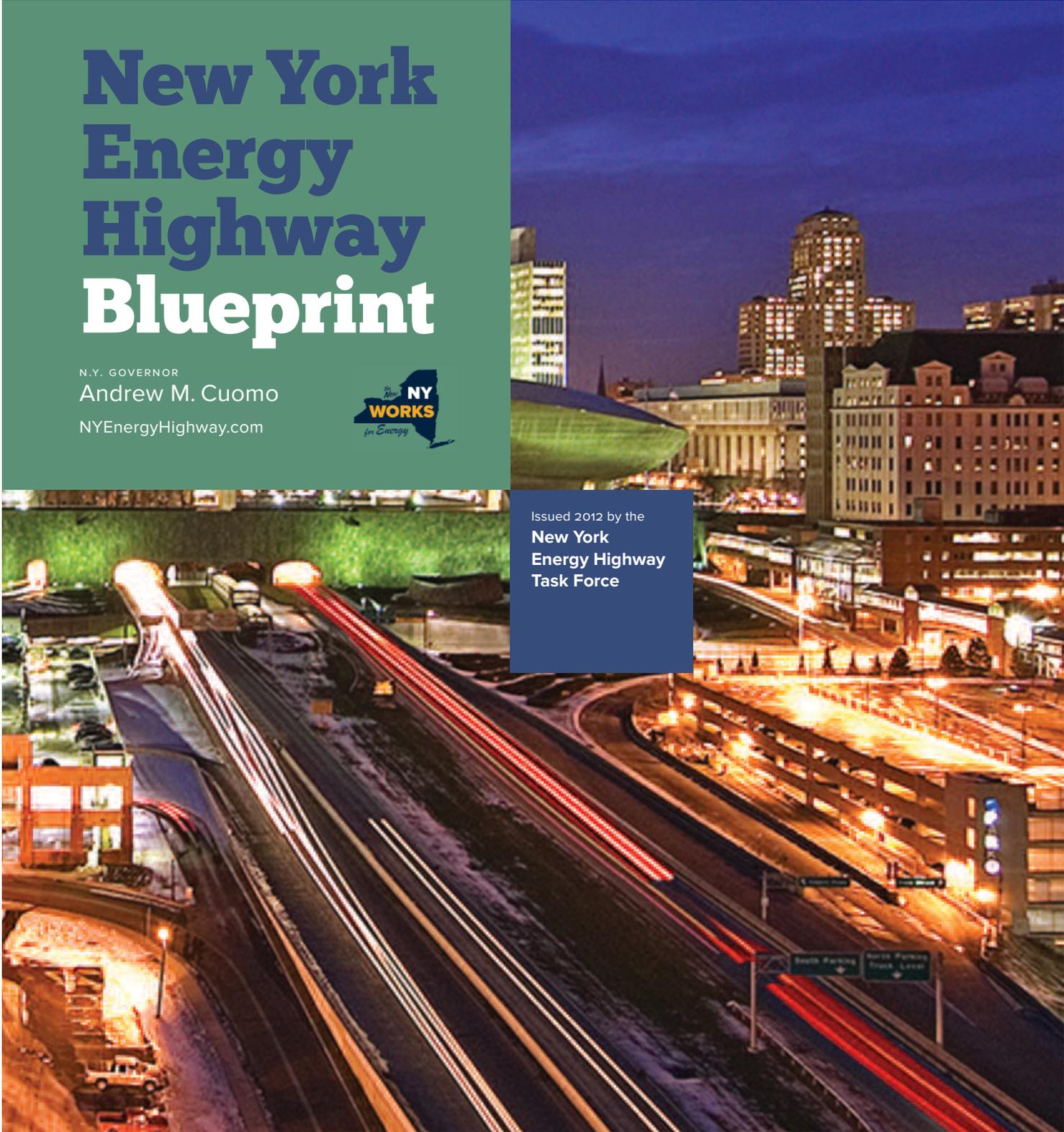


United States Nuclear Regulatory Commission Official Hearing Exhibit	
In the Matter of:	Entergy Nuclear Operations, Inc. (Indian Point Nuclear Generating Units 2 and 3)
	ASLBP #: 07-858-03-LR-BD01
	Docket #: 05000247 05000286
	Exhibit #: NYS00448A-00-BD01
	Admitted: 11/14/2012
	Rejected:
Other: Originally Identified as BRD000007	Identified: 11/14/2012 Withdrawn: Stricken:

NYS000448A
Submitted: November 9, 2012

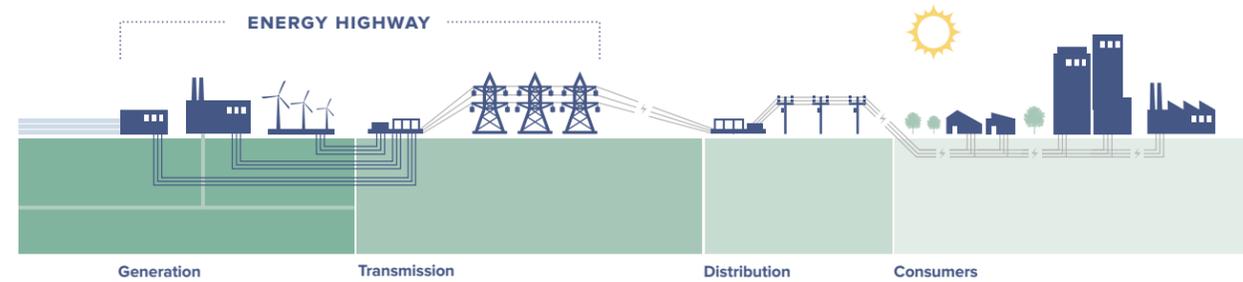
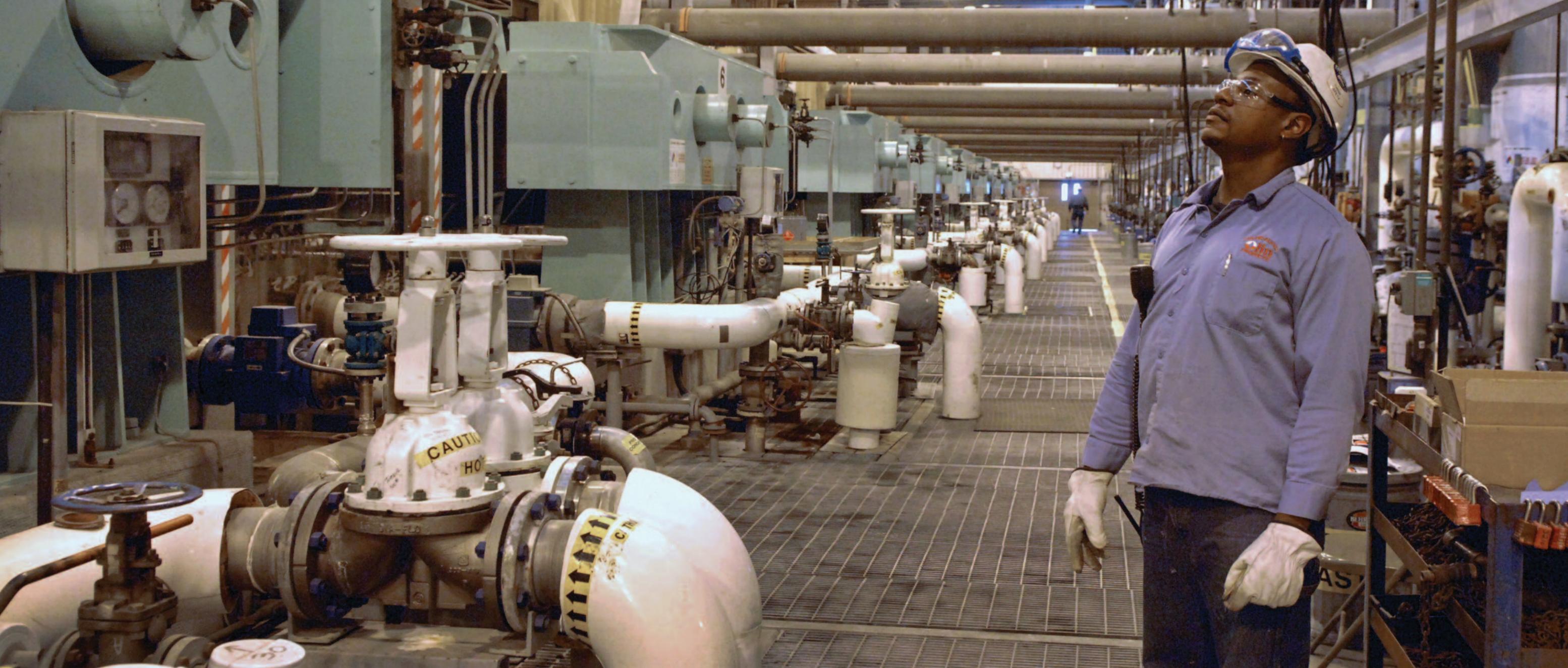


