New York Set To Revive Renewable Energy Industry

2015 New York State Energy Plan Targets 50 Percent Renewables By 2030 Through Actionable Recommendations To Implement REV Strategy

Key Takeaways:
• The Reforming the Energy Vision (REV) initiative seeks a fundamental restructuring of New York’s centralized utility model in response to technology advancements and customer trends that favor decentralized power generation.
• The 2015 New York State Energy Plan provides a roadmap to implement the REV strategy through increased renewable generation, energy efficiency, and emissions reductions.
• Reorientation of New York’s electric industry and ratemaking structure toward a consumer-centered approach will expand utility functions and provide equal priority to clean and traditional energy infrastructure.

Entities Mentioned:
• Central Hudson Gas & Electric Corporation
• Consolidated Edison Company of New York
• Environmental Protection Agency
• New York Department of Public Service
• New York Power Authority
• New York Public Service Commission
• New York State Department of Environmental Conservation
• New York State Energy Research and Development Authority

Related Research
New Storage Technologies Open Doors for Wind and Solar
REV Policy Framework Restricts Utility Ownership of Distributed Energy Resources
New York Utilities to Create New Distribution System Platform

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Insight for Industry – 2015 New York State Energy Plan Maps a Path to Restructure the Utility Regulatory Model for DER Integration

The 2015 New York State Energy Plan (SEP), released on June 25, 2015, provides a roadmap to advance the Reforming the Energy Vision (REV) initiative, which seeks to transform New York’s utility regulatory structure by integrating greater levels of distributed energy resources (DER) and empowering customers with better energy management options. Unveiled in April 2014, REV calls for a fundamental reconsideration of energy sector regulatory paradigms and markets, with an emphasis on the role of utilities and clean energy programs in meeting policy objectives. The 2015 SEP targets 50 percent electricity generation from renewable resources by 2030, providing a clear signal to advance an energy future focused on distributed generation and renewable energy.

Simultaneously, the New York State Energy Research and Development Authority (NYSERDA) announced that it is requesting a 10-year program authorization of approximately $5B in new strategic investment through the Clean Energy Fund (CEF), which intends to maximize the economic opportunity presented by REV. On June 1, NYSERDA proposed a long-term commitment to large-scale renewables (LSRs) through a $1.5B public investment over 10 years – comparable to investments made over the past decade through the Renewable Portfolio Standard (RPS).

Under the REV construct, a new electric distribution system platform will advance DER such as solar energy, wind energy, storage, and demand response to more efficiently benefit customers and the electricity grid. New York will commit to progressive energy regulatory changes that provide new energy saving opportunities, local power generation, and improved reliability. REV progress will animate the consumer sector as customer-side resources can become a primary tool in improving the utility system’s efficiency and enabling deployment of cleaner and more resilient technologies. Energy storage and other grid technologies, such as intelligent grid-facing equipment and storage applications that support grid integration of intermittent renewables will benefit under REV.

REV features are well-suited for deployment in other states – such as California, Arizona, and Hawaii – seeking DER growth. A platform that allows high levels of DER integration and consumer market interaction could – if designed, tested, and coupled with flexible rate structures – be a gateway to a more efficient and reliable electricity grid.

The 2015 SEP would help New York meet its targets under the Environmental Protection Agency’s (EPA) Clean Power Plan to reduce carbon dioxide (CO2) emissions from power plants. The Clean Power Plan regulations would require New York to achieve additional power sector emissions reduction of approximately 44 percent by 2030.

2015 SEP Coordinates Policies and Initiatives to Advance REV Agenda
The 2015 SEP coordinates REV efforts and other energy policies and initiatives to accelerate New York’s clean energy transition. It aims to connect the private sector market with communities and individuals to facilitate a dynamic clean energy economy, establishing three ambitious clean energy targets to be met by 2030:

- 50 percent electricity generation from renewable energy resources
- 40 percent reduction in greenhouse gas (GHG) emissions relative to 1990 levels
- 23 percent reduction in energy consumption in buildings relative to 2012 levels – equivalent to energy efficiency gains of 600 trillion British thermal units

The SEP connects state agencies engaged in energy policy to advance the REV agenda. The REV initiative directs the New York Public Service Commission (PSC) to move the state’s energy sector towards a decentralized, market-based structure. It seeks significant regulatory reform to integrate clean energy into the core of the electricity grid, redesign programs and strategies to attract private capital, and guide deployment of innovative energy solutions across public facilities and operations. By incorporating distributed generation, demand response, higher levels of renewable energy sources, and greater customer interaction through outreach and technology, REV aims to lower energy costs and create a cleaner, more efficient, and more reliable electric grid. REV will facilitate wider deployment of DER and advanced energy management products that will empower customers with more options to manage energy use. New emissions standards will ensure priority for clean and non-emitting generation and thermal energy sources such as solar power and ground/air source heat pumps. The New York Department of Environmental Conservation (DEC) will establish regulatory standards to foster increased use of DER, ensuring that they do not endanger air quality. The SEP provides a policy framework to implement the REV strategy and achieve REV-envisioned goals.

