

**Presentation by the New York State
Reliability Council on March 10, 2011
“Draft Scope for the 2013 New York
State Energy Plan and Public
Solicitation for Comments”**

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Presentation Topics

- Role and Structure of the New York State Reliability Council (NYSRC)
- Specific Reliability Considerations
- Conclusions
- High Level Summary of NYSRC Comments
- Appendix

New York State Reliability Council



- Launched in May 1999 and approved by FERC as part of the comprehensive restructuring of the competitive wholesale electric market in NY
- The mission of the NYSRC is to promote and preserve the reliability of the New York State power system
- Assist in the maintenance of system reliability through promulgation of reliability standards and monitoring of compliance, and establishment of NYCA installed capacity requirements
- Governed by the Executive Committee and three primary subcommittees

	NYSRC	NYISO
Primary Responsibility	Assist in maintenance of system reliability through promulgation of reliability standards and monitoring of compliance.	Reliable operation of power system and administration of market
Role in ensuring Reliability	Set reliability standards	Under terms of NYSRC/NYISO agreement Responsible for its compliance and compliance of market participants with NYSRC reliability standards

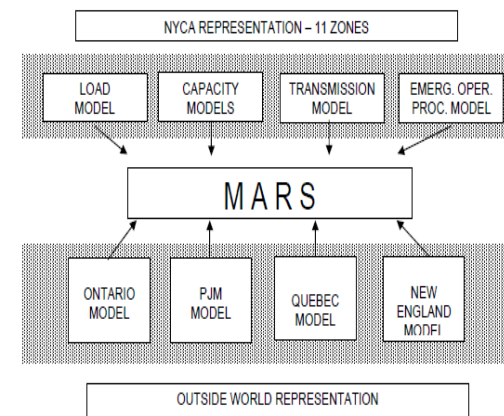
NYSRC Structure

- **13 Member Executive Committee**
 - 6 Transm. Owners
 - 1 Wholesale Seller
 - 1 Large Consumer (Ind./Comm.)
 - 1 Municipal & Coop
 - 4 Unaffiliated
- **Other Stakeholders**
 - NPCC, NYISO, NYPSC, Public
- **Subcommittees/WG**
 - Reliability Rules
 - Reliability Compliance Monitoring
 - Installed Capacity
 - Defensive Strategies Working Group

Installed Reserve Margin Requirements

- In accordance with the NYSRC – NYISO Agreement:
 - the NYSRC determines the annual statewide IRM
 - FERC must approve any changes to IRM
- NYSRC/NPCC Resource Adequacy Criterion:
IRM must meet an annual LOLE of 0.1 days/year for the NYCA
- IRM is the major factor in establishing value of ~\$1 Billion NYCA Capacity Market
- Current NYCA IRM is 15.5%

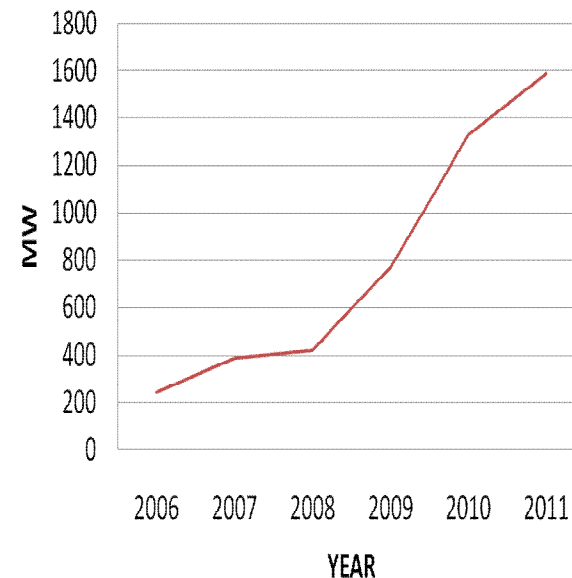
Installed Reserve Margin (IRM) : Annual Statewide installed capacity requirement established by NYSRC to ensure resource adequacy in NYCA.