New York Energy Highway Blueprint

N.Y. GOVERNOR
Andrew M. Cuomo
NYEnergyHighway.com



Issued 2012 by the
New York Energy Highway Task Force



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“Key to powering our economic growth is expanding our energy infrastructure.”

N.Y. GOVERNOR
Andrew M. Cuomo
2012 State of the State Address

77	support additional efforts to transition to a cleaner power generation fleet on Long Island
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Honorable Andrew M. Cuomo
Governor of the State of New York
State Capitol
Albany, N.Y. 12224

Dear Governor Cuomo:

We are pleased to present the New York State Energy Highway Blueprint for your consideration. The Blueprint includes 13 recommended actions that we believe can effectively advance your far-reaching initiative to modernize New York's statewide energy system. The actions, including electric transmission and generation construction, development of renewable energy sources, and upgrades to electric and natural gas infrastructure, can make the New York Energy Highway a model of dynamic public-private investment. They stand to help modernize New York's aging energy infrastructure for the future, while spurring private-sector investment, promoting increased development of in-state energy resources, protecting the environment, and supporting jobs.

Consistent with these priorities and with your mandate to us, we established objectives to ensure the long-term reliability of the electric system, improve electricity flows from upstate to downstate, encourage development of renewable generation resources throughout the State, and deploy new technologies.

We selected these actions following a thorough review of responses to a Request for Information (RFI) issued on April 11, 2012 and of public comments that were accepted throughout July and August. We are pleased to report that 85 entities, including the State's investor-owned utilities, private developers, investors, and other parties, submitted 130 responses to the RFI. The substantive nature of many of these submittals, which included proposals for specific projects as well as discussion of energy issues and policies, demonstrated a widespread interest in confronting the State's energy challenges and the competence required to implement the recommended actions. We assessed all responses to the RFI in light of their ability to meet one or more of the objectives and to contribute to such vital goals as system reliability, customer benefit, environmental protection, job creation, and technology enhancement. The actions we recommend for your consideration will expand and strengthen the energy system, accelerate construction and repair, support clean energy, and drive technology innovation.

From the outset, the Task Force created a transparent process for participation and review by interested parties and the public. All responses to the RFI were posted on the Energy Highway website. The Task Force sponsored two major conferences—the Energy Highway Summit and a Conference of RFI Respondents and Interested Parties—that attracted a total of more than 670 attendees.

Thanks to all who are contributing to the Energy Highway, we are able to build a better future today with powerful ideas for tomorrow. It has been a privilege to serve on the Energy Highway Task Force and we look forward to continuing to work with you, potential project developers, and others to bring this critical public-private initiative to fruition and ensure that New York stands as a leader in energy development and reliability.

Gil C. Quiniones Joseph Martens Kenneth Adams Garry A. Brown Francis J. Murray, Jr.



**ENERGY HIGHWAY
TASK FORCE**

TOP ROW

Gil C. Quiniones, (Co-Chair) President and Chief Executive Officer, New York Power Authority

Joseph Martens, (Co-Chair) Commissioner, New York State Department of Environmental Conservation

BOTTOM ROW

Kenneth Adams, President, Chief Executive Officer and Commissioner, Empire State Development

Garry A. Brown, Chairman, New York State Public Service Commission

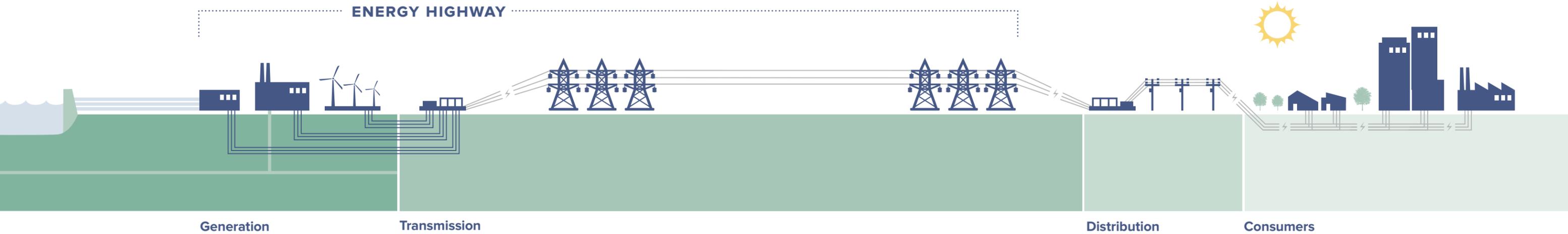
Francis J. Murray, Jr., President and Chief Executive Officer, New York State Energy Research and Development Authority

Introduction

A modern, efficient, and environmentally sustainable electric power system in New York State is the lifeblood of a vibrant and growing economy, fueling job creation, innovation, and new technologies from mobile devices to electric vehicles. New York State is moving aggressively to ensure that its residents and businesses will have a safe, reliable, affordable, and clean energy supply in the

years and decades to come. The power system in New York, comprising the generation, transmission, distribution, and consumer segments illustrated in Figure 1, is a complex network of hundreds of large and small power companies, producing and delivering electric energy along tens of thousands of miles of overhead and underground power lines to millions of residential, commercial, and industrial consumers. The Energy Highway initiative focuses on the generation and transmission systems to strengthen and enhance the foundation of New York’s energy system.

FIGURE 1





“

**We can
build a new
energy system
across our
entire State.**

N.Y. GOVERNOR

Andrew M. Cuomo

2012 State of the State Address

”

Generation

New York's diverse sources of power generation include fossil fuels such as natural gas, oil, and coal; renewable resources such as hydropower, wind, solar, and biomass; and nuclear power. Governor Andrew M. Cuomo's Power New York Act of 2011 instituted a streamlined permitting process for construction of new and repowered power plants, while New York's Renewable Portfolio Standard (RPS) provides important financial incentives to develop renewable energy resources statewide. Modernizing our generation assets promotes environmental and efficiency goals and preparing well in advance for the potential closure of power plants is critical to safeguarding system reliability and protecting consumers.

Transmission and Distribution

Ensuring the efficient transmission of power by reducing bottlenecks and deploying advanced smart technologies improves overall electric system operation and optimizes the use of existing assets in New York by allowing lower-cost and cleaner power to reach consumers. Investments in the transmission and distribution systems can reduce customer costs over the long-term, improve safety and reliability, and protect the environment while immediately creating jobs and economic development. Investment in cost-effective Smart Grid technologies and encouraging commercial innovation in the power sector is vital to continuing the reliable and efficient operation of the energy system.

