

FOR IMMEDIATE RELEASE

**PJM, Penn State and ISO-NE Awarded DOE Grant To Improve Market Design**

*Project Will Use Realistic Market Simulation Model To Efficiently Integrate New Technologies*

(Valley Forge, PA – April 30, 2024) – A collaborative project among PJM Interconnection, Penn State and ISO New England has won funding from a U.S. Department of Energy program designed to develop and improve wholesale electricity markets.

Following its first round of funding, the [Wholesale Market Studies and Engagements Program](#) (WMSE) has announced six recipients that will share more than \$10 million.

Penn State was awarded up to \$815,959 in a [three-year grant](#) to identify market design changes to efficiently integrate batteries and other nontraditional resources that operate with changing real-time constraints on a grid that is experiencing more uncertainty in electricity demand, or load. The project will use a realistic market simulation model with PJM and ISO-NE to achieve the best performance across the objectives of reliability, efficiency and investment incentives.

“We look forward to collaborating with Penn State and ISO New England on this important program,” said Stu Bresler, PJM Executive Vice President – Market Services and Strategy. “This is the exact work needed to enhance the reliability of the grid amid an evolving resource mix.”

The changing resource mix is increasing the variability of load and generation, leading to both larger and more frequent changes in electricity demand and to increased forecast error. At the same time, the growing contributions from battery energy storage units must be managed in real time to efficiently use their limited energy and meet their charging schedule.

“The current operational structure, which is designed to respond instantly in five-minute increments, now must also think 12 hours ahead,” said Mort Webster, Professor of Energy Engineering at Penn State and principal investigator, who will be working with the grid operators. “This is high-priority concern among regional transmission organizations like PJM and ISO-NE.”

“Innovative ideas and collaboration are vital to a successful clean energy transition,” said Matthew White, Vice President, Market Development and Settlements, and Chief Economist at ISO New England. “ISO New England is proud to partner with Penn State and our colleagues at PJM on this exciting project.”

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In the past, the mostly thermal generation-dominated grid functioned well under market designs that dispatched each interval without regard to subsequent periods and managed uncertainty with simple reserve product designs.

Creating more flexible and efficient markets will not only ensure a reliable supply of electricity, but also help keep costs competitive for consumers.

PJM's project addresses two related questions:

- What is an optimal portfolio design of multiple reserve products on different timescales that can manage the increasing variability and uncertainty throughout the operating day from load and renewable generation?
- How should day-ahead and real-time markets be structured to efficiently utilize batteries and other resources with binding constraints under net load uncertainty that changes throughout the day?

The other five projects cover Southwest Power Pool, California Independent System Operator and New York Independent System Operator (NYISO) markets as well as non-market areas, such as the Western Interconnection.

*[PJM Interconnection](#), founded in 1927, ensures the reliability of the high-voltage electric power system serving 65 million people in all or parts of Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia and the District of Columbia. PJM coordinates and directs the operation of the region's transmission grid, which includes 88,115 miles of transmission lines; administers a competitive wholesale electricity market; and plans regional transmission expansion improvements to maintain grid reliability and relieve congestion. PJM's regional grid and market operations produce annual savings of \$3.2 billion to \$4 billion. For the latest news about PJM, visit PJM Inside Lines at [insidelines.pjm.com](http://insidelines.pjm.com).*

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