

## DER and Inverter-based Resources Subcommittee

WebEx Only

July 23, 2021

9:00 a.m. – 12:00 p.m. ET

### Administration (9:00 – 9:05)

1. Scott Baker opened the meeting and reviewed the agenda.
2. Hamad Ahmed reviewed the meeting participation guidelines. The minutes from the 06/28/21 DIRS and 05/05/21, 06/28/21 and 07/15/21 EDC coordination workshop were approved with 0 objections and 0 abstentions.

### Order 2222 – EDC Coordination Workshop (9:05 – 9:45)

3. Joint Utility presentation on market participation requirements (response to PJM straw proposal) has been posted from the July 15 EDC workshop.
  - Chris Wehr, First Energy, inquired if there are any questions or concerns on the presentation.
4. Daniel Moscovitz, PJM, provided an update on operational coordination and utility override.
  - Daniel discussed expectations for override and time frames for override implementation. Furthermore, Daniel also discussed three time frames for overrides during the registration/utility review process, day-ahead and in real-time.
  - Stakeholders asked for clarifications on slide 3 by combining boxes “3” and “4” and updated the language associated with them.


### Order 2222 – DER Aggregation (9:45 – 11:55)

5. PJM Staff presented draft proposed terminology associated with Order 2222 DER market participation model.
  - Danielle Croop, PJM, reviewed several terms for the development of the new DER rule under order 2222.
  - Stakeholders requested that the terminology sheet be posted to the DIRS landing page, rather than within the meeting materials of each meeting, for easier access and visibility. Scott Baker also suggested it get posted in a format that stakeholders could edit on their own so as to provide feedback or suggestions easier.
6. PJM Staff presented an update on DER use cases.
  - Madelyn Beban, PJM, started with reviewing the purpose of developing use cases within the stakeholder process, the 5 use cases that PJM has outlined so far, and the rationale behind each use case. Maddie also discussed use case characteristics and reviewed two use cases.

- Danielle reviewed several key topics such as registration, size requirements, locational and weighting factors, telemetry, market participation eligibility, cost-based offers, metering and performance & settlements associated with use cases 1 and 4. Danielle also reviewed several examples of the use case(s) within the topics.
  - Danielle discussed different information needed for modeling such as capability factors, location factors, modeling impact factor and weighting factors.
  - Stakeholders asked for additional information and clarification around how the capability factor for solar would be determined, how distribution topology affects modeling impact factors (i.e., how can a single DER affect multiple transmission nodes), and asks for updates to the settlement example in use case 1 to reflect existing provisions for solar commitment in the day-ahead energy market.
7. Scott Baker, PJM, urged stakeholders to review and/or add items of interest to the parking lot tab of the compliance matrix. In the interest of time, there were no discussions on the compliance matrix.

### Action items and next meeting agenda (11:55 – 12:00)

8. The facilitation team reviewed action items from the meeting and took requests for future agenda items.
- Scott Baker notified stakeholder that meeting dates and times in August and September are subject to change to ensure we create enough time to work through the PJM updated proposal and other outstanding issues to be discussed.

<i>Future Meeting Dates and Materials</i>			Materials Due to Secretary 	Materials Published
<i>Date</i>	<i>Time</i>	<i>Location</i>	<b>5 p.m.</b>	<b>4 p.m.</b>
<i>August 10, 2021–EDC Coordination workshop</i>	3:00 – 5:00	WebEx	<b>August 2, 2021</b>	<b>August 5, 2021</b>
<i>August 16, 2021</i>	9:00 – 12:00	WebEx	<b>August 6, 2021</b>	<b>August 11, 2021</b>
<i>September 14, 2021</i>	9:00 – 12:00	WebEx	<b>September 3, 2021</b>	<b>September 9, 2021</b>
<i>September 21, 2021–EDC Coordination workshop</i>	3:00 – 5:00	WebEx	<b>September 13, 2021</b>	<b>September 16, 2021</b>
<i>October 22, 2021</i>	9:00 – 4:00	WebEx	<b>October 14, 2021</b>	<b>October 19, 2021</b>
<i>November 9, 2021-EDC Coordination workshop</i>	3:00 – 5:00	WebEx	<b>November 1, 2021</b>	<b>November 4, 2021</b>
<i>November 22, 2021</i>	9:00 – 3:00	WebEx	<b>November 12, 2021</b>	<b>November 17, 2021</b>
<i>December 9, 2021-EDC Coordination workshop</i>	3:00 – 5:00	WebEx	<b>December 1, 2021</b>	<b>December 6, 2021</b>
<i>December 21, 2021</i>	9:00 – 4:00	WebEx	<b>December 13, 2021</b>	<b>December 16, 2021</b>