Consumers

Efficient consumption of energy reduces costs and benefits the environment, and is advanced by several major State initiatives. For example, Governor Cuomo's On-Bill Recovery Financing Program, implemented in January 2012, offers financing for home energy efficiency improvements through utility bills while creating jobs. The NY-Sun initiative, announced by Governor Cuomo in January 2012, encourages installation of solar technology, reducing fossil fuel consumption and emissions. In April 2012, the Governor announced a \$450 million program to reduce energy consumption in State buildings by 20 percent. Ongoing investments through the Public Service Commission, New York State Energy Research and Development Authority, New York Power Authority, and Long Island Power Authority programs in the efficient use of energy provide benefits for all electricity consumers by keeping wholesale energy costs low during peak periods and improving the environment.

Energy Highway

The Energy Highway Task Force presents in this Blueprint immediate actions and policy recommendations to modernize the power generation and transmission systems to achieve vital safety, reliability, affordability, and sustainability goals on behalf of all New Yorkers.



In developing the Blueprint, the Energy Highway Task Force notes that New York's State Energy Plan is in development, with an expected release in 2013. The Blueprint will provide input to the development of the State Energy Plan's policies, strategies, and recommendations.



Executive Summary

The Blueprint of the Energy Highway advances a strong public-private initiative to improve the State's energy infrastructure, starting immediately, in order to enhance system reliability and efficiency, minimize environmental impacts, and generate long-term customer benefits. These actions are expected to result in approximately \$5.7 billion¹ in public and private investments over the next five to 10 years, supporting jobs in New York during construction. The Blueprint provides for as much as 3,200 megawatts (MW) of additional electric generation and transmission capacity and renewable power generation.

The Blueprint's actions and recommendations will unify the State's efforts to create an energy infrastructure that will serve the State's residents and businesses in the decades to come. Construction of the new transmission capacity called for under the Blueprint would solve a decades-old problem: the limitations of the State's electric grid to transmit available, cheaper upstate power to downstate when demand is high. The Blueprint achieves this public policy goal with a first-of-its-kind solicitation of new transmission projects. The Blueprint's call for immediate development and initial implementation of detailed contingency plans to address potential power plant closures demonstrates the State's assumption of a new leadership role in challenging the market to prepare for and meet future uncertainties impacting the bulk electric system. Construction of the new renewable generation called for under the Blueprint, and the recommended extension of funding for the State's Renewable Portfolio Standard (RPS) to well beyond its current 2015 end date, signals the State's unequivocal commitment to a future sustainable power generation sector at a time when the expiration of federal tax credits as well as market conditions are

¹ One megawatt (MW) equals 1,000 kilowatts (kW) and is enough power to meet the needs of 800 to 1,000 average homes.

working against such a vision. The Blueprint's call for repowering major power generation facilities on Long Island and elsewhere demonstrates the State's ongoing commitment to a cleaner environment. Accelerating utility capital and operation and maintenance spending on the State's electric and natural gas infrastructure will result in enhanced reliability and safety for utility customers while generating substantial economic development benefits for the State's overall economy. In addition, the Blueprint puts forward a coordinated public and private sector approach for Smart Grid to transition the aging existing electric system into the 21st Century grid.

In response to a Request for Information (RFI) issued in April 2012, the Task Force received a broad spectrum of responses ranging from specific project proposals and policy recommendations to advanced technologies suggestions. This variety of responses, from 85 private developers, investor-owned utilities, financial institutions, and other entities, encompassing 130 proposals and concepts, provided the Task Force an unprecedented insight into the availability of projects and interest of stakeholders in New York State. The projects proposed in RFI responses represent more than 25,000 MW of capacity from new and existing generation and transmission; by way of comparison, the State's current total installed generating capacity is 39,570 MW.



The Blueprint's actions and recommendations will unify the State's efforts to create an energy infrastructure that will serve the State's residents and businesses in the decades to come.

Thirteen specific actions involve State agencies and authorities with partners in the private sector and are grouped under the following areas to achieve the objectives set forth by the Task Force to advance Governor Andrew M. Cuomo’s vision for the Energy Highway.



Expand and Strengthen the Energy Highway

- Build \$1 billion worth of electric transmission projects totaling over 1,000 MW of capacity, providing an alternative to locally constructed generation of equal capacity, and allowing energy produced at upstate power plants, including wind farms, to reach downstate consumers.
- Develop Reliability Contingency Plans for potential power plant retirements in cases that could impact the reliability of the system.
- Support flexibility in contracting for public power authorities, to facilitate public-private partnerships.



Accelerate Construction and Repair

- Advance up to \$800 million of investments in electric generation, transmission, and distribution to enhance reliability, safety, and storm resilience.
- Advance up to \$500 million of investments in natural gas distribution to reduce costs to customers and enhance reliability, safety, and emission reductions.



Support Clean Energy

- Execute new contracts for up to \$250 million within the next year with renewable energy developers under the Renewable Portfolio Standard (RPS) to leverage an additional \$425 million in private-sector investment to build up to 270 MW; continue to invest annually with future contract solicitations in new large-scale renewable energy projects.

- Build up to \$35 million worth of strategic transmission upgrades to remove a potential impediment to additional renewable energy development in Northern New York.
- Perform resource characterization² studies for offshore wind development in the Atlantic Ocean.
- Initiate process to repower existing inefficient power plants of approximately 750 MW on Long Island, at an estimated investment of \$1.5 billion to \$2 billion.
- Require utilities to evaluate repowering power plants as a potential solution when plants needed for reliability are scheduled for retirement.
- Create a new incentive fund for greenhouse gas emissions and particulate matter reductions in the electricity sector; institute mechanisms to mitigate impacts on select affected communities from retirements of fossil-fuel power plants.



Drive Technology Innovation

- Leverage the Smart Grid Program to advance the long-term goals of the Energy Highway with an investment of \$110 million; provide additional support for Smart Grid technologies through an investment of \$80 million focused on demonstration of new technologies in power grid system operations, security, and energy storage.
- Dedicate \$10 million to further advance New York as a national center for Smart Grid technology and applications and to lead a statewide effort to house a federal Smart Grid Technology Hub in New York, in partnership with national laboratories and other industry partners; dedicate up to \$50 million additional in funding and other resources in the near-term to help support an Advanced Energy Management System Control Center in New York, along with a Smart Energy Utility application program targeted at system operation.

² Resource characterization studies provide more detailed information on the overall power generation potential, constructability, and permitting feasibility off the New York coast and can include the evaluation of wind speeds, ocean floor and geological conditions, environmental considerations, existing uses of the ocean area, and other factors.

The Task Force's recommended actions take New York beyond the business-as-usual replacement plans for aging infrastructure and lay the groundwork for a significantly improved energy system for the State's businesses and residents.

These actions are expected to have short-, medium-, and long-term positive environmental and economic development benefits across the State. Consumers are expected to experience lower energy costs in the long-term. Enhanced reliability of the energy system is anticipated due to increased transmission capacity and flexibility of operation. The increased utilization of more efficient power plants and development of new renewable energy sources is projected to reduce air pollution and contribute to the mitigation of climate change. The electricity system statewide will be cleaner, more reliable, and ready to support New York's growing economy in the 21st century.

In addition to actions spurring investment in infrastructure, the Task Force puts forward the following policy recommendations to further advance New York's leadership in the energy industry:

- Support workforce development for the energy industry.
- Provide long-term certainty for renewable energy development in New York beyond 2015.
- Advance policies to encourage distributed renewable energy development; continue and build on the NY-Sun initiative.
- Evaluate cost recovery opportunities for offshore wind.
- Support additional efforts to transition to a cleaner power generation fleet on Long Island.
- Support energy efficiency and other demand-side measures.
- Ensure electric utility capital expenditure plans include cost-effective Smart Grid technologies.
- Evaluate policies and regulatory mechanisms, such as the RIIO (Revenues = Incentives + Innovation + Outputs)³ framework recently adopted in the United Kingdom, to encourage technological and commercial innovation.