The 2015 SEP focuses on seven categories: 1) renewable energy; 2) buildings and energy-efficiency; 3) clean energy financing; 4) sustainable and resilient communities; 5) energy infrastructure modernization; 6) innovation and research & development; and 7) transportation. It will build on existing initiatives and programs to advance REV goals (Table 1). At the state level, initiatives such as the NY Green Bank, will address market barriers and attract private capital to advance the state’s economic and environmental objectives. Community empowerment initiatives, such as Community Solar NY and K-Solar for schools, NY-Prize for community microgrids, and NY-Sun, are designed to leverage the ability of state institutions and agencies to integrate local energy resources.
Table 1 - New York Initiatives that Align with REV Objectives

<table>
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<tr>
<th>Initiative</th>
<th>Description</th>
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<tr>
<td>NY Green Bank</td>
<td>➢ Innovative market-based approach to address financing barriers and facilitate private capital access to boost the state’s clean energy economy</td>
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<td>➢ Initial round of transactions announced in October 2014 will produce investments totaling more than $800M in New York’s clean energy capital markets</td>
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<td>NY Sun Initiative</td>
<td>➢ $38M dynamic public-private partnership designed to facilitate a self-sustaining solar industry</td>
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<td>➢ Resulted in nearly 600 MW of solar PV installed or under development towards its 2023 goal of installing 3,000 MW of solar capacity</td>
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<td>K-Solar</td>
<td>➢ Empowers schools to procure solar energy without affecting school district budgets while reducing energy and operating costs</td>
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<td>➢ To date, 250 school districts have registered for K-Solar, representing 950 schools across 56 of the state’s 62 counties</td>
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<td>NY Prize</td>
<td>➢ $40M microgrid competition to reduce energy costs and promote clean energy reliability and resiliency in communities</td>
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<td>➢ Challenges businesses, entrepreneurs, and electric utilities to design and implement community-based microgrids</td>
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<td>Charge NY</td>
<td>➢ Accelerates market adoption of electric vehicles (EVs)</td>
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<td>➢ Installed nearly 500 EV charging stations and increased the number of EVs from 1,000 to more than 12,000 over the past three years</td>
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<td>Cleaner Greener Communities program</td>
<td>➢ Aims to build sustainable communities</td>
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<td>➢ Awarded nearly $60M to 91 projects to incorporate regional smart growth practices that demonstrate the benefits of community participation in clean energy projects</td>
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<td>Five Cities Energy Plans</td>
<td>➢ Innovative example of state-local collaboration enabling five of the largest cities in the state to address energy priorities and challenges</td>
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<td>➢ Each of the five cities has developed a master plan to reduce municipal energy consumption by at least 20 percent by 2020</td>
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<tr>
<td>BuildSmart NY</td>
<td>➢ Aims to improve energy performance in state-owned and managed facilities by 20 percent by 2020</td>
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<td>➢ Fosters investment in smart buildings, supports economic development and reduces GHG emissions</td>
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<tr>
<td>New York Energy Manager</td>
<td>➢ Energy management network operations center using big data analytics, for secure, comprehensive energy management reporting for more than 3,000 public buildings</td>
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<td>➢ To date, more than 650 large buildings, representing more than 20 percent of state facilities, have been integrated into the NYEM system</td>
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Source: New York State, EnerKnol Research

The REV construct will increase community aggregation, microgrids and community-based solar and storage technologies, which support increased use of intelligent grid-facing equipment and strategic storage applications. Enhanced storage capabilities that support increased penetration of intermittent renewable resources without compromising grid reliability, alongside declining costs will support industry growth under the REV framework.

Utilities Will Advance Markets for DER and Energy Efficiency

The 2015 SEP will facilitate REV’s approach to update the utility business model for DER integration by implementing regulatory changes informed by demonstration projects. It will enable utilities to advance DER and energy efficiency markets, deploy price signals that reward investments in system efficiency improvements, and evolve the regulatory system to leverage innovation, technology, and private investment. The REV Regulatory Docket seeks to redesign price signals, revise utility compensation structures, and provide access to previously undisclosed data, in order to maximize utilization of behind-the-meter resources such as demand management, energy

2015 SEP seeks to update the utility business model for DER integration through regulatory changes informed by demonstration projects
efficiency, clean distributed generation, and storage that can defer or avoid costly new infrastructure. The New York Public Service Commission (PSC) will continue to explore changes to the utility compensation structure, including new performance metrics and rate plans for utilities and markets using data from demonstration projects.