Author: Hamad Ahmed

### WebEx Meeting Attendance

Name	Company Name	Sector
Hamad Ahmed	PJM Interconnection	None

Malcolm Ainspan	NRG Curtailment Solutions, Inc.	Other Supplier
William Allen	Commonwealth Edison Company	Transmission Owner
David Anders	PJM Interconnection	None
todd aquino	Pine Gate Mid-Atlantic, LLC	
Riyasat Azim	DNV GL Energy USA, Inc	
Jeff Baker	PJM Connect	
Scott Baker	PJM Interconnection	None
George Beam	PPL Elec Utilities Corp dba PPL Utilities (PPL POLR Small C&I)	Transmission Owner
Madalyn Beban	PJM Interconnection	None
Jim Benchek	FirstEnergy Corporation	
Tarik Bensala	PJM Interconnection	
Emanuel Bernabeu	PJM	
Rajesh Bhana	Exelon Business Services Company, LLC	Transmission Owner
Donnie Bielak	PJM Interconnection	None
Michael Borgatti	PJM Committee Voting Generic Account	
John Borkoski	MD Public Service Commission	
Joe Bowring	Monitoring Analytics	
Glen Boyle	PJM Interconnection	None
Aaron Breidenbaugh	Rodan Energy Solutions (USA) Inc.	Other Supplier
Patrick Bruno	PJM Interconnection	None
Michael Bryson	PJM Internal	
Tim Burdis	PJM Interconnection	None
Jennifer Burke	Guidehouse Inc.	None
Kevin Burns	Open Access Technology International, Inc.	None
Jason Burwen	Iowa Utilities Board	
Michelle Butler	Guidehouse	
Zachary Callen	Illinois Commerce Commission	
Bruce Campbell	Enerwise Global Technologies, LLC	Other Supplier
David Canter	Appalachian Power Company (AEP Generation)	Transmission Owner
Gregory Carmean	Organization of PJM States, Inc.	
Javier Carrizales	Longroad Energy Holdings	
Peter Cavan	Direct Energy Business Marketing, LLC	Other Supplier
Edrissa Cham	Savion, LLC	

Sean Chang	Shell Energy North America (US), L.P.	Other Supplier
Iker Chocarro Aguirrebengoa	RWE Renewables Americas, LLC	Generation Owner
Mahila Christopher	Public Utilities Commission of Ohio	
Lucas Collette	Duquesne Light Company	Transmission Owner
Stephen Thiel ComEd	PJM Connect	
Nancy Connelly	Duke Energy Ohio, Inc.	Transmission Owner
Billy Coyle	Dominion Virginia Power	Transmission Owner
Louis D'Alessandris	American Transmission Systems, Inc.	Transmission Owner
Padmaja Dasari	Dayton Power & Light Company (The) (EDC)	Transmission Owner
Elizabeth Davis	PJM Interconnection	None
James Davis	Dominion Energy Generation Marketing, Inc.	Generation Owner
Liz Delaney	Borrego Solar	
Joseph DeLosa	New Jersey Board of Public Utilities	
Brett Denby	Northern Virginia Electric Cooperative (NOVEC)	Electric Distributor
Thomas DeVita	PJM Interconnection	None
Meredith Dibert	Pennsylvania Department of Environmental Protection	
Laura DiNicola	firstenergy	
Mamadou Diong	Dominion Virginia Power	Transmission Owner
Ryan Dolan	Dayton Power & Light Company (The) (EDC)	Transmission Owner
Christin Domian	Duquesne Light Company	Transmission Owner
Erin Donohue	Enel X North America, Inc.	Other Supplier
Ilyana Dropkin	PJM Interconnection	None
Chuck Dugan	East Kentucky Power Cooperative, Inc.	Transmission Owner
Rachel Elkins	American Transmission Systems, Inc.	Transmission Owner
David Ellis	Public Service Electric & Gas Company	Transmission Owner
Janell Fabiano	PJM Interconnection	None
zhenyu fan	PJM Interconnection	None