Expediting Implementation

The Energy Highway initiative brought together the State's principal energy, environmental, and economic development agencies and authorities to partner in a unique forum to undertake a broad planning effort and chart concrete actions and implementation plans (see Appendix A for details on the Energy Highway process to date). This collaboration allows for expedited implementation of the recommended actions, some through existing processes and others through newly developed or expanded processes.

3. RIIO is the United Kingdom's new approach to regulating their electric and natural gas transmission.



Existing processes can be expedited, where possible, to ensure swift, efficient, and effective implementation of the proposed actions. The Blueprint recommends steps to significantly reduce the time required for development of energy infrastructure, including:

- Executing a first-of-its-kind solicitation of new transmission projects by the Department of Public Service to initiate private sector development to achieve public policy goals.
- Initiating reliability contingency planning years in advance of potential notices of closure by power plants to ensure solutions can be in place to maintain reliability.
- Accelerating investments in the public and private sector to immediately spur economic development in New York and achieve system benefits.

Under Governor Cuomo's leadership, State agencies and authorities are poised to immediately begin working with the private sector to pursue the outlined actions to realize the benefits for New York.

TABLE 1

Summary of Energy Highway Task Force Actions

ACTION	LEAD PUBLIC PARTNERS ⁴	PARTNERS	ESTIMATED PUBLIC AND PRIVATE INVESTMENT POTENTIAL	INITIATE	ESTIMATED COMPLETION DATE	
EXPAND AND STRENGTHEN THE ENERGY HIGHWAY						
	Initiate Alternating Current transmission upgrades to increase the capacity to move excess power from upstate to downstate	DPS	NYPA, LIPA, NYISO, IOUs, Private Sector	\$1 billion total for multiple projects totaling over 1,000 MW	By the end of 2012	In phases from 2015 to 2018
	Develop and implement Reliability Contingency Plans to prepare for potential large power plant retirements	DPS	NYPA, NYISO, IOUs, Private Sector	\$1 to \$2 billion totaling approximately 1,200 MW if needed, additional as identified	By the end of 2012	Summer 2016 if needed, additional as identified
	Provide public power entities flexibility in contracting for public-private partnerships	NYPA, LIPA	—	—	Early 2013	End of 2013
ACCELERATE CONSTRUCTION AND REPAIR						
	Accelerate investments in electric generation, transmission, and distribution for reliability, safety, and storm resilience	DPS, NYPA	IOUs	\$800 million	Early 2013	End of 2017
	Accelerate investments in natural gas distribution to reduce costs to consumers and promote reliability, safety, and emission reductions	DPS	IOUs	\$500 million	By the end of 2012	End of 2017
SUPPORT CLEAN ENERGY						
	Conduct a competitive solicitation for renewable resources in New York as part of the State's Renewable Portfolio Standard	NYSERDA	DPS, Private Sector	\$675 million for new capacity approaching 270 MW	By the end of 2012	Awards made summer 2013, projects in service by end of 2014
	Initiate transmission upgrades in Northern New York to help facilitate renewable energy development	NYPA, NYSERDA	DPS	\$35 million	By the end of 2012	Ongoing
	Characterize offshore wind resources and evaluate cost recovery opportunities	NYSERDA	NYPA, LIPA, DEC, DOS, IOUs, Private Sector	\$2 to \$5 million	By the end of 2012	2014
	Initiate process for repowering of inefficient power plants on Long Island and support additional efforts to transition to a cleaner power generation fleet on Long Island	LIPA	Private Sector	\$1.5 to \$2 billion to repower approximately 750 MW	Summer 2013	2019 to 2020
	Require utilities to evaluate repowering as an alternative to power plant retirements when the plant is needed for reliability	DPS	IOUs, Private Sector	—	By the end of 2012	Ongoing, complete as needed
	Establish a Community Support Plan and Greenhouse Gas Emissions Reduction Program in the electricity sector	DEC, NYSERDA	DPS, ESD	—	Early 2013	Ongoing, open programs for applications by 2014
DRIVE TECHNOLOGY INNOVATION						
	Fund Smart Grid demonstration projects	NYSERDA	DPS	\$190 million	Early 2013	Ongoing
	Develop an Advanced Energy Management System Control Center and pursue a federal Smart Grid Technology Hub	NYSERDA, NYPA	NYISO, Academia, Federal Government, IOUs, Private Sector	\$60 million	Early 2013	Ongoing
<p>4. Definitions: New York State Department of Public Service (DPS); New York Power Authority (NYPA); Long Island Power Authority (LIPA); Investor-Owned Utilities (IOUs); New York Independent System Operator (NYISO); New York State Energy Research and Development Authority (NYSERDA); New York State Department of Environmental Conservation (DEC); New York State Department of State (DOS); Empire State Development (ESD).</p>			<p>Total Estimated Investment Potential up to \$5.7 billion</p> <p>Potential Capacity Installed totals as much as 3,200 MW</p>			