A central component of REV is the role of the utility as a Distributed System Platform (DSP) Provider. The DSP is the functional center of the REV framework and is defined as an intelligent network that will provide safe, reliable, and efficient electric services by integrating diverse resources to meet customers’ and society’s evolving needs. As more consumers adopt distributed energy solutions, reforms to the current utility business model will facilitate integration of advanced technologies and greater levels of DER. Technology advancements and declining prices of distributed solutions are empowering customers with better control and choice over energy consumption and DER ownership opportunities.

On February 26, the PSC issued an order adopting a regulatory policy framework to guide a transition for the utilities to serve as DSP provider and develop DER markets for a reformed retail electric industry. The DSP will enable DER monetization and increased competition with centralized options. The PSC order directs Central Hudson Gas & Electric Corporation, Consolidated Edison Company of New York Inc, New York State Electric & Gas Corporation, Niagara Mohawk Power Corporation d/b/a National Grid, Orange and Rockland Utilities Inc, and Rochester Gas and Electric Corporation to file a Distributed System Implementation Plan (DSIP) by December 15, 2015. The February 26 Order requires utilities to file demonstration projects by July 1, 2015. Data collected from demonstration projects will inform regulatory changes, rate design, and the most effective means to integrate DER on a larger scale. A December 2014 PSC memorandum called for private sector entities to partner with utilities to submit proposals for REV demonstrations, in order to advance the development of new utility and third-party service or business models, gain experience in DER integration into the electricity grid, and identify regulatory changes necessary to enable a robust marketplace for clean energy.

**Renewable Energy Initiatives Widen Focus on Grid Modernization and Demand Management**

REV’s renewable energy initiatives aim to accelerate deployment of renewable technologies at diverse scales, ranging from rooftop solar photovoltaics to grid-scale wind farms, emphasizing projects that provide grid benefits. Through NY-Sun and other CEF programs, NYSERDA will strive to reduce soft costs to increase competitiveness of renewable energy solutions. For example, NY-Sun has facilitated fourfold increase in New York’s solar generation potential since its 2011 launch (Figure 1).
Figure 1 - Growth in New York’s Solar Generation Potential

Source: NY State Energy Plan

Though DERs are a major focus of the REV strategy, the 2015 SEP recognizes that central generation and transmission will continue to have a pivotal role in the power grid. To benefit from both kinds of resources, the plan recommends pairing of LSRs with dynamic DERs such as demand response and energy storage. To accelerate large-scale renewable development, NYSERDA has proposed design principles including a 10-year budget commitment of $1.5B to stimulate investment and put LSRs on a path to grid-parity.

In December 2014, the PSC approved Consolidated Edison Company of New York Inc.’s Brooklyn/Queens Demand Management (BQDM) Program to address overload of sub-transmission feeders with a combination of traditional utility-side solutions and non-traditional customer- and utility-side solutions. The program – involving DER deployment, increased clean energy solutions, and innovation through competition – is consistent with REV goals and represents a significant step towards illustrating how clean DERs can offset costly infrastructure investments while advancing environmental goals. Long Island will have an integral role in advancing REV goals. Public Service Electric & Gas Company (PSE&G) Long Island has been tasked with developing an annual “Utility 2.0 Plan,” outlining PSE&G Long Island commitment to reduce costs for customers, and increase the use of energy efficiency, direct load control and demand response, and DER. The Utility 2.0 Plan could result in regulatory changes including the emergence of “smart solar” that can provide backup during power outage and participate in grid services; compensation to plug-in electric vehicle owners to support the electricity grid; and wider market acceptance of energy efficient technologies.

Solutions that reduce or shift peak load such as demand management systems, energy efficiency, and storage require significantly less capital investment and can complement investments in smart transmission and distribution infrastructure to meet system reliability needs. REV facilitates and encourage investment – particularly private capital – in cost-effective, clean DER and other solutions that will reduce peak load and improve system efficiency as a complement to necessary infrastructure upgrades.