George Fee	Appalachian Power Company (AEP Generation)	Transmission Owner
Guy Filomena	Customized Energy Solutions, Ltd.	None
Regan Fink	Pine Gate Renewables	
Kenneth Foladare	Geenex Solar LLC	Other Supplier
Adrien Ford	Old Dominion Electric Cooperative	Electric Distributor
Denise Foster Cronin	East Kentucky Power Cooperative, Inc.	Transmission Owner
Darrell Frogg	PJM Interconnection	None
Christian Fuess	PBF Power Marketing, LLC	Generation Owner
Janice Fuller	NextEra Energy Marketing, LLC	Other Supplier
Michael Gahimer	Indiana Office of Utility Consumer Counselor (IN OUCC)	
Jill Gates	PJM Interconnection	
Terry Gates	Appalachian Power Company (AEP Generation)	Transmission Owner
Gabrielle Genuario	PJM Interconnection	None
Rehan Gilani	ConEdison Energy, Inc.	Other Supplier
Suzanne Glatz	PJM Interconnection	None
Craig Glazer	PJM Interconnection	None
Marlena Gouin	Pennsylvania Electric Company	Electric Distributor
Luke Granstrand	Dominion Virginia Power	Transmission Owner
Michele Greening	PJM Interconnection	None
Gary Greiner	PSEG Energy Resources and Trade LLC	Other Supplier
Jeffrey Guistwhite	PJM Interconnection	
Garan Gunn	Public Service Electric & Gas Company	Transmission Owner
Vince Guntle	American PowerNet Management, L.P.	End-Use Customer
Howard Haas	Monitoring Analytics	
Erik Hanser	Michigan Public Service Commission	
Gary Hartman	PPL Electric Utilities Corp. dba PPL Utilities (LSE)	Transmission Owner
Jason Hathcock	Strata Solar	
Thomas Hauske	PJM Interconnection	None
Frederick Heinle	Office of the Peoples Counsel	

Suzanne Herel	PJM Interconnection	None
Chad Hirsh	Duquesne Light Company	Transmission Owner
Tom Hoatson	West Deptford Energy, LLC	Generation Owner
Jennifer Hohenshilt	Talen Energy Marketing, LLC	Generation Owner
Ruth Holdbrook	Northern Virginia Electric Cooperative (NOVEC)	Electric Distributor
Lynn Marie Horning	Customized Energy Solutions, Ltd.	None
John Horstmann	Dayton Power & Light Company (The)	Transmission Owner
Steven Hughes	PPL Electric Utilities Corp. dba PPL Utilities (LSE)	Transmission Owner
Gerit Hull	American Municipal Power, Inc.	Electric Distributor
Tom Hyzinski	GT Power Group, LLC	None
Arthur Iler	Indiana Office of Utility Consumer Counselor	
Bonnie Janssen	Michigan Public Service Commission	
Gina Jardot	NRG Curtailment Solutions, Inc.	Other Supplier
Thomas Jens	Black Oak Capital, LLC	Other Supplier
William Jett	Duke Energy Business Services LLC	Transmission Owner
Augustus Johnson	Dominion Virginia Power (EDC)	Transmission Owner
Carl Johnson	Customized Energy Solutions, Ltd.	None
Nathaniel Johnson	Appalachian Power Company (AEP Generation)	Transmission Owner
David Johnston	Other	
Brian Kauffman	Enel X North America, Inc.	Other Supplier
Samuel Kayne	Delaware PSC	
Stephen Kelly	Brookfield Renewable Trading and Marketing LP (BSMH)	Other Supplier
Nicolas Koehler	Appalachian Power Company (AEP Transmission)	Transmission Owner
George Kogut	New York Power Authority	Other Supplier
John Kopinski	ITC Interconnection LLC	Transmission Owner
Dimitar Kozhuharov	State Commissions	

Steven Lieberman	American Municipal Power, Inc.	Electric Distributor
Glenn Long	PJM Interconnection	None
Alexandros Lousos	AMP Transmission, LLC	Transmission Owner
CONNIE LOWE	Dominion Virginia Power	Transmission Owner
Leonid Lyakhovich	Public Service Electric & Gas Company	Transmission Owner
David Mabry	McNees Wallace & Nurick LLC	
Yohannes Mariam	Office of the People's Counsel for the District of Columbia	
Valerie martin	Federal Energy Regulatory Commission	
julie mason	Duke Energy Ohio, Inc.	Transmission Owner
Doug Matheson	Enel X North America, Inc.	Other Supplier
Katharine McCormick	Illinois Commerce Commission	
Paul McGlynn	PJM Interconnection	None
Timothy McInerney	Commonwealth Edison Company	Transmission Owner
Kevin meridionale	Jersey Central Power & Light Company	Transmission Owner
Sharon Midgley	Exelon Business Services Company, LLC	Transmission Owner
Lisa Morelli	PJM Interconnection	None
Ryan Nice	PJM Interconnection	
Emma Nix	Jersey Green Energy LLC	Other Supplier
Chris Norton	American Municipal Power, Inc.	Electric Distributor
Brent Oberlin	Plus Power	
Brock Ondayko	AEP Energy Partners, Inc. (AEP Gen Resources)	Transmission Owner
Amanda Parker	Pennsylvania Electric Company	Electric Distributor
Sara Parkison	University of Delaware	
Martin Paszek	OSI Digital Grid Solutions	
keyurbhai patel	PJM Interconnection	None
John Peoples	Duquesne Light Company	Transmission Owner
Darlene Phillips	PJM Interconnection	None
Christopher Pilon	PJM Interconnection	None
Joseph Polka	Duquesne Light Company	Transmission Owner