FIGURE 2

Timeline of Energy Highway Blueprint Impacts

ESTIMATED INVESTMENT POTENTIAL | POTENTIAL CAPACITY INSTALLED

ARROW → = COMPLETION BEYOND 2018

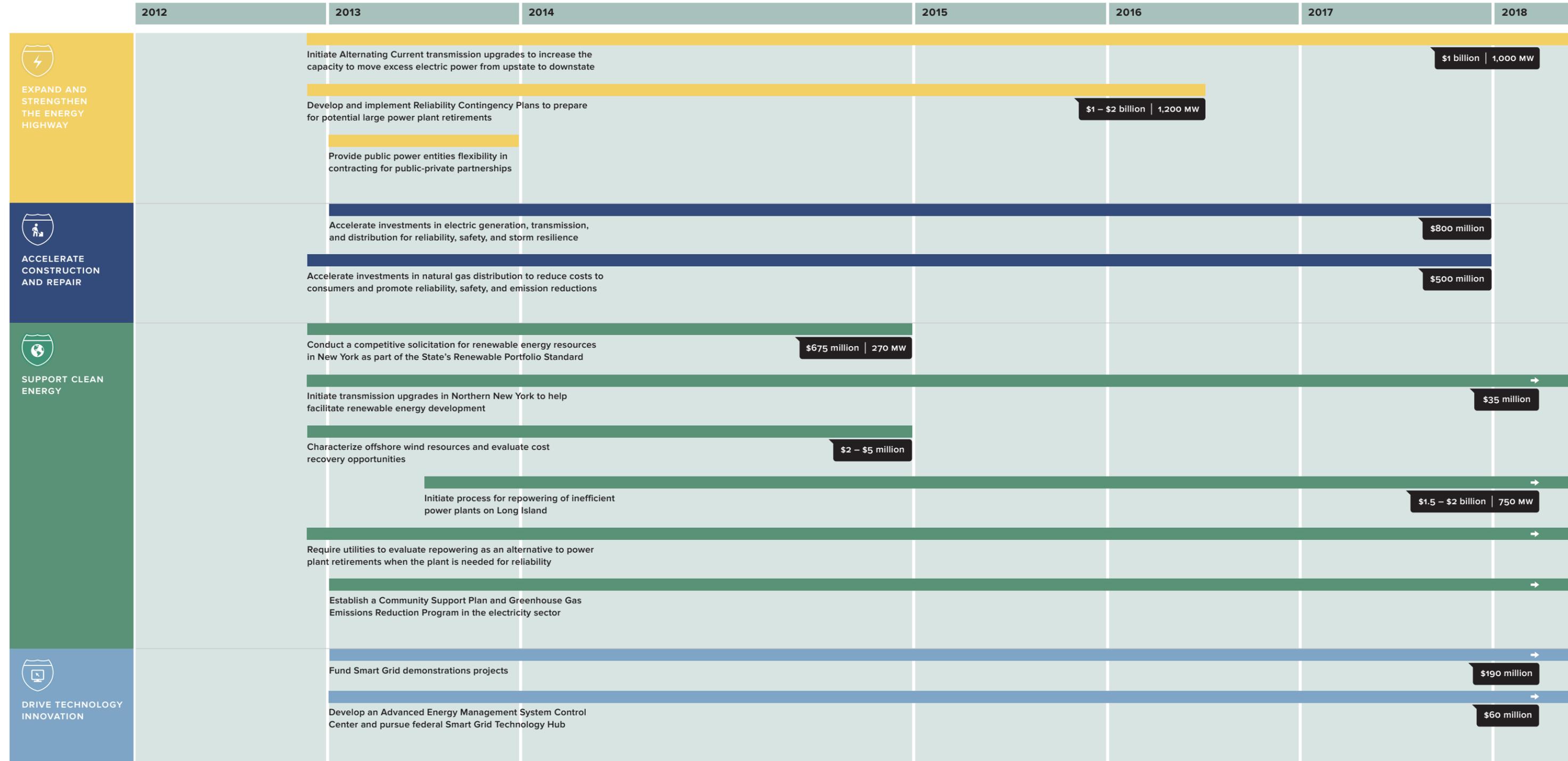


TABLE 2

Summary of Energy Highway Task Force Policy Recommendations

POLICY RECOMMENDATIONS	PARTNERS
EXPAND AND STRENGTHEN THE ENERGY HIGHWAY	
	<p>Support workforce development for the energy industry</p> <p>NYSERDA, NYPA</p>
SUPPORT CLEAN ENERGY	
	<p>Provide long-term certainty for renewable energy development in New York beyond 2015</p> <p>NYSERDA, DPS</p> <p>Advance policies to encourage distributed renewable energy development; continue and build on the NY-Sun initiative</p> <p>NYSERDA, DPS</p> <p>Evaluate cost recovery opportunities for offshore wind</p> <p>NYSERDA, DPS</p> <p>Support additional efforts to transition to a cleaner power generation fleet on Long Island</p> <p>LIPA</p> <p>Support energy efficiency and other demand-side measures</p> <p>All</p>
DRIVE TECHNOLOGY INNOVATION	
	<p>Ensure electric utility capital expenditure plans include cost-effective Smart Grid technologies</p> <p>DPS</p> <p>Evaluate policies and regulatory mechanisms, such as the RIIO (Revenues = Incentives + Innovation + Outputs) framework recently adopted in the United Kingdom, to encourage technological and commercial innovation</p> <p>DPS, NYSERDA</p>





Blueprint for the Future

The New York State Energy Highway Blueprint provides an action plan for implementing Governor Andrew M. Cuomo’s bold proposal for a public-private initiative to rebuild and rejuvenate New York State’s electric power system to meet the needs of a 21st century economy and society.

The Blueprint was developed by the Energy Highway Task Force, appointed by the Governor shortly after he announced the Energy Highway initiative in his January 2012 State of the State address. The Task Force, consisting of the State’s principal energy, environmental, and economic development officials, issued a Request for Information (RFI) in April 2012 that elicited responses from 85 private developers, investor-owned utilities, financial institutions, and other entities encompassing 130 proposals and concepts. The projects proposed in RFI responses represent more than 25,000 MW of capacity from new and existing generation and transmission.

As summarized in Appendix B of the Blueprint, the responses covered a wide range of options, including proposals for new and upgraded transmission lines, the repowering⁵ or upgrading of existing power plants, and the construction of new generating plants, including the development of new renewable resources. Rather than proposing individual projects, some submittals supported emerging technologies, such as energy storage and solar power, or advocated certain energy policies and priorities.

The Blueprint accounts for the various ideas and projects proposed by the respondents to the RFI, feedback and comments received by multiple stakeholders throughout the State, and relevant publicly available reports and analyses. The actions included in this Blueprint have benefits across New York

⁵ Repowering is a term used to describe the retirement of a power plant and the reconstruction of a new and more efficient plant with new equipment on the same property in its place.

State (see Figure 3: *Map of Energy Highway Actions*, which shows the region(s) tied to each action proposed by the Task Force).

The Energy Highway initiative is closely linked to Governor Cuomo's NY Works program, an effort to forge new partnerships with private enterprises to rebuild and modernize New York's infrastructure and to leverage the State's financial and technical resources to generate billions of dollars in private investment and support jobs. In keeping with these objectives, the Blueprint is designed to create an environment to spur private-sector involvement in carrying out the Energy Highway initiative and offers the potential for State assistance in addressing financial, regulatory, and other issues.⁶ The actions should be implemented in a manner consistent with restructured⁷ energy markets to deliver the most economical energy available to serve the power needs of all New Yorkers.

The Energy Highway initiative recognizes and responds to the following challenges:

- Reliable, clean, and competitively-priced energy is essential for quality of life and economic growth and requires a reliable and efficient infrastructure to deliver energy.
- Excess power is available in upstate New York, while demand is increasing in the downstate area. The construction and operation of power plants is less expensive in the upstate region as compared to downstate.
- Congestion points, or bottlenecks, on the electric transmission system prevent lower-cost and/or cleaner power from flowing easily from upstate to downstate, increasing costs for consumers and preventing improvements in environmental quality because the older and less efficient power plants are forced to run more frequently than would otherwise be necessary.
- The significant potential to develop wind projects and other renewable energy sources in upstate New York may become impeded by transmission constraints that could prevent their full output from reaching consumers.
- The existing electric and natural gas infrastructure requires upgrades and repairs to ensure continued safe and reliable operation, to provide storm resilience, and to potentially lower costs for consumers.
- A number of factors, including the current low price of natural gas, pending environmental regulations, and uncertainty of federal licenses, impact the continued viability of certain power plants and could lead to their retirements,

6. System reliability issues continue to be managed and guided by the New York State Department of Public Service (DPS) and the New York Independent System Operator (NYISO), and this Blueprint is not intended to duplicate the reliability evaluation and responsibilities of the DPS and the NYISO.

7. Restructured energy markets were established in New York State in 1997 and 1998 to create competition in the supply of electricity.

affecting power supplies and the communities where the plants are located.

While the challenges are formidable, this Blueprint demonstrates that they can be met in a manner that advances the State's energy, environmental, and economic development goals. In seeking a widespread response to the RFI, the Energy Highway Task Force termed this *The Time for Powerful Ideas*. Those ideas have now emerged, setting the stage for equally powerful actions.





FIGURE 3

Map of Energy Highway Actions





A Four-Part Strategy

The Energy Highway Task Force has identified four main areas of focus in this Blueprint that address the objectives and goals identified by Governor Cuomo and in the RFI:



Expand and Strengthen
the Energy Highway



Accelerate Construction
and Repair



Support Clean Energy



Drive Technology
Innovation

The following recommended actions include short-, medium-, and long-term steps to build the path forward to achieve the stated public policy goals. These actions are specific, assigned to State entities for execution or implementation, and laid out on a timeline to ensure the mission of the Governor’s Energy Highway initiative is achieved.⁸

The Energy Highway Task Force reviewed each RFI response and assessed the contribution of each to meeting the identified objectives. Collectively the responses provided substantial value to the preparation of the Blueprint by supplying useful information regarding both the public and private interests in various projects and issues.

⁸ Actions recommended by the Task Force are subject to all applicable regulatory and statutory requirements.

The Task Force's long-term view looks beyond the typical 10-year forecasts and projections in traditional energy system industry models. Infrastructure investments, especially those in electricity transmission, provide benefits for decades, requiring a vision that considers costs and benefits over a 40- to 50-year horizon.





