

# The Reliability Landscape: A Look Forward

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## **Reliability Papers and Studies**





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## **Reliability Papers and Studies**



pjm	Energy Transition in P.	IN. Emerging Characteris	atics of a Decarbonizing Grid		
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www.uim.com   For Pu	lii Use	ſ	Energy Trans Frameworks	sition in PJM: for Analysis	For Public Use





# What Problem(s) Are We Solving For?

#### RELIABILITY



The PJM fleet has adequate resources and enough essential reliability services, but we need our generators to perform when called upon. Energy Transition in PJM: Resource Retirements, Replacements & Risks Feb. 24, 2023

For Public Use

Generation retirements may outpace new entry with a simultaneous likelihood of load increasing, thereby creating resource adequacy concerns. Energy Transition in PJM: Frameworks for Analysis Dec. 15, 2021

For Public Use

We will continue to need some amount of thermal generation to provide certain essential reliability services until a replacement technology is deployable at scale.



#### The Immediate Concern



#### Support

Resource Performance

#### **The Near-Term The Upcoming** Concern Concern Energy Transition in PJM: **Energy Transition in PJM:** Resource Retirements, Replacements & Risks Frameworks for Analysis Feb. 24, 2023 Dec. 15, 2021 For Public Use For Public Use **Ensure Maintain & Attract Essential Reliability** Resource Services Adequacy

**Our Reliability Concerns** 

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#### Initial Actions To Support Reliability





# Initial Actions To Support Reliability – Breakdown

Support Excellence in Grid Performance

- •• CIFP/RASTF Priorities
- •• Reserve Certainty
- •• Load Following/Dispatchability
- •• Short-Term Forecasting
- •• Gas/Electric Coordination
- •• Proactive Planning: LTRTP
- •• Proactive Planning: Resilience
- •• \*Elliott Placeholder\*

#### **Ensure** Resource Adequacy

- •• CIFP/RASTF Priorities
- •• LDA Modeling
- •• Gas/Electric Coordination
- •• RMR Improvements
- •• Policy Reliability Safety Measures
- •• Continued Queue Improvements
- •• Proactive Planning: LTRTP
- •• Proactive Planning: Interregional
- •• \*Elliott Placeholder\*

Maintain and Attract Essential Reliability Services

- •• CIFP/RASTF Priorities
- •• Reserve Certainty
- •• Energy Assurance
- •• Gas/Electric Coordination
- •• RMR Improvements
- •• Policy Reliability Safety Measures
- •• Proactive Planning: LTRTP
- •• \*Elliott Placeholder\*



# **Discussion**

# Reserve Certainty | Reliability Backstop | IMM Perspective

Mike Bryson Sr. Vice President, Operations

Adam Keech Vice President, Market Design & Economics

Joe Bowring President, Monitoring Analytics



# Interconnection Progression Forecast & Long-Term Transmission Reforms

Ken Seiler Vice President, Planning



## Interconnection Request Data as of March 20, 2023

Phase	Number of Projects	Nameplate (GW)	Capacity (GW)
Fully Executed Agreements	540	38.1	25.1
Out for Execution	45	5.7	2.2
AD2 and Prior (Pre-Transition)	None – All Co	mplete or Ou	t for Execution
AE1 – AG1 (Fast Track and TC #1)	824	94.3	54.1
AG2 – AH1 (TC #2)	1,204	100.9	68.7
AH2 & Beyond (New Process Cycle #1)	997	62.4	66.9
Total for All Phases	3,610	301.4	217.0



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#### **Generator Replacement Process**

Several stakeholders expressed interest in pursuing a parallel process to the queue for deactivating resource owners to transfer their CIRs to replacement resources.

- Problem Statement/Issue Charge (PS/IC) to be presented at the May Planning Committee.
- Process would allow these requests to be studied on an expedited basis in advance of all queued projects.
- Opportunity to expedite a narrow set of projects with limited transmission impacts to bring more generation on line





**Other Considerations** 

#### **External Variables Affecting Build-Out:**

Local	Cost of	Supply Chain	Siting &	Market
Opposition	Capital	Issues	Permitting	Signals

- Transition Outside processes impacting interconnections (ELCC TRR)
  Risks: Customer requests and complaints
  - New stakeholder processes

Note: Transitional Resource Request (TRR)



#### Long-Term Planning Framework

#### **OBJECTIVE:**

The long-term planning framework will develop plausible future changing resource mix and load growth scenarios that identify needs that may require long-lead transmission solutions and/or result in more robust or expandable short-term transmission solutions.

Formed a new Scenario Analysis & Special Studios Department	Lead long-term planning studies/scenarios/	Developing a long-term planning framework and will engage in stakeholder discussion in O3 2023
Studies Department	sensitivities/benefits	stakeholder discussion in Q3 2023

#### Note:

- Early 2022, PJM facilitated Long-Term Planning Reform Workshops resulting in the Enhanced 15-Year Long-Term Planning (Master Plan) White Paper (<u>enhanced-long-term-planning-discussion-document.ashx (pjm.com</u>)
- Basis for PJM's response to the LTRTP Notice of Proposed Rulemaking Docket No. RM21-17