

Renewable Integration Study Workshop
Webex / Conference Call
June 27, 2022
3:00 p.m. – 5:00 p.m. EPT

Administration (3:00 – 3:15)

1. Welcome and Announcements.

Danielle Croop, PJM, welcomed the Renewable Integration Study workshop group.

- Ashwini Bhat, PJM, reviewed the Antitrust Guidelines, Code of Conduct, Public Meetings/Media Participation, Webex Participant Identification Requirements and Compliance Disclaimer
- She also indicated that a Webex report will be used to capture meeting attendance

Informational Report (3:15 – 4:45)

Danielle Croop, PJM, reminded the Renewable Integration Study workshop group that PJM posted the whitepaper back in May and currently PJM is here to review the study and findings and to consider any recommendations and discuss various scenarios. She mentioned about the two links that are available at the bottom of the Agenda as a reference which was posted in late 2021.

2. Renewable Integration Study Findings and Review.

PJM Staff reviewed the Renewable Integration Study methodologies, findings and report and review next steps for future studies. For more information on this topic, please refer to the [presentation](#).

- Introduction and Objectives
- Methodology and Assumptions
- Resource Adequacy Modeling and Results
- Production Cost Modeling and Results
- Next Steps

Reference

3. The links to access the reports that were previously posted are as below:

- <https://pjm.com/-/media/library/reports-notices/special-reports/2021/20211215-energy-transition-in-pjm-frameworks-for-analysis.ashx>
- <https://pjm.com/-/media/library/reports-notices/special-reports/2022/20220517-energy-transition-in-pjm-emerging-characteristics-of-a-decarbonizing-grid-white-paper-final.ashx>

The Addendum will be posted on PJM.com during early August and the group will be notified via email.

Participants via WebEx/Teleconference

Name	Company	Sector
Jason Barker	Constellation Energy Generation, LLC	Generation Owner
Jung Suh	Calpine Energy Services, L.P.	Generation Owner
David Anders	PJM Interconnection LLC.	Not Applicable
Gary Helm	PJM Interconnection LLC.	Not Applicable
Chuck Dugan	East Kentucky Power Cooperative, Inc.	Transmission Owner
George Kogut	New York Power Authority	Other Supplier
Nancy Connelly	Duke Energy Ohio, Inc.	Transmission
Mike Barmer	Dominion Energy	Transmission Owner
Rob Stupar	Invenegy, LLC	Generation Owner
Renae Steichen	LS Power Development, LLC	Not Applicable
Philip Sussler	State of Maryland	Not Applicable
Anna Perkins	Scout Clean Energy LLC	Not Applicable
Gabriella Hudis	Gabel and Associates	Not Applicable
Ricky Montalvan	Power Engineers	Not Applicable
Ankit Pahwa	Pattern Energy Group Inc.	Not Applicable
Andrew Webster	Q Cells America Inc.	Not Applicable
Matthew Bernstein	PJM Interconnection LLC.	Not Applicable
Jeff Guistwhite	PJM Interconnection LLC.	Not Applicable
GLen Thomas	GT Power Group	Not Applicable
Richard Marinelli	Public Service Electric & Gas Company	Transmission Owner
Kimberly Barrow	Commonwealth of PA	Not Applicable
Peter Jones	Savion, LLC	Not Applicable
Rory Sweeney	GT Power Group	Not Applicable
Pam Knotts	DE Public Service Commission	Not Applicable
Michael Olaleye	PJM Interconnection LLC.	Not Applicable
David Schmitt	New Jersey Board of Public Utilities	Not Applicable
Jiecheng Zhao	Dominion Energy	Transmission Owner
Garan Gunn	Public Service Electric & Gas Company	Transmission Owner
Mohammed Shaikh	Plus Power, LLC	Not Applicable
Jeff Whitehead	GT Power Group	Not Applicable
Darrin Adams	East Kentucky Power Cooperative, Inc.	Transmission Owner
Darrell Frogg	PJM Interconnection LLC.	Not Applicable
Rachel Fox	American petroleum Institute	Not Applicable
Ruchi Singh	Engie energy	Not Applicable
Ryan Dolan	Dayton Power & Light Company	Transmission Owner
Noha Sidhom	TPC Energy Fund	Not Applicable