Expand and Strengthen The Energy Highway

New York has a reliable electric system, but it is a system consisting of transmission lines and power plants that are aging. Some of these facilities also have uncertain futures. The Energy Highway initiative leverages ongoing replacement in-kind of aging infrastructure and identifies specific areas to expand transmission capacity to move excess power from upstate power producers to downstate, while providing significant reliability, economic, and environmental benefits. The following actions and recommendations improve the efficiency of the Energy Highway system and benefit New York residents and businesses:

- **Expand transmission to carry excess power from upstate:** initiate Alternating Current (AC) electric transmission upgrades to increase the capacity to move excess electric power from upstate to downstate by over 1,000 MW.
- **Plan for possible power plant retirements:** develop and implement Reliability Contingency Plans to prepare for potential large power plant retirements.
- **Support public-private partnerships:** provide public power entities flexibility in contracting for public-private partnerships that can benefit the State's energy infrastructure.
- **Support workforce development for the energy industry.**

The NYISO has in place both reliability and economic planning processes that forecast needs and upgrade opportunities looking out over 10 years. The Energy Highway initiative is not intended to replace these processes, but rather to supplement them. The confluence of aging infrastructure with multiple power plant retirements due to economics and fluctuating fuel prices, along with the anticipated or potential retirement of power plants due to increasing environmental restrictions or regulatory issues, calls for a broader planning

ESTIMATED INVESTMENT POTENTIAL

Up to \$2 billion

POTENTIAL CAPACITY INSTALLED

Up to 2,200 MW of transmission and generation capacity by 2018

EXPECTED BENEFITS

Enhance reliability; increase system operations flexibility; address major planning uncertainties; reduce transmission congestion and improve efficiency

FIGURE 4

Expand and Strengthen the Energy Highway Timeline

ESTIMATED INVESTMENT POTENTIAL | POTENTIAL CAPACITY INSTALLED



EXPAND AND STRENGTHEN THE ENERGY HIGHWAY

effort guided by public policy. In addition to responding to each individual situation through the NYISO processes, New York requires a comprehensive view of how to best position the electric system to benefit ratepayers over the long-term.

Expand transmission to carry excess power from upstate to downstate

New York State’s electric transmission system faces a longstanding problem of congestion at critical points on the pathways linking upstate and downstate New York. Together, New York City, Long Island, and Westchester County account for more than half of the demand for electricity in the State and this demand is increasing; however, in times of peak demand and high prices, lower-cost and/or cleaner power available from upstate cannot reach these densely populated areas because of the transmission bottlenecks. Congestion can have adverse environmental and economic consequences when older plants in urban areas run more frequently than they otherwise would if power from other sources of energy could reach these areas. The Energy Highway Blueprint addresses the challenges of a congested transmission system by calling for the upgrade of existing lines and the building of new lines following existing rights-of-way.

The AC electric transmission system is the backbone of a reliable transmission system. The AC system promotes reliability through its ability and flexibility to respond to emergencies on the system. Unlike Direct Current (DC) transmission lines, the AC system also allows for the interconnection of needed generation resources at multiple points on the system. DC lines serve the purpose of moving energy over long distances and interconnecting incompatible systems.

Prudent transmission planning evaluates all alternatives—AC transmission, DC transmission, generation, and energy efficiency—so as to identify new infrastructure to provide the most robust system at a reasonable cost to ratepayers. While congestion can also be reduced through generation or DC transmission

investments, AC investments provide the additional benefit of contributing to a system that is more robust and flexible with increased reliability benefits, thereby increasing the area within which generation facilities can be placed to respond to future system needs.

The reduction of in-state transmission constraints and development of additional transmission capacity is expected to reduce air emissions in the New York City area, support the development of upstate renewable energy projects, and lower wholesale energy prices for downstate energy consumers. Further, upgrades should provide economic development benefits to upstate by enabling excess energy from upstate power plants to reach downstate markets, improving the financial viability of existing upstate power producers, and allowing existing and new wind farms and other renewable sources in that region to access higher-priced energy markets.

RFI RESPONSES

The Task Force received three proposals in support of AC transmission upgrades, accounting for 20 individual projects and demonstrating that the private sector is positioned to support the proposed action:

- Boundless Energy, LLC
- CityGreen Transmission, Inc.
- New York Transmission Company (Transco)

Additionally, LS Power Transmission submitted suggestions for facilitating AC transmission development.

ACTION → Initiate Alternating Current transmission upgrades to increase the capacity to move excess power from upstate to downstate

ASSIGNED AGENCY

New York State Department of Public Service

PARTNERS

New York Power Authority, Long Island Power Authority, New York Independent System Operator, Investor-Owned Utilities, Private Sector

INITIATE

By the end of 2012

ESTIMATED COMPLETION DATE

DPS permitting process complete in time to begin construction by 2014; projects to be completed in phases, expected from 2015 to 2018

ESTIMATED INVESTMENT POTENTIAL

\$1 billion for a total of over 1,000 MW of increased capacity

The Energy Highway Task Force recommends that the DPS invite developers and transmission owners to file notices of intent to construct projects that would increase the capacity for transfer of electric power between upstate and Central New York and the lower Hudson Valley and New York City, thus relieving existing bottlenecks. These projects would also be expected to enhance system reliability into the future. Specifically, the DPS should call for projects that relieve congestion, including those benefiting the following transmission corridor consisting of: Central East–New Scotland–Leeds–Pleasant Valley between the Mohawk Valley Region, the Capital Region, and the Lower Hudson Valley (see Figure 5: New York State Transmission System, 230 kV and Above, Including the Highest Area of Congestion).

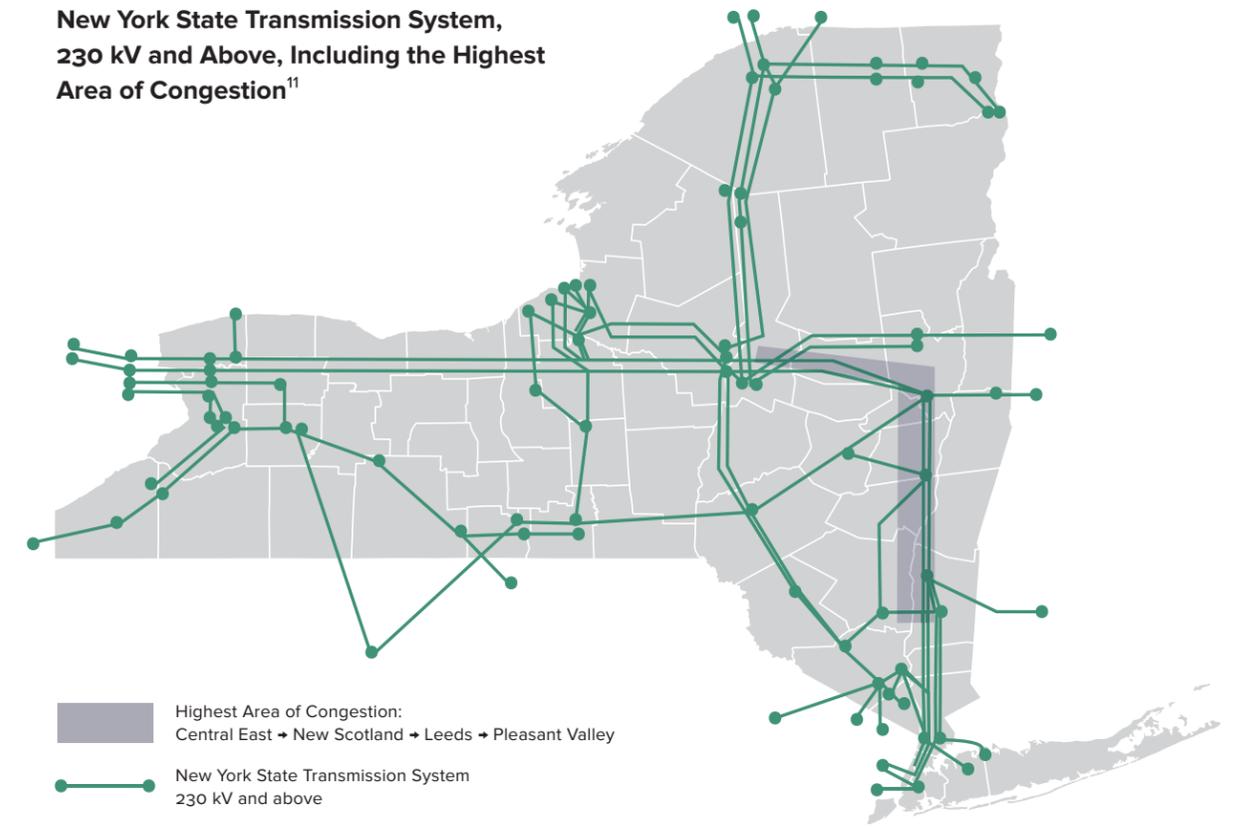
Based on the proposals received in response to the RFI, analysis conducted by the Task Force in cooperation with the NYISO, and review of published studies such as the New York State Transmission Assessment and Reliability Study (STARS) issued in April 2012, the Task Force estimates that approximately 1,000 MW of cost-effective opportunities exist to upgrade the AC transmission system.⁹

