

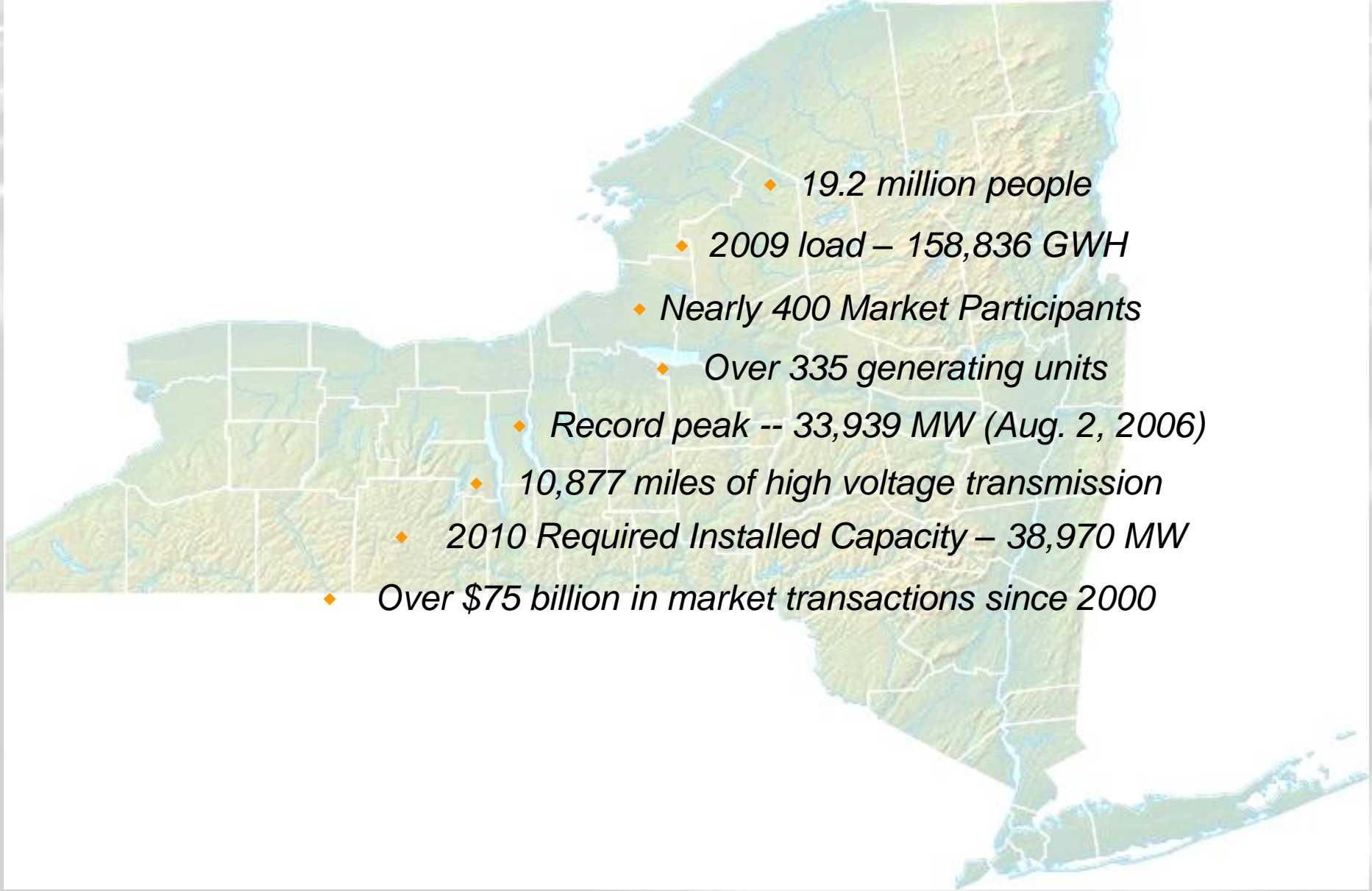


# **Strategic Plan & Market Overview**

**Rana Mukerji**  
*Senior Vice President – Market Structures*

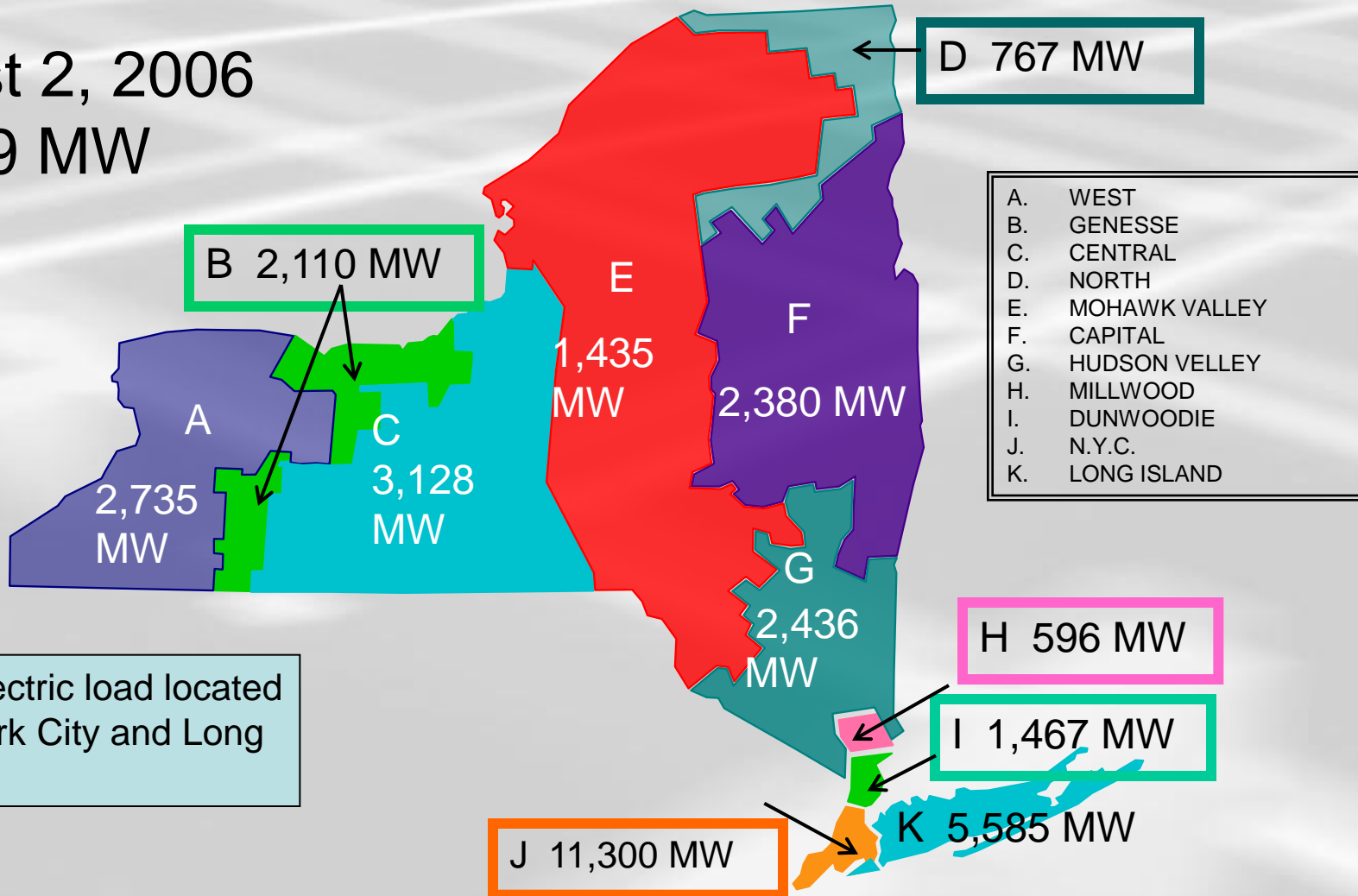
*Consumer Advisory Council Webinar  
October 14, 2011*

# NY Facts And Figures

- 
- ◆ 19.2 million people
  - ◆ 2009 load – 158,836 GWH
  - ◆ Nearly 400 Market Participants
  - ◆ Over 335 generating units
  - ◆ Record peak -- 33,939 MW (Aug. 2, 2006)
  - ◆ 10,877 miles of high voltage transmission
  - ◆ 2010 Required Installed Capacity – 38,970 MW
  - ◆ Over \$75 billion in market transactions since 2000

