recordings of stakeholder meetings for internal and training purposes, and your participation at such meetings indicates your consent to the same.

Participant Identification in WebEx:

When logging into the WebEx desktop client, please enter your real first and last name as well as a valid email address. Be sure to select the "call me" option. PJM support staff continuously monitors WebEx connections during stakeholder meetings. Anonymous users or those using false usernames or emails will be dropped from the teleconference.

<p>On the Phone, Dial</p>  <p>to Mute/Unmute</p>	<p>Linking Teleconference Connection to Webex</p> <p>When logging in to the meeting, access Webex first and select the "call me" feature to receive a direct call to your phone. Using this feature will connect your name to your Webex presence.</p>
--	---

<p>Join a Meeting</p>	<ol style="list-style-type: none"> 1. Join meeting in the Webex desktop client 2. Enter name (<i>First and Last*</i>) and corporate email 3. Under "Select Audio Option" select "Call Me" option from the dropdown menu
------------------------------	--

**Note: Anonymous users or those using false usernames or emails will be dropped from the teleconference.*

Provide feedback on the progress of this group: [Facilitator Feedback Form](#)
Visit learn.pjm.com, an easy-to-understand resource about the power industry and PJM's role.