

## DER and Inverter-based Resources Subcommittee

WebEx Only

February 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 January DIRS meeting and the EDC coordination workshop were approved with 0 objections and 0 abstentions.
3. Scott Baker reviewed the DIRS work plan.
  - Scott briefly reviewed the DIRS work plan highlighting that stakeholders are in the packaging phase of the solar-battery hybrid resource issue and hope to advance a proposal to the MIC in the next meeting or two.
  - Scott also discussed DER aggregation/order 2222 compliance schedule highlighting that PJM would start discussing the straw proposal starting in March.

### Order 2222 – EDC Coordination Workshop (9:15 – 11:15)

4. PJM staff led a discussion on the Utility Review Process, specifically the DER and DER Aggregation registration process.
  - Pete Langbein, PJM, discussed, on a high level, a proposed DER process. Pete also reviewed the status quo and additional requirements for registration process for EDC data verification and visibility. Later, Pete also discussed a proposed EDC registration review timeline.
  - Pete presented current EDC data approval in DR Hub highlighting several key features within the app, such as market eligibility and max capacity market participation.
  - Pete discussed the status quo and additional requirements for settlements/compliance process for EDC data verification and visibility. Pete also highlighted the EDC data verification and visibility in the DR Hub.
  - Andrea Yeaton, PJM, reviewed additional EDC coordination based on order 2222 and reiterated RERRA restrictions.

### Order 2222 – Discussion on compliance directives (11:30 – 2:15)

5. PJM staff continued discussion around potential policies related to the interconnection and market participation requirements of DER and DER aggregations.

- Danielle Croop, PJM, put forth initial thoughts around compliance directives for FERC order no. 2222 such as market participation and interconnection and opened the discussion for stakeholder feedback.
6. Betty Watson from Modern Energy and on behalf of the Advanced Energy Management Alliance presented proposed market participation concepts for DER Aggregation.
    - Betty highlighted several key provisions from FERC order no. 2222 and reviewed straw DER participation model.
    - Betty discussed key topics such as energy market, energy settlement, cost justification, ancillary services, capacity, Capacity Injections Rights, double counting/dual participation, charging energy for energy storage, distinction between metering and telemetry, metering options, baseline methodology, data and telemetry, focus on quality of data, locational requirements and minimum aggregation size.
  7. Thomas DeVita discussed PJM compliance filing deadline and sought stakeholder feedback on requesting a deadline extension from FERC.
    - Thomas reviewed the current timeline for PJM's compliance filing for FERC order no. 2222.
    - Thomas reviewed several key points for considering a 3-6 month extension for the filing. Thomas also highlighted that currently, there is no specific implementation timeline, but PJM staff remarked that its current thinking is sometime in 2023 given existing projects and priorities.

## Solar-Battery Hybrid Resources (2:15 – 3:45)

8. Thomas DeVita reviewed a recent FERC Order requiring PJM to submit an information report about the status of various issues related to hybrid resources (AD20-9-000). The informational report is due July 19, 2021.
  - Thomas highlighted that the short order directs PJM to submit a report regarding four hybrid resources areas. The four areas are terminology, interconnection, market participation and capacity valuation. Thomas also highlighted that PJM must submit its report within 180 days, providing a description of its current practices related to each of these four issues, an update on the status of any ongoing efforts to develop reforms related to each of the four issues and responses to the specific requests for information contained within the order.
9. Andrew Levitt finished reviewing all items in the hybrid solutions matrix, noting a few changes to solution options.
  - Andrew indicated a potential solution for the dispatchable solar-battery hybrids under design component; operating requirements.
  - Andrew discussed design components and packages and took several suggestions from stakeholders.

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

## Action items and next meeting agenda (3:45 – 4:00)

10. The facilitation team reviewed action items from the meeting and took requests for future agenda items.

## Future Meeting Dates

Meeting Date	Time	Platform
February 11, 2021 – EDC Workshop	1:00 – 3:00	WebEx – Note: Date changed from 12th
March 3, 2021	9:00 – 4:00	WebEx
March 15, 2021 – EDC Workshop	9:00 – 11:00	WebEx
March 31, 2021	9:00 – 4:00	WebEx
April 28, 2021	9:00 – 4:00	WebEx
May 25, 2021	9:00 – 12:00	WebEx
June 22, 2021	9:00 – 12:00	WebEx
July 23, 2021	9:00 – 12:00	TBD
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 Attendees

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
Ali, Shadab	PPL Electric Utilities Corp. dba PPL Utilities (TO)	Transmission Owner
Allen, William	Commonwealth Edison Company	Transmission Owner
Anders, David	PJM Interconnection	None
Arnold, Katelyn	PPL Electric Utilities Corp. dba PPL Utilities (LSE)	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