Ilana Ginsberg	Urban Grid Solar	Not Applicable
Johnny Gest	Reliability First	Not Applicable
Christina Bigelow	Pine Gate Renewables	Not Applicable
Tony Purgar	Reliability First	Not Applicable
Jim Davis	Dominion Energy	Transmission Owner
Leonid Lyakhovich	Public Service Electric & Gas Company	Transmission Owner
Stephen Kelly	Brookfield Energy Marketing LP	Other Supplier
Yuhan	Constellation	
Ashutosh Tiwari	Dayton Power & Light Company	Transmission Owner
Jim D'Andrea	Rise Light and Power	Not Applicable
Justin McNeil	Office of the Attorney General, Kentucky	End-Use Customer
Larry Borum III	Illinois Commerce Commission	Not Applicable
Bryna VanBlargan	Resource Investments	Not Applicable
Ben Suplick	University of Pennsylvania	Not Applicable
Christian Fuess	White Pine Consulting LLC.	Not Applicable
Ben Strate	Constellation	
Kathleen Robertson	Sol Systems	Not Applicable
Michelle Diorio	Public Service Electric & Gas Company	Transmission Owner
Kyle Copeland	PJM Interconnection LLC.	Not Applicable
Suzanne Glatz	PJM Interconnection LLC.	Not Applicable
Susan Bruce	McNees Wallace & Nurick LLC	Not Applicable
Gaurav Mehta	Light Source bp	Not Applicable
Regan Fink	Pine Gate Mid-Atlantic, LLC	Other Supplier
Christina Stotesbury	PJM Interconnection LLC.	Not Applicable
Merancia Noelsaint	Public service Commission of DC	Not Applicable
Scott Baker	PJM Interconnection LLC.	Not Applicable
Thomas Pinkston	FERC	Not Applicable
Catherine Tyler	Monitoring Analytics, LLC	Not Applicable
Yinghua	PJM Interconnection LLC.	Not Applicable
Steinkuhl, Steve	Duke Energy Business Services LLC	Transmission Owner
Tom Falin	PJM Interconnection LLC.	Not Applicable
Jim Benchek	First energy Corporation	Transmission Owner
Paul McGlynn	PJM Interconnection LLC.	Not Applicable
Emmanuele Bobbio	PJM Interconnection LLC.	Not Applicable
Danial Nazemi	PJM Interconnection LLC.	Not Applicable
Bhavana Keshavamurthy	PJM Interconnection LLC.	Not Applicable
Raj Chintapalli	BP Energy Company	Other Supplier
Perry Ng	PJM Interconnection LLC.	Not Applicable

Ken Schuyler	PJM Interconnection LLC.	Not Applicable
Elizabeth Davis	PJM Interconnection LLC.	Not Applicable
Luke Granstrand	Dominion Energy	Transmission Owner
Ken Seiler	PJM Interconnection LLC.	Not Applicable
Kenneth Foadare	Tangibl LLC	Not Applicable
Jeff Stuchell	First energy Corporation	Transmission Owner
Rahul Kalaskar	Dayton Power & Light Company	Transmission Owner
Brian Thiry	Reliability First	Not Applicable
Mahila Christopher	Public Utilities Commission of Ohio (The)	Not Applicable
Craig Rutledge	AEP Appalachian Transmission Company, Inc.	Transmission Owner
Sharon Midgley	Exelon Business Services Company, LLC	Transmission Owner
Sean Powers	Messer	Not Applicable
Shekhar Awasthi	PJM Interconnection LLC.	Not Applicable
Christin Domian	Duquesne Lighting Company	Transmission Owner
Henry Huang	Constellation Energy Services, Inc.	Other Supplier
John Horstmann	Dayton Power & Light Company	Transmission Owner
Ryan Schwartz	First energy Corporation	Transmission Owner
Christian McDowell	Commonwealth of PA	Not Applicable
Rachel Elkins	First energy Corporation	Transmission Owner
Suzanne Herel	PJM Interconnection LLC.	Not Applicable
Andrew Grieve	Pine Gate Mid-Atlantic, LLC	Other Supplier
Oelker Linn	Louisville Gas & Electric Co./Kentucky Utilities Co.	Transmission Owner
Fernie Williams	East Kentucky Power Cooperative, Inc.	Transmission Owner
Denise Foster Cronin	East Kentucky Power Cooperative, Inc.	Transmission Owner
Marjorie Philips	LS Power Development, LLC	Not Applicable
Nikki Militello	PJM Interconnection LLC.	Not Applicable
Thomas Coleman	North American Electric Reliability Corporation	Not Applicable
Bill Allen	Commonwealth Edison Company	Transmission Owner
Maggie Howe	East Point Energy	Not Applicable
Yang Chen	PJM Interconnection LLC.	Not Applicable
Treasa Himmelspach	AEP Appalachian Transmission Company, Inc.	Transmission Owner
Roseanne Circelli	Public Service Electric & Gas Company	Transmission Owner
Kat Burnham	Advanced Energy Economy (AEE)	Not Applicable
Janessa Kent	Duquesne Lighting Company	Transmission Owner
Siva Josyula	Monitoring Analytics, LLC	Not Applicable
Andrew Redding	Heelstone Renewable Energy	Not Applicable
Cynthia Yeh	Dominion Energy	Transmission Owner
Molly Mooney	PJM Interconnection LLC.	Not Applicable

