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NYISO Issues *Power Trends 2014*

Changes in Energy Demand, Power Resources and Fuel Diversity Contribute to Evolution of the Electric Grid

Rensselaer, N.Y.—New York’s electric power grid is on the threshold of significant change, and collaborative efforts are needed among industry participants and policymakers to address the associated challenges and opportunities, according to the [*Power Trends 2014: Evolution of the Grid*](#) report released today by the New York Independent System Operator (NYISO).

Higher peak electricity demands, significant turnover in the portfolio of power resources serving those demands, the emergence of distributed energy resources and increasing dependence on natural gas to generate electric power will present challenges and opportunities for New York’s electric system.

“New York faces a range of issues that impact reliable operation of the power grid and electricity markets, but active collaboration among stakeholders and across neighboring regions—along with continued analysis of economic trends, high-tech upgrades and thoughtful implementation of public policy—remain the best path toward developing effective solutions,” NYISO President and CEO Stephen G. Whitley said.

The annual *Power Trends* report enhances understanding and promotes awareness of the key forces and factors facing New York’s energy future. Among its findings this year the report highlights:

Peak load outpacing average demand

Within a span of six months, New York state set two new seasonal records for peak electric load. A new, all-time record peak was set in July 2013, and a new winter peak was reached in January 2014.

Peak demand in New York is forecast to grow at an annual average rate of 0.83 percent from 2014 through 2024. In contrast, overall electric energy use is forecast to grow at an average annual rate of 0.16 percent over the next decade. Simply put, the amount of power used during periods with the highest electricity demand is expected to increase at a faster rate than the amount of power used on a daily basis.

“When peak demand outpaces day-to-day electricity use, it accentuates the need to address peak conditions by retaining and developing power resources to their fullest capacity. This trend also highlights the value of demand-side measures and distributed energy resources in reducing peak demand and offering new ways to meet consumer electricity needs,” Whitley said.

Across the competitive wholesale electricity market landscape, capacity markets designed to assure the reliable supply of power resources are undergoing significant analysis and enhancement.

Distributed energy resources pose challenges to the traditional model of a centralized, electric system, yet offer opportunities to bolster the efficiency and flexibility of grid operations and address peak load issues.

Power resource margins narrowing

While more than 10,000 megawatts of generation have been added in New York since 2000, power plant retirements outpaced additions in recent years. As a result, New York’s power resource margins remain positive, but are narrowing from a surplus of more than 5,000 megawatts in 2012 to just over 1,900 megawatts in 2014.

The New York Independent System Operator (NYISO) is a not-for-profit corporation responsible for operating the state’s bulk electricity grid, administering New York’s competitive wholesale electricity markets, conducting comprehensive long-term planning for the state’s electric power system, and advancing the technological infrastructure of the electric system serving the Empire State.

New York Independent System Operator. 10 Krey Boulevard. Rensselaer, NY 12144

In addition, transmission constraints limit the economically efficient dispatch of electricity to the high-demand southeastern region of New York, which consumes nearly two-thirds of the electricity in the state, but is capable of generating less than half the state's power.

"Sustaining sufficient power resources for electric system reliability requires a balance of well-designed wholesale electricity markets and sound public policy to encourage development of generation, transmission and demand-side resources where they are most needed," Whitley said.

Fuel diversity challenges persist

Reliance on natural gas is significant and growing. Wholesale electricity prices are directly influenced by the cost of the fuels used by power plants to meet the demand for electricity.

Power plants fueled primarily by natural gas account for more than half the electric generating capacity in New York state. More than 70 percent of proposed power projects in New York state would also be fueled by natural gas.

In 2013 and the winter of 2014, dramatic increases in the cost of natural gas produced spikes in power prices. This gas-induced power price volatility, and the fact that gas-fired generation frequently balances the system and sets the clearing price of power, highlights the value of maintaining fuel diversity.

Efforts to coordinate natural gas and electricity markets and system operations are increasing at the federal and state levels as is development of market designs to incent fuel assurance.

The use of renewable resources also continues to develop. Wind-generated electric energy in New York increased 16 percent in 2013. The uncertainty of federal tax incentives for wind development has damped development of new wind capacity, however, with less than 100 megawatts added to the New York system since last year.

Currently, solar power resources are growing "behind the meter." While distributed energy resources include a wide range of technologies and systems, customer-sited photovoltaic appears to be among the fastest-growing segments. A New York state government initiative, NY-Sun, calls for installation of 3,000 megawatts of customer-sited solar capacity by 2023.

As part of its overall energy strategy, New York state has launched the Reforming the Energy Vision (REV) initiative aimed at setting the stage for management and coordination of distributed energy resources.

Regional Collaboration

Removing barriers to the efficient flow of power between regional electric systems can increase operational flexibility, optimize available resources and enhance system resilience.

The Broader Regional Markets initiative is bolstering coordination among regional electric systems to accelerate transactions and provide consumer savings.

The NYISO and PJM implemented a key component of the Broader Regional Markets initiative in early 2013 with the launch of Market-to-Market Congestion Relief Coordination. In its first year of operation, the initiative saved an estimated \$4.7 million. Savings are expected to grow in cross-border transactions with PJM and with the implementation of regional market changes with other neighboring grid operators.

The Eastern Interconnection Planning Collaborative (EIPC) is engaged in studying gas-electric coordination issues across an array of electric systems serving the eastern U.S. to determine the sufficiency of the gas-electric system overlay and identify potential improvements to these interdependent systems.

NYISO Energy Conference

Issues and trends identified in [Power Trends 2014](#) will be among the topics discussed at the NYISO's 2014 Energy Conference, "*Grid Modernization & Competitive Markets: Shaping the Future Electric System*," on June 23 and 24 at the Grand Hyatt in New York City.

Please go to www.nyisoenergyconference.com for additional information about the conference and to register for the event.

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Power Trends and Data Report

The NYISO produced [Power Trends 2014](#) in tandem with its [2014 Load and Capacity Data Report](#), also known as the “[Gold Book](#).” Published annually by the NYISO, the “*Gold Book*” presents up-to-date transmission and generation data and load forecasts for the 2014–2024 period. Copies of the reports are available from the NYISO website www.nyiso.com.

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For more information, please contact:

David Flanagan (518) 356-7325 [office]/(518) 727-1569 [mobile]/dflanagan@nyiso.com

Ken Klapp (518) 356-6253 [office]/(518) 461-3564 [mobile]/kklapp@nyiso.com

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