The DPS should call for each developer of a proposed project that meets these objectives to submit a letter of intent to the Public Service Commission (PSC) providing a detailed project description, including cost estimates, a target date for filing its Article VII¹⁰ application and its approach to cost recovery

9. Transmission security and resource assessments were performed by Nexant and PowerGEM
10. Article VII of the New York Public Service Law sets forth the existing certification review process for siting major utility transmission facilities in New York State. Additional information about the siting process can be found on the DPS website: www.dps.ny.gov.

FIGURE 5

New York State Transmission System, 230 kV and Above, Including the Highest Area of Congestion¹¹



Note: Projects that may relieve congestion in the highlighted area may not necessarily be physically located within this area.

and allocation. Following these submissions, DPS will initiate a pre-filing, multi-agency review, and evaluation process leading to establishing deadlines for applications, possibly phased according to which congested interfaces the proposed transmission projects would address. After complete applications for certificates have been received, a coordinated hearing and decision phase of the certification process will commence. The process will include an evaluation of the economic benefits and environmental impacts of each project. It is expected that, subject to a determination granting a certificate, projects meeting the objectives could begin construction in 2014.

The Task Force anticipates that significant benefits will result from upgrading the AC transmission system. DPS, in its invitation to developers and transmission owners, should emphasize a preference for projects developed along existing

11. Information adapted from the NYISO's *Power Trends 2012: State of the Grid*, page 31.

rights-of-way or that include upgrades to existing lines. By doing so, it is expected that this initiative will minimize environmental impacts and potential community opposition that could result from construction in new transmission rights-of-way. These targeted upgrades of the AC transmission system can strengthen the statewide power grid and provide significant reductions in nitrogen oxide (NO_x) and particulate matter emissions in the downstate region. The reduction of those emissions are particularly important because the downstate region is designated nonattainment¹² for the federal air quality standard for ozone, and NO_x emissions contribute to those elevated ozone levels.

Plan for possible power plant retirements

More than 40 percent of New York’s existing power generating capacity is over 40 years old and more than 20 percent is over 50 years old.¹³ Recent and pending environmental regulations (see Table 3: Environmental Protection Agency (EPA) Actions Applicable to the Electricity Sector) coupled with low natural gas prices could lead to accelerated retirements of some of these older facilities.

The potential retirement of power plants creates uncertainties for the future of the State’s power supply. The Energy Highway Task Force recommends action to address two critical aspects of this uncertainty.

- The proposed closure of power plants that are required to maintain system reliability can potentially impose additional costs on customers when the closing plant must be kept online at above market prices.
- Either by virtue of plant size, location, or uncertainties regarding the timing of potential retirements, the electricity market may not be in a position to respond adequately to the shutdown of certain power plants once retirement is announced—as is the potential case with the Indian Point Energy Center, a 2,066 MW nuclear power plant located in the lower Hudson Valley.¹⁴

These realities justify enhancements to the current process for managing power plant retirements.

In most cases to date, the market has responded adequately to the retirement of plants by providing any needed capacity. Every two years the NYISO, the entity responsible for overseeing operations of the transmission system and

12. Areas that do not meet the federal Environmental Protection Agency’s (EPA) health-based criteria for permissible levels of air pollutants are designated nonattainment areas.
 13. See Figure 10.
 14. The Task Force makes no assumption as to the probability of a closure of the Indian Point Energy Center, and makes no determination of future events in this regard. This process is intended to provide a solution to maintain reliability in New York State in case of power plant closures, including a closure of Indian Point, and is not intended to indicate any proposed decision with regard to such closure.
 15. Information adapted from the EPA website: www.epa.gov.

TABLE 3
Environmental Protection Agency (EPA) Actions Applicable to the Electricity Sector¹⁵

CATEGORIES	EPA ACTION	OBJECTIVES	STATUS OF ACTION
CRITERIA POLLUTANTS	Cross State Air Pollution Rule	Reduce sulfur dioxide and nitrogen oxide emissions from fossil fuel power plants in the Eastern U.S.	Court vacated Cross State Air Pollution Rule on August 21, 2012, directed EPA to enforce current rules until it develops a substitute
	New Particulate Matter National Ambient Air Quality Standards	Evaluate tightening existing fine particulate standard	Final rule required by December 14, 2012
	New Sulfur Dioxide National Ambient Air Quality Standard	More stringent sulfur dioxide emissions standards	Promulgated June 2010
	New Nitrogen Dioxide National Ambient Air Quality Standard	More stringent nitrogen dioxide emissions standards	Promulgated February 2010
	New Ozone National Ambient Air Quality Standard	More stringent ozone emissions standards	Promulgated March 12, 2008
	Nitrogen Oxides Reasonably Available Control Technology	Maintain this level of control for both particulate matter and ozone, and to assist with attainment of both new ambient air quality standards	Promulgated June 2012; requires that sources meet new limits by July 1, 2014
	Best Available Retrofit Technology	Required under the federal regional haze provisions of the Clean Air Act	Promulgated April 2012; requires that sources comply with limits by January 1, 2014
MERCURY AND AIR TOXICS STANDARDS	Maximum Available Control Technology for Mercury and other pollutants	More stringent mercury emission standards for coal-fired power plants, and a range of other hazardous air pollutants emitted by coal- and oil-fired power plants	Promulgated February 2012
WASTE AND WATER	Coal Combustion Waste	Rule on disposal of coal combustion waste, phasing out existing surface storage methods	Expected 2013
	Wastewater Discharge Regulations	More stringent regulation of wastewater discharges from coal, oil, and gas powered units.	Expected April 2014
	Power Plant Cooling Water Intake Structures Rule	More stringent regulation on cooling water intake structures at existing facilities in order to limit harm to fish populations	Expected June 2013
GREENHOUSE GASES	Greenhouse Gas Reporting Rules for New Sectors	Oil and gas facilities must track greenhouse gas (GHG) emissions as part of EPA’s GHG Report Program	Promulgated November and December 2010
	Tailoring Rule	Raised threshold for Best Available Control Technology for power plants emitting large amounts of carbon dioxide	Promulgated June 3, 2010
	New Source Performance Standards	More stringent GHG emission standards for new and modified power plants	Expected 2013
	Performance Standards for Existing Plants	GHG emission standards for existing power plants	Unknown