Amanda Martin	PJM Interconnection LLC.	Not Applicable
Dave Johnston	Indiana Utility Regulatory Commission	Not Applicable
Jennifer Tribulski	PJM Interconnection LLC.	Not Applicable
Jennifer Hohenshilt	Talen Energy Marketing, LLC	Generation Owner
Dwayne Fewless	Reliability First	Not Applicable
Michael Sebourm	LG&E and KU Energy	Not Applicable
Brock Ondayko	AEP Appalachian Transmission Company, Inc.	Transmission Owner
Zhenyu Fan	PJM Interconnection LLC.	Not Applicable
Emanuel Bernabeu	PJM Interconnection LLC.	Not Applicable
Michael Ward	PJM Interconnection LLC.	Not Applicable
Jason Cox	EQ Energy Advisors	Not Applicable
Lisa Szot	Starata Clean Energy	Not Applicable
Tom Hyzinski	GT Power Group	Not Applicable
Mike Borgatti	Gabel and Associates	Not Applicable
Elizabeth Miller	REV Renewables	Not Applicable
Brian Kauffman	Enel X North America, Inc.	Other Supplier
Ben Sloan	Organization of PJM States, Inc. (OPSI)	Not Applicable
Matthew Hoyt	Exeter Associates, LLC	Not Applicable
Billy Coyle	Dominion Energy	Transmission Owner
Alexandra Scheirer	PJM Interconnection LLC.	Not Applicable
Brian Park	FERC	Not Applicable
Becky Robinson	Vista Energy Marketing, L.P.	Other Supplier
Lixia Li	Dominion Energy	Transmission Owner
Mark Mefford	East Kentucky Power Cooperative, Inc.	Transmission Owner
Susan Stanfill	Pine Gate Mid-Atlantic, LLC	Other Supplier
Andrew Ruck	Freepoint Commodities LLC	Other Supplier
Lawrence Hozempa	First energy Corporation	Transmission Owner
Anu Janapareddy	National Grid Renewables	Not Applicable
Rich Corash	Public Service Electric & Gas Company	Transmission Owner
D'ondre Dent	PJM Interconnection LLC.	Not Applicable
Jim Uhrin	Reliability First	Not Applicable
Rehan Gilani	ConEdison Energy, Inc.	Other Supplier
Bruno Mann	First energy Corporation	Transmission Owner
Connie Szeto	Orsted US Trading LLC	Not Applicable
Carl Johnson	Customized Energy Solutions, Ltd.	Not Applicable
Heather Svenson	Public Service Electric & Gas Company	Transmission Owner
Sari Fink	American Clean Power Association	Not Applicable
Patricia Jagtiani	Natural Gas Supply Association	Not Applicable

Christopher Callaghan	PJM Interconnection LLC.	Not Applicable
Terry Gates	AEP Appalachian Transmission Company, Inc.	Transmission Owner
Adrien Ford	Old Dominion Electric Cooperative	Electric Distributor
Alex Stern	Public Service Electric & Gas Company	Transmission Owner
Ken Seiler	PJM Interconnection LLC.	Not Applicable
Michelle Cross	Reliability First	Not Applicable
Erik Heinle	Office of the Peoples Counsel for the District of Columbia	End-Use Customer
Mike Bryson	PJM Interconnection LLC.	Not Applicable
Connie Schroeder	Dominion Energy	Transmission Owner
Aaron Breidenbaugh	Centrica	Not Applicable
Sharon Theodore	Electric Power Supply Association	Not Applicable
Maggie O'Connell	Interstate Natural Gas association of America	Not Applicable
Vince Stefanowicz	PJM Interconnection LLC.	Not Applicable
Lynn Horning	Customized Energy Solutions, Ltd.	Not Applicable
Kevin Porter	Other	Not Applicable
Thomas Hoatson	LS Power Development, LLC	Not Applicable
Asanga Perera	PJM Interconnection LLC.	Not Applicable
Kathleen Wehnes	Maryland Public Service Commission	Not Applicable
Stuart widom	PJM Interconnection LLC.	Not Applicable
Jacob Watson	East Kentucky Power Cooperative, Inc.	Transmission Owner
Heather Vaughn	East Kentucky Power Cooperative, Inc.	Transmission Owner
Danielle croop	PJM Interconnection LLC.	Not Applicable
Shahab Uddin	Old Dominion Electric Cooperative	Not Applicable
Gregory Carmean	OPSI	Not Applicable
Bob Anderson	Tenaska Power Services Co.	Generation Owner
Jeff Baker	Duke Energy Ohio, Inc.	Transmission Owner
Ashwini Bhat	PJM Interconnection LLC.	Not Applicable
David Hastings	Market Interconnection Consulting Services (MICS)	Not Applicable
Donna Carson	East Kentucky Power Cooperative, Inc.	Transmission Owner
James Wilson	Wilson Energy Economics	Not Applicable
Hamid Kazerooni	PJM Interconnection LLC.	Not Applicable
Jonathan Sasser	Customized Energy Solutions, Ltd.	Not Applicable
Earl Hyatt	Monitoring Analytics, LLC	Not Applicable
Andrew Gledhill	PJM Interconnection LLC.	Not Applicable
Guy Filomena	Customized Energy Solutions, Ltd.	Not Applicable

Author: Ashwini Bhat

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.

On the Phone, Dial



to Mute/Unmute

Linking Teleconference Connection to Webex

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.

Join a Meeting

1. Join meeting in the Webex desktop client
2. Enter name (*First and Last**) 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.