Impact of Renewable Resources on IRM

- Intermittent Renewable resources such as wind and solar typically have reduced availability during system peak (wind ~10% capacity factor)
- Conventional generation (or some other form of backup generation) still required
- Based on the results of 2011-12 IRM Study consideration of Wind resources impacts NY IRM by appx. 4% due to limited availability during peak load periods

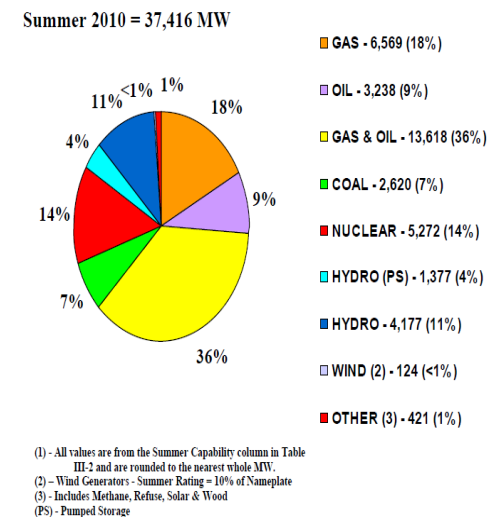
NYCA Wind Capacity



NYSRC Reliability Concerns – Climate Change/Environmental Impacts

- Large scale implementation of intermittent resources with operating characteristics much different than fossil resources
- Impacts of increased load associated with electrification of economy (heating and transport)
 - Plug-in Hybrid Electric Vehicles (PHEV) issues
 - Siting of new T&D facilities
 - Reduced diversification of end user energy sources
- Impact on IRM and Locational Capacity Requirements
- Transition Period – How to phase out significant amount of fossil generation in near term

Figure III-1: 2010 NYCA Capability by Fuel Type



NYCA Capacity Resources

Environmental Initiatives

- Insufficient allowances could pose threat to reliability
- Cumulative impact of environmental regulation on Energy Sector
- Impact on IRM (e.g. High Emission Demand Day)
- Consider “circuit breakers” to permit temporary exemptions from environmental regulations in order to avoid or mitigate a serious threat to reliability
- Minimize NYCA reliability impacts of implementing environmental initiatives

Energy Efficiency

- Need to verify Energy Conservation programs and capacity and energy benefits
- Need for realistic estimates of timing and contributions
- Impact of various technologies (e.g. CFLs)
- Potential impact on IRM and system reliability if programs do not achieve anticipated results

Regulatory and Cost Recovery Mechanisms

- Support for efficient regulatory review and cost recovery mechanisms for transmission upgrades needed to support electric system reliability
- Support for the reinstatement of an efficient generation siting law
- Recognize the potential impact of federal (DOE and NERC) transmission policies on the development and cost of the State's bulk power system
- Encourage future development of new generation resources to ensure adequate future resource capacity

Fuel Diversity

- System reliability
 - Secure energy supplies
 - Dual fuel resources
 - End user energy source diversification
- Maintain generation fuel diversity to avoid overdependence on one type of fuel and to minimize the impact of loss of fuel supply

STARS

- NY Transmission Owners are collaborating on Strategic Transmission and Reliability Study (STARS)
- Scope includes Long Term Reliability and Economic Upgrades to system, Modernization & Aged Infrastructure, and allow renewables to be delivered to areas of high demand
- STARS efforts closely coordinated with NYISO/NYDPS
- Effort may be useful to consider as SEP is drafted

Defensive Strategies

- Important to consider impact of disturbances which originate outside of NYS (e.g. 2003 blackout)
- NYSRC active in exploring feasibility of defensive strategies
 - Controlled Separation
 - Application of Phasor Measurement Technologies
- SEP should consider NYSRC and NPCC studies related to defensive strategies as policies drafted
- Protect NYCA reliability from the impacts of system disturbances in regions outside NYS

Fuel Mix Considerations

- Natural gas - Consider the relationship between the requirements to curtail the use of natural gas and the environmental constraints placed on generators in NYC and LI during peak periods
- Petroleum - Importance of adequate petroleum storage facilities for the period during which petroleum will remain an important source of electricity generation
- Coal - Potential impact on reliability of the retirement of coal-fired plants due to environmental regulations
 - the importance of considering the cumulative impact of the various environmental regulations that affect electricity generators.
 - Impediments to using carbon sequestration due to siting and cost implications
- Nuclear – Importance of understanding the potential impact of the retirement of nuclear generation facilities on reliability
 - IRM and transmission voltage support
 - Nuclear to continue as significant part of resource mix
 - Incorporate lessons learned from Japanese experience

Conclusions

- Take into account potential reliability considerations when making recommendations
- Consider attributes of new technologies such as their availability and impact on reliability
- Potential exists for environmental initiatives to have an adverse impact on the reliability of the NY Power System
- Consider the potential cumulative effect of environmental initiatives on the electric power system and monitor/minimize their adverse reliability impacts over time
- Make recommendations flexible to accommodate changes as we learn more about the impacts on reliability from research and implementation and to provide for the ability to make revisions to the Plan if necessary to protect electric system reliability
- Continue to monitor relevant reliability studies
- SEP Board should consult regularly with the NYISO and the NYSRC in order to monitor the impacts of the Plan on electric system reliability and the competitive wholesale market