Nicholas Pratt	PPL Electric Utilities Corp. dba PPL Utilities (TO)	Transmission Owner
Ruth Price	Delaware Division of the Public Advocate	
Jason Proconiar	Buckeye Power, Inc.	Electric Distributor
Michael Purdie	Dominion Virginia Power	Transmission Owner
Farrokh Rahimi	Open Access Technology International, Inc.	None
John Rainey	Northern Virginia Electric Cooperative (NOVEC)	Electric Distributor
Edward Rich	PJM Interconnection	
Becky Robinson	vistra energy	
Tomas Rodriguez	Organization of PJM States, Inc.	
John Rohrbach	Wabash Valley Power Association, Inc.	Electric Distributor
Alexa Rooney	PPL Electric Utilities Corp. dba PPL Utilities (TO)	Transmission Owner
Alex Rosenblatt	Duquesne Light Company	Transmission Owner
James Rouland	PPL Electric Utilities Corp. dba PPL Utilities (LSE)	Transmission Owner
Alexandra Rozen	OATI	
Amanda Rumsey	PPL Electric Utilities Corp. dba PPL Utilities (TO)	Transmission Owner
Eric Runge	Open Access Technology International, Inc.	None
Jonathan Sasser	Customized Energy Solutions, Ltd.	None
David Scarpignato	Calpine Energy Services, L.P.	Generation Owner
Kenneth Schisler	Enerwise Global Technologies, LLC	Other Supplier
Ken Schuyler	PJM Interconnection	None
David Schweizer	PJM Interconnection	
August Seibel	Black Dog Insights	
Bahaa Seireg	Rockland Electric Company	Transmission Owner
Evan Shearer	Duke Energy Business Services LLC	Transmission Owner
Bill Skumanich	RTR Energy Solutions LLC	None
Greg Solomon	Peak Power Inc	
James Sorrels	AEP Appalachian Transmission Company, Inc.	Transmission Owner
Richard Sparling	PPL Electric Utilities Corp. dba PPL Utilities (LSE)	Transmission Owner



Trevor Sprague	Jersey Green Energy LLC	Other Supplier
Vincent Stefanowicz	PJM Interconnection	None
Ed Stein	Ohio Edison Company	Electric Distributor
Alexander Stern	Public Service Electric & Gas Company	Transmission Owner
Rob Stupar	Invenergy Energy Management LLC	Generation Owner
Haibin Sun	Exelon Business Services Company, LLC	Transmission Owner
Brad Swalwell	Tangent Energy Solutions, Inc.	Other Supplier
Rory Sweeney	GT Power Group, LLC	None
Kristin Swenson	Midcontinent Independent Sys Op, Inc. (CTS)	
Kevin Thundiyl	Exelon Generation Co., LLC (NEV_XLON)	Generation Owner
Andrea Tighe	CAPS	
James Tobia	FirstEnergy Services	
Catherine Tyler	Monitoring Analytics	
Jacqueline Walker	Duke Energy Business Services LLC	Transmission Owner
Laura Walter	PJM Interconnection	None
Jerry Warchol	Dominion Virginia Power (EDC)	Transmission Owner
John Webster	lcetec.com, Inc.	Other Supplier
Kathleen Wehnes	Maryland Department of the Environment	
Christopher Wehr	Ohio Edison Company (EDC)	Electric Distributor
Matthew Wharton	Guidehouse Inc	
Brett White	Invenergy, LLC	Generation Owner
Brett White	Pine Gate Mid-Atlantic, LLC	Other Supplier
Jeffrey Whitehead	GT Power Group	
Bernie Whitmoyer	Jersey Central Power & Light Company	Transmission Owner
Amy Willey	Delaware Public Service Commission	
Megan Wisersky	Madison Gas & Electric Co.	Other Supplier
Damon Xenopoulos	Other	
Andrea Yeaton	PJM Interconnection	None

Jin An Yi	jinan	
Kyungjin Yoo	Monitoring Analytics	
Vivian Younes	PPL Electric Utilities Corp. dba PPL Utilities (LSE)	Transmission Owner
Mike Zhang	PJM Interconnection	None

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DRAFT