RFI RESPONSES

Multiple proposals were submitted in response to the RFI that could provide potential solutions in a Reliability Contingency Plan for the Indian Point Energy Center, such as adding additional generation capacity in the Hudson Valley or New York City regions and upgrading transmission into the Hudson Valley or New York City. In total, respondents to the RFI identified over 6,000 MW of generation, including repowering proposals, to be located in the Hudson Valley or New York City regions and 5,700 to 7,600 MW of DC transmission to terminate in the Hudson Valley or New York City. Many of the projects referenced in the previous section under AC transmission upgrades are also applicable. These responses demonstrate that the private sector is positioned to support proposed potential Reliability Contingency Plan for the Indian Point Energy Center. The certainty and timing of construction will be critical components in the Reliability Contingency Plan development. Proposals were submitted by:

- American Electric Power
- Boundless Energy, LLC
- CityGreen Transmission, Inc.
- Clover Leaf Power, LLC
- Cogen Technologies Linden Venture
- Competitive Power Ventures, Inc.
- Cricket Valley Energy Center, LLC
- GenOn Energy, Inc.
- Hydro-Quebec Production
- Iberdrola, USA
- New York Transmission Company (Transco)
- NextEra Energy Resources
- NRG Energy, Inc.
- NYC Energy, LLC
- Pure Energy Infrastructure, LLC
- Taylor Biomass Energy-Montgomery, LLC
- TransCanada Corporation
- Transmission Developer, Inc., Champlain Hudson Power Express Project
- US Power Generating Company (US PowerGen)
- West Point Partners, LLC

energy markets in New York, conducts a Reliability Needs Assessment. This assessment builds on the utilities' individual local transmission system plans and results in a Comprehensive Reliability Plan that relies first on market-based solutions, but also contains regulated avenues to provide solutions with rate recovery if the market solutions do not get implemented in time. The NYISO also examines scenarios that could respond to needs, such as those created by potential retirements of large coal and nuclear plants, but does not solicit solutions for such contingencies.

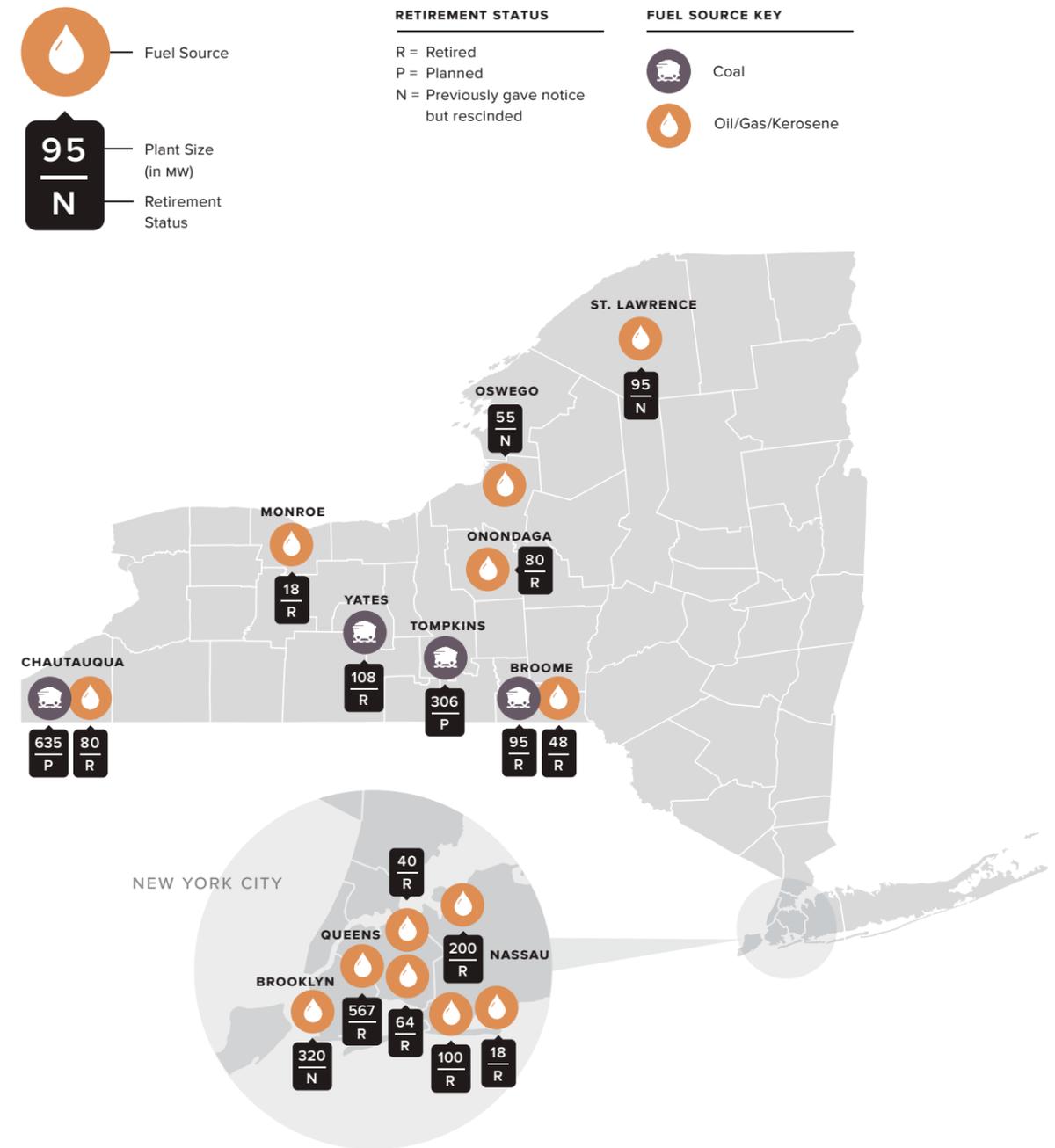
New York has a regulatory process for managing power plant retirements, once the retirement is formally announced, to ensure that system reliability is maintained. The State currently requires a power plant owner to provide six months' notice to system operators of its plans to temporarily cease operations (also referred to as mothballing) or to completely shut down and retire.¹⁶ Both the NYISO and the utility that owns the transmission system surrounding the retiring power plant evaluate whether the pending loss of capacity would result in adverse reliability impacts. Under the existing process, if negative impacts are identified, the local transmission owner proposes investments in its transmission and/or distribution systems to solve the potential problem. In cases where reliability is at risk from the pending retirement, the power plant and utility may negotiate a Reliability Support Services contract, at above-market rates, to keep the power plant operating until the alternate solution is implemented. This contract provides the power plant owner compensation for a limited time to ensure reliability. Though only one instance to date has required a Reliability Support Services contract, executed in August 2012, this situation may arise again in the future, putting consumers at risk for additional costs.

The Energy Highway Task Force recommends that the existing process be enhanced to minimize the potential additional cost burdens on customers and to more proactively prepare for potential critical situations in advance of when power plants provide official notice of plans to retire (see Figure 6 for a map of Recent and Planned Generator Retirements as of September 2012 [Retirements Since 2010]). Dynamic and proactive scenario planning can provide many benefits. For example, preparations for replacement solutions years in advance can minimize the need for Reliability Support Services contracts to safeguard the power system and thus reduce costs to customers. This long-term view will also allow for longer-term alternative solutions, such as repowering of existing generators and construction of new power plants, transmission, or other infrastructure projects that require more than the formal six-month notice period to implement.

16. PSC 2005 Order issued in Case 05-E-0889, Order Adopting Notice Requirements for Generation Unit Retirements (December 20, 2005).

FIGURE 6

Recent and Planned Generator Retirements as of September 2012 (Retirements Since 2010¹⁷)



17. Information adapted from the NYISO's website, using Retirement Notices provided under Planned Generation Retirements section, as well as recent Load & Capacity Data Reports.