High Level Summary of NYSRC Comments

SEP SCOPING AREA	NYSRC COMMENTS RELATED TO
Topic Area II – Meeting the States Energy Needs and Goals with Energy Efficiency and Renewable Resources	Importance of Verification Possible Reliability Impact of Renewable Resources Possible Reliability Impact of Environmental Initiatives
Topic Area III- Meeting the state Energy Needs and Goals for Electricity	NY STARS Effort Importance of Defensive Strategies Importance of Diversification and Reliability Importance of Efficient Cost Recovery Possible Reliability Impact of Renewable Resources Possible Reliability Impact of Environmental Initiatives
Topic Area IV – Meeting the State’s Energy Needs and Goals by Fuel Type	Possible Reliability Impact related to Fuel Mix Policies
Topic VI – Climate Change and Environmental Impacts	Possible Reliability Impact of Renewable Resources Possible Reliability Impact of Environmental Initiatives Possible Reliability Impact related to Fuel Mix Policies Possible Reliability Impact of PHEV
Topic VII – Investing in Resilient Energy Infrastructure and Efficient Transportation System and Smart Grid	Importance of Reliability Standards Importance of Efficient Cost Recovery Possible Reliability Impact of PHEV Importance of Defensive Strategies

Appendix
Detailed Comments
by SEP Topic Area

TOPIC AREA II - Meeting the State’s Energy Needs and Goals with Energy Efficiency and Renewable Resources

SEP SCOPE AREA	NYSRC COMMENTS
<p><u>Energy Efficiency</u> “Assess the impacts and effectiveness of existing energy efficiency initiatives”</p>	<ul style="list-style-type: none"> – Importance of verification of energy conservation programs to ensure they are providing the expected energy and capacity benefits – Potential impact on reliability and IRM if energy conservation programs do not achieve the anticipated results
<p><u>Renewable Resources</u> “Assess the existing and potential use of renewable energy resources, including grid-level electricity generation (off shore and on shore... for meeting needs in the electricity...sectors.)” “Discuss methodologies and metrics used to assess the costs and benefits of renewable resources. Assess transmission needs and approaches for balancing intermittency.”</p>	<ul style="list-style-type: none"> – NYSRC notes Integrating large quantities of variable generation on bulk power system poses operational and planning challenges due to intermittency and need for backup ge

TOPIC AREA III. - Meeting the State’s Energy Needs and Goals for Electricity

SEP SCOPING AREA	NYSRC COMMENTS
<p>“Assess generation, transmission and distribution infrastructure, options to modernizing aging infrastructure, and impacts of siting new infrastructure.”</p>	<p>– NYSRC notes NY Transmission Owners are collaborating on Strategic Transmission and Reliability Study (STARS) effort which could be considered as policies drafted.</p>
<p>“Analyze the effects on the reliability of the electric power grid as it adapts to changing needs, technologies, markets and policies.”</p>	<p>– NYSRC notes importance of considering the potential impact of system disturbances that originate outside the state; The NYSRC’s Defensive Strategies initiative is exploring feasibility of defensive strategies .</p>
<p>“Discuss fuel diversity, development of alternative energy resources, and system upgrades.”</p>	<p>–NYSRC notes relationship between fuel diversity and system reliability in particularly secure energy supplies and dual fuel resources.</p>
<p>“Assess regulatory and cost recovery mechanisms for meeting transmission upgrade needs.”</p>	<p>–The importance of efficient regulatory review and cost recovery mechanisms for transmission upgrades needed to support electric system reliability.</p>
<p>“Assess infrastructure needs, costs, and impacts associated with potential development of plug-in electric vehicles, energy storage, and smart grid initiatives.”</p>	<p>–NYSRC notes implications of plug-in vehicles for electric system operations and planning; the need to consider the relationship between substantial increase in electricity production and environmental requirements placed on electric generators; the importance of recharging plug-ins during off-peak hours; the potential reliability benefits from smart grid initiatives.</p>