	Energy Storage Resources, LLC	
Beeravalli, Ravi		
Benchek, Jim	FirstEnergy Corporation	
Bennett, Stephen	PJM Interconnection	None
Bernabeu, Emanuel	PJM	
Berner, Aaron	PJM Interconnection	None
Bernstein, Matthew	PJM Interconnection	None
Bielak, Donnie	PJM Interconnection	None
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
Bryson, Michael	PJM Internal	
Buhler, Thomas	PJM Connect	
Callen, Zachary	Illinois Commerce Commission	
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
Chao, Henry	Quanta Technology	
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	
Cocco, Michael	Old Dominion Electric Cooperative	Electric Distributor

Collette, Lucas	Duquesne Light Company	Transmission Owner
Connelly, Nancy	Duke Energy Ohio, Inc.	Transmission Owner
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
DeBleeckere, 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
Drom, Rick	Rick Drom	
Dropkin, Ilyana	PJM Interconnection	None
Dugan, Chuck	East Kentucky Power Cooperative, Inc.	Transmission Owner
Dumitriu, Nicolae	PJM Interconnection	None
Egan, Amanda	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	Other	
Fleisher, Madeline	Dickinson Wright PLLC	
Foladare, Kenneth	Geenex Solar LLC	Generation Owner
Ford, Adrien	Old Dominion Electric Cooperative	Electric Distributor
Foster, Denise	East Kentucky Power Cooperative, Inc.	Transmission Owner
Fuller, Peter	Autumn Lane Energy Consulting LLC	
Gahimer, Michael	Indiana Office of Utility Consumer Counselor (IN OUCC)	
Garcia, Luis	Public Service Electric & Gas Company	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
Greening, Michele	PJM Interconnection	None
Greiner, Gary	PSEG Energy Resources and Trade LLC	Other Supplier
Gunn, Garan	Public Service Electric & Gas Company	Transmission Owner
Hanser, Erik	Michigan Public Service Commission	
Hartman, Gary	PPL Electric Utilities Corp. dba PPL Utilities (LSE)	Transmission Owner
Hatch, Kevin	PJM Interconnection	None
Heinle, Frederick	Office of the Peoples Counsel	
Herel, Suzanne	PJM Interconnection	None
Hoatson, Tom	West Deptford Energy, LLC	Generation Owner
Hohenshilt, Jennifer	Talen Energy Marketing, LLC	Generation Owner
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	gtpghyzinsk	
	Indiana Office of Utility Consumer Counselor	
Iler, Arthur		
	Boston Energy Trading and Marketing LLC	Other Supplier
Janicki, Diane		
	NRG Curtailment Solutions, Inc.	Other Supplier
Jardot, Gina		
Jens, Thomas	Black Oak Capital, LLC	Other Supplier
	Duke Energy Business Services LLC	Transmission Owner
Jett, William		
Jha, Monica	PCI	
	Dominion Virginia Power (EDC)	Transmission Owner
Johnson, Augustus		
	PPL Electric Utilities Corp. dba PPL Utilities (TO)	Transmission Owner
Johnson, Bethany		
	Customized Energy Solutions, Ltd.	None
Johnson, Carl		
	Appalachian Power Company (AEP Generation)	Transmission Owner
Johnson, Nathaniel		
Johnston, David	Other	
Kalle, Issiaga	Tibiri Energy Group, llc	
Kauffman, Brian	Enel X North America, Inc.	Other Supplier
	Brookfield Renewable Trading and Marketing LP (BSMH)	Other Supplier
Kelly, Stephen		
	Duquesne Light Company	Transmission Owner
Kent, Janessa		
Kimmel, David	PJM Interconnection	None
	Appalachian Power Company (AEP Generation)	Transmission Owner
Kirk, Ryan		
	Appalachian Power Company (AEP Transmission)	Transmission Owner
Koehler, Nicolas		
	New York Power Authority	Other Supplier
Kogut, George		
Krauthamer, Michael	EV Advisors	
	PJM Interconnection	None
Lee, Lori Murphy		
	PJM Interconnection	None
Levitt, Andrew		
	IHS Markit	
Levitt, Benjamin		
	American Municipal Power, Inc.	Electric Distributor
Lieberman, Steven		
	PJM Interconnection	None
Long, Glenn		
	Dominion Virginia Power	Transmission Owner
LOWE, CONNIE		
	Public Service Electric & Gas Company	Transmission Owner
Lyakhovich, Leonid		