# NY Load Profile by Zones

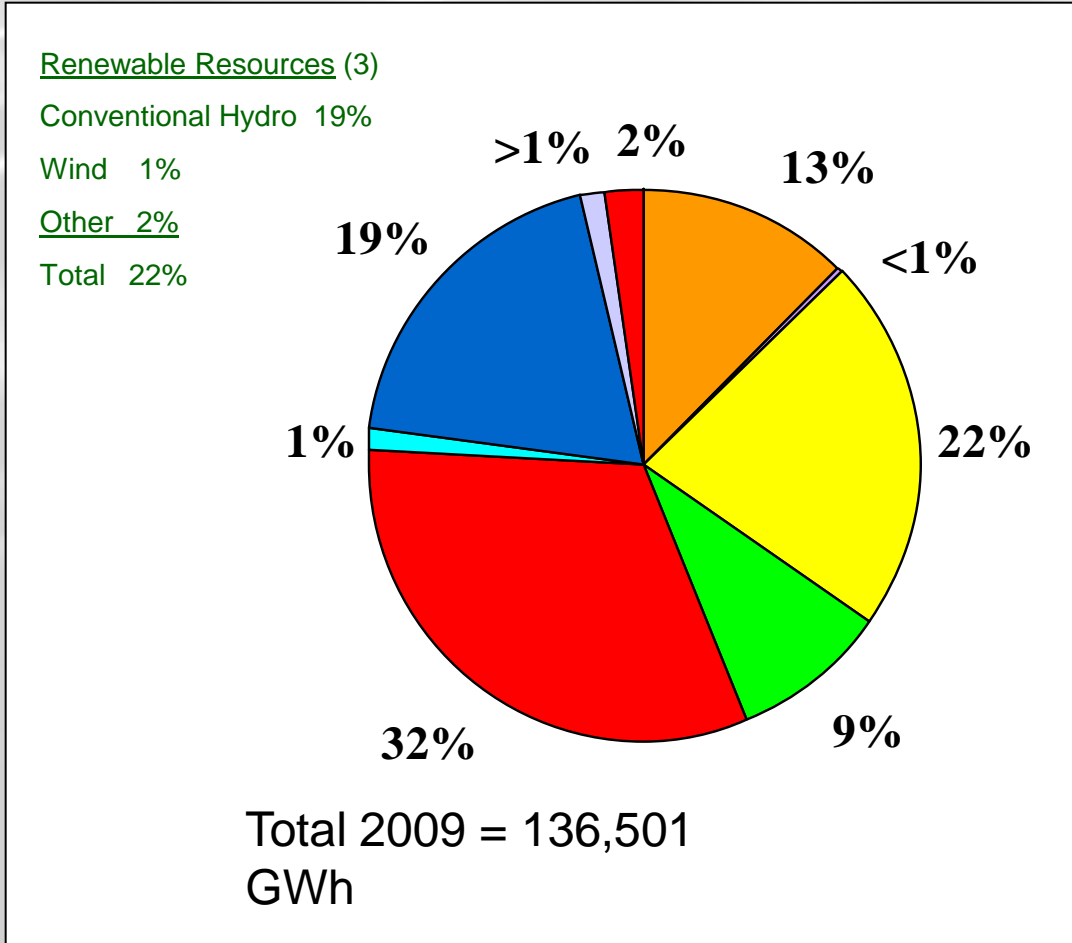
August 2, 2006  
33,939 MW



# Energy by Fuel Type

GWh (1)

- GAS - 17,126 (13%)
- OIL - 195 (<1%)
- GAS & OIL - 30,133 (22%)
- COAL - 12,618 (9%)
- NUCLEAR - 43,487 (32%)
- HYDRO (PS) - 1,525 (1%)
- HYDRO - 26,420 (19%)
- WIND - 2108 (>1%)
- OTHER (2) - 2,888 (2%)



Renewable Resources (3)

Conventional Hydro 19%

Wind 1%

Other 2%

Total 22%

(1) - All values are rounded to the nearest whole GWh.