TOPIC AREA IV - Meeting the State’s Energy Needs and Goals by Fuel Type

SEP SCOPING AREA	NYSRC COMMENTS
<p><u>Natural Gas</u> “Address system reliability needs. Assess natural gas supply sources, including U.S., New York (Marcellus Shale and other geologic formations), and Canadian, as well as reliability, price, economic and environmental impacts of production of natural gas from these sources. Discuss the inter-dependency of the electricity and natural gas systems. Discuss New York’s natural gas infrastructure.”</p>	<p>– NYSRC notes importance of natural gas as a fuel source for electricity; the need to curtail the use of natural gas in generators in NYC and LI during peak periods; the relationship between the need to curtail gas use during peak periods and the environmental constraints placed in generators; loss of major gas facility on electric generation “I-R3 and I-R5 rules for NYC and Long Island”</p>
<p><u>Petroleum</u> “Assess the adequacy and security of the current infrastructure and the impacts of future expansion and the impacts of potential expansion.”</p>	<p>– NYSRC notes importance of adequate petroleum storage facilities for the period during which petroleum will remain an important source of electricity generation and relied upon for electric system reliability.</p>
<p><u>Coal</u> “Examine issues related to existing coal-fired generation, emerging trends, and alternatives to conventional coal generation, including the use of advanced coal technologies, and the potential use of carbon capture and sequestration.”</p>	<p>– NYSRC concerned about potential impact on reliability of the retirement of coal-fired plants due to environmental regulations; the importance of considering the cumulative impact of the various environmental regulations that affect electricity generators. Ability of using carbon sequestration due to siting and cost implications.</p>
<p><u>Nuclear</u> “Assess the contribution of the existing nuclear fleet in meeting New York’s energy requirements, including plant characteristics, reliability, operation and maintenance and the impact of electricity markets on operation and economics of nuclear plants.”</p>	<p>– NYSRC notes importance of understanding the potential impact of the retirement of nuclear generation facilities; the NYSRC study of the impacts of the retirement of the Indian Point plants on reliability and the IRM. Add reliability need to continue nuclear as a significant part of the NYS resource mix, but recognizing need to incorporate lessons learned from Japanese nuclear disaster.</p>

TOPIC AREA VI - Climate Change and Environmental Impacts

SEP SCOPING AREA	NYSRC COMMENTS
<p><u>Climate Change</u> - “Discuss existing and proposed policies, including potential impacts on New York”</p>	<p>– NYSRC notes the need for adequate allowances for New York generators; the requirement for unprecedented changes in the power supply mix; the potential impact on reliability of dramatic increases in alternative energy sources; the impact of substantial increases in generation on transmission and distribution facilities; the need for an adequate transition period.</p>
<p><u>Environmental Impacts</u> “Assess the impacts of energy production on criteria on emissions ...; as well as the impacts of proposed environmental policies on the energy sector.</p>	<p>– NYSRC notes need for adequate and affordable allowances for New York generators importance of considering the cumulative impacts of environmental regulations on the energy sector; consider “circuit breakers” to permit temporary exemptions from environmental regulations in order to avoid or mitigate a serious threat to reliability. Address impact on industry and job migration due to higher costs and ability of regulatory compliance.</p>

TOPIC AREA VII. - Investing in Resilient Energy Infrastructure and Efficient Transportation System, and Smart Growth

SEP SCOPING AREA	NYSRC COMMENTS
<p>“Discuss the importance of maintaining the reliability and resiliency of the State’s energy systems (to be included within the topic areas for electricity and individual fuels.)”</p>	<p>– NYSRC notes importance of reliability standards in the operation and planning of the State’s bulk power system, and the important role of the NYSRC in establishing and monitoring the compliance with reliability standards.</p>
<p>Assess issues and potential impacts associated with infrastructure siting, cost recovery mechanisms and regulations, federal bulk transmission policy, and technology advancement.</p>	<p>– NYSRC notes importance of supporting efficient cost recovery mechanisms for needed upgrades on the bulk power and local transmission systems; support for the reinstatement of an efficient generation siting law; recognize the potential impact of federal (DOE and NERC) transmission policies on the development and cost of the State’s bulk power system; recognize the importance of utilizing new technology to protect electric system reliability.</p>
<p>Transportation “Discuss the effect of increased electrification of the transportation system...on electricity demand and supply.”</p>	<p>– NYSRC notes implications of plug-in vehicles for electric system operations and planning; the need to consider the relationship between substantial increase in electricity production and environmental requirements placed on electric generators; the importance of recharging plug-ins during off-peak hours; the potential reliability benefits from smart grid initiatives. Source of fuel: Avoid replacement of one fossil with another, need to ensure diversity of supply</p>
<p>Resiliency, Security, and Emergency Planning “Review the impacts of natural, technological, and human threats to the State’s energy systems, fuel supplies, and generating modes, and the need for the State to invest in resiliency of its energy and transportation systems. “Explore developing robust contingency plans (e.g., emergency preparedness and redundancy planning), enabling proactive response to disruptions while maintaining critical operations. Discuss counter-terrorism, emergency management and communications, cyber security, and fire prevention efforts to prepare New York for emergencies and to maintain the reliability of the state’s energy systems.”</p>	<p>– NYSRC notes importance of supporting the NYSRC’s Defensive Strategies initiative, and the importance of bulk power reliability standards to prevent and address system interruption</p>