NYSERDA has proposed a 10-year budget commitment of $1.5B to put large-scale renewables on a path to grid-parity.
CEF Maximizes REV-Enabled Economic Opportunities

The CEF intends to maximize the economic opportunity presented by REV, serving as the key financing vehicle for NYSERDA’s existing and future initiatives. It reinforces New York’s commitments to clean energy by focusing on energy efficiency, DERs, and energy innovations to improve their economic competitiveness. It is one of the three action-oriented pillars that support the REV design; the other two are the PSC’s REV Regulatory Docket and the New York Power Authority’s (NYPA) evolving programs to inform new utility business models. The PSC’s REV docket would significantly reform New York’s utility regulations to provide customers with more energy management options, accelerate expansion and integration of DER into the energy system and transition clean energy resources from the periphery to the core of utilities’ business models. NYPA’s evolving operations and programs provide a foundation to advance grid resiliency and support jobs. NYPA will have an exemplary role in developing innovative solutions to reduce energy demand. NYSERDA aims to lay the foundation for clean energy developments resulting from the REV Regulatory Proceeding and evolution of utility strategies; and to improve access to clean energy solutions in sectors they do not reach. Over the last few years, New York State has spent more than $1B per year from ratepayers, Regional Greenhouse Gas Initiative (RGGI), and other funding sources to spur the clean energy industry. More than 80 percent of the spending has consisted of one-time grants and incentives to reduce the upfront cost of clean energy projects. Under the CEF framework, NYSERDA will transition from one-time project grants and incentives, toward upstream market transformative strategies to better leverage private sector investment. NYSERDA will continue to utilize incentives in certain circumstances, such supporting a self-sustaining market or for underserved communities that cannot immediately benefit from market-based solutions.

CEF resources focus on four program portfolios — Market Development, Innovation and Research, NY Green Bank, and NY-Sun — to reduce market barriers; foster markets through “bridge” incentives to support self-sufficiency; and influence policy, codes, and regulations. The CEF aims to facilitate:

- New market opportunities to spur private capital investment in New York’s clean energy economy
- Greater deployment and maturity of clean energy technologies and industries
- Substantial reductions in GHG emissions

From 2016, utilities will design new energy efficiency programs using market-based approaches that spur wider adoption and provide greater value to customers. Utilities will progressively adopt innovative approaches consistent with REV principles to improve system-wide value, coordinate with NYSERDA and a broader market transformation plan; and to deploy technologies and tools to facilitate customer load management. The PSC expects REV-established utility programs and CEF-funded NYSERDA initiatives to achieve

NYSERDA aims to lay the foundation for clean energy developments resulting from the REV Regulatory Proceeding and evolution of utility strategies
energy efficiency savings that exceed current levels. Utilities will be given flexibility to respond to technology advances, market signals, and REV priorities.

**2015 SEP will build on Existing Momentum to Accelerate Renewables and Energy Efficiency**

New York has made significant progress toward its clean energy goals. Renewable energy resources—hydro, solar, wind, and other carbon-free sources—continue to grow as a share of the total energy produced in the state. New York is the second most energy efficient state on a per capita basis, next only to Rhode Island (Figure 2).

**Figure 2 - Energy Consumed Per Capita (MMBtu)**

![Energy Consumed Per Capita (MMBtu)](image)

*Source: NY State Energy Plan*

The state has significantly reduced power sector emissions over the past decade, facilitated in part by its involvement in RGGI. Energy efficiency and renewables programs facilitated by the System Benefits Charge, RPS, Energy Efficiency Portfolio Standard (EEPS), RGGI, and other initiatives contribute to an estimated annual emissions reduction of 7.7 million tons of CO2. New York’s energy sector accounts for 89 percent of GHG emissions and reducing emissions is a key objective of REV. The state’s significant clean energy accomplishments are listed below:

- From 2005-2013, New York’s power sector reduced sulfur oxide (SOX) emissions by approximately 91 percent, nitrogen oxide (NOX) emissions by approximately 74 percent, and CO2 emissions by 42 percent. From 2005-2012, the state’s transportation sector emissions declined by 19 percent.
- Low-cost power allocations under the ReCharge NY initiative have contributed to the creation or retention of more than 400,000 jobs, and have spurred $34B in private capital investment from 2010-2014.
- Since 2004, NYSERDA’s RPS program has enabled deployment of approximately 1,900 MW of clean power, driving more than $2.6B in direct investment in the state economy over the lifetime of the facilities and cost.
- From 2011-2014, state agencies have reduced energy consumption in public buildings by approximately 3 percent with energy efficiency
investments, resulting in $60M to $70M in estimated avoided energy costs.

The 2015 SEP’s sweeping regulatory changes will reshape energy development, paving the way for increased offshore wind and large-scale solar projects and influence emitting sources including natural gas infrastructure.
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