	Office of the People's Counsel for the District of Columbia	
Mariam, Yohannes		
martin, Valerie	Federal Energy Regulatory Commission	
mason, julie	Duke Energy Ohio, Inc.	Transmission Owner
Mattson, Lisa	Pivot Energy	
McCormick, Katharine	Illinois Commerce Commission	
McGlynn, Paul	PJM Interconnection	None
Mehta, Gaurav	Enel Trading North America, LLC	Other Supplier
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
Parkison, Sara	University of Delaware	
patel, keyurbhai	PJM Interconnection	None
Phillips, Darlene	PJM Interconnection	None
Pieniazek, Marie	NRG Curtailment Solutions, Inc.	Other Supplier
Pilong, Christopher	PJM Interconnection	None
Pilong, Melissa	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
	Northern Virginia Electric Cooperative (NOVEC)	Electric Distributor
Rainey, John		
REILLY, Jim	Reilly Associates	
Roark, Alan	EcoShift	
Robinson, Becky	vistra energy	
	Organization of PJM States, Inc.	
Rodriguez, Tomas		
	Wabash Valley Power Association, Inc.	Electric Distributor
Rohrbach, John		
	PPL Electric Utilities Corp. dba PPL Utilities (TO)	Transmission Owner
Rooney, Alexa		
Rosenblatt, Alex	Duquesne Light Company	Transmission Owner
	PPL Electric Utilities Corp. dba PPL Utilities (LSE)	Transmission Owner
Rouland, James		
	Dayton Power & Light Company (Default)	Transmission Owner
Roychowdhury, Rajarshi		
	PPL Electric Utilities Corp. dba PPL Utilities (TO)	Transmission Owner
Rumsey, Amanda		
	Natural Resources Defense Council	
Rutigliano, Tom		
	Customized Energy Solutions, Ltd.	None
Sasser, Jonathan		
	Calpine Energy Services, L.P.	Generation Owner
Scarpignato, David		
Scheirer, Alexandra	PJM Interconnection	None
	Enerwise Global Technologies, LLC	
Schisler, Kenneth		
Schreim, Morris	MD PSC	
Schuyler, Ken		
	PJM Interconnection	None
Schweizer, David		
	Rockland Electric Company	Transmission Owner
Seireg, Bahaa		
	Duke Energy Business Services LLC	Transmission Owner
Shearer, Evan		
	PJM Interconnection	
Shields, Jeffrey		
	Commonwealth Edison Company	Transmission Owner
Singh, Mohit		
	AEP Appalachian Transmission Company, Inc.	Transmission Owner
Sorrels, James		
	PJM Interconnection	None
Stefanowicz, Vincent		
	Ohio Edison Company	Electric Distributor
Stein, Ed		
	Public Service Electric & Gas Company	Transmission Owner
Stern, Alexander		

Strella, Lauren	PJM Interconnection	None
	Invenergy Energy Management LLC	Generation Owner
Stupar, Rob		
	Exelon Business Services Company, LLC	Transmission Owner
Sun, Haibin		
	Public Service Electric & Gas Company	Transmission Owner
Svenson, Heather		
	Tangent Energy Solutions, Inc.	Other Supplier
Swalwell, Brad		
Sweeney, Rory	GT Power Group, LLC	None
	Midcontinent Independent Sys Op, Inc. (CTS)	
Swenson, Kristin		
Tacka, Natalie	PJM Interconnection	None
	Commonwealth Edison Company	Transmission Owner
Taylor, Robert		
	Exelon Business Services Company, LLC	Transmission Owner
Teeter, Valerie		
	Baltimore Gas and Electric Company (TO)	Transmission Owner
Tekle, Zelalem		
	Exelon Generation Co., LLC (NEV_XLON)	Generation Owner
Thundiyl, Kevin		
Tobia, James	FirstEnergy Services	
	Duke Energy Business Services LLC	
Walker, Jacqueline		
	PJM Interconnection	None
Walter, Laura		
Watson, Betty	Affirmed Energy LLC	Other Supplier
	Union Electric Company d/b/a Ameren Missouri	Other Supplier
Weber, Adam		
Webster, John	Icetec.com, Inc.	Other Supplier
	Maryland Department of the Environment	
Wehnes, Kathleen		
Wehr, Christopher	Ohio Edison Company (EDC)	Electric Distributor
	Public Service Electric & Gas Company	
Wernsing, Richard		
White, Brett	Brett White	
	Virginia State Corporation Commission	
White, Earnest		
Whitehead, Jeffrey	GT Power Group	
	Delaware Public Service Commission	
Willey, Amy		
Wisersky, Megan	Madison Gas & Electric Co.	Other Supplier
	Solar Energy Industries Association (SEIA)	
Wray, Gizelle		
Xenopoulos, Damon	Other	

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

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# Minutes

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