(2) - Includes Methane, Refuse, Solar & Wood

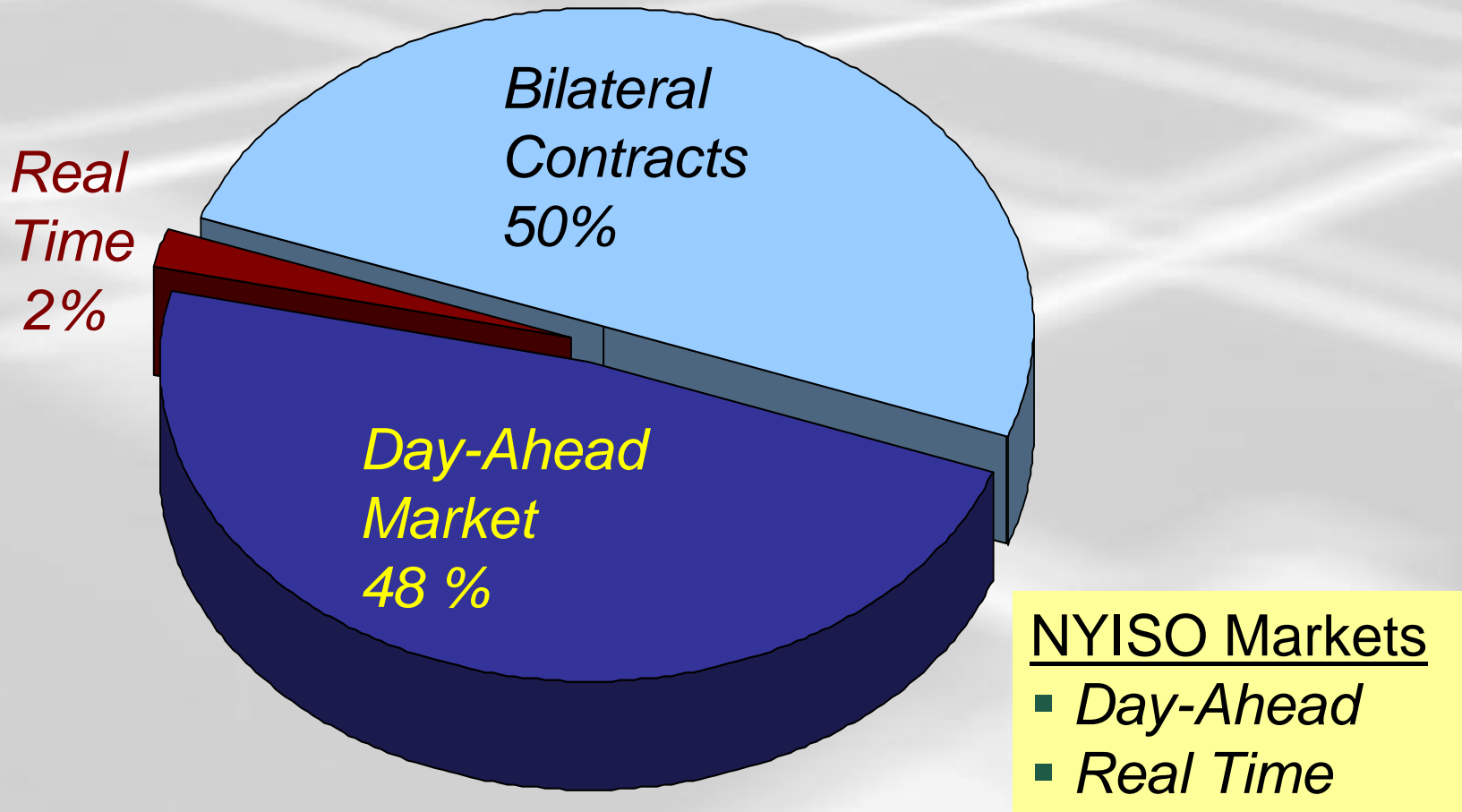
(3) - Renewable Resources do not necessarily match the NYS Renewable Portfolio Standard (RPS) Definition

(PS) - Pumped Storage

# Day-Ahead and Real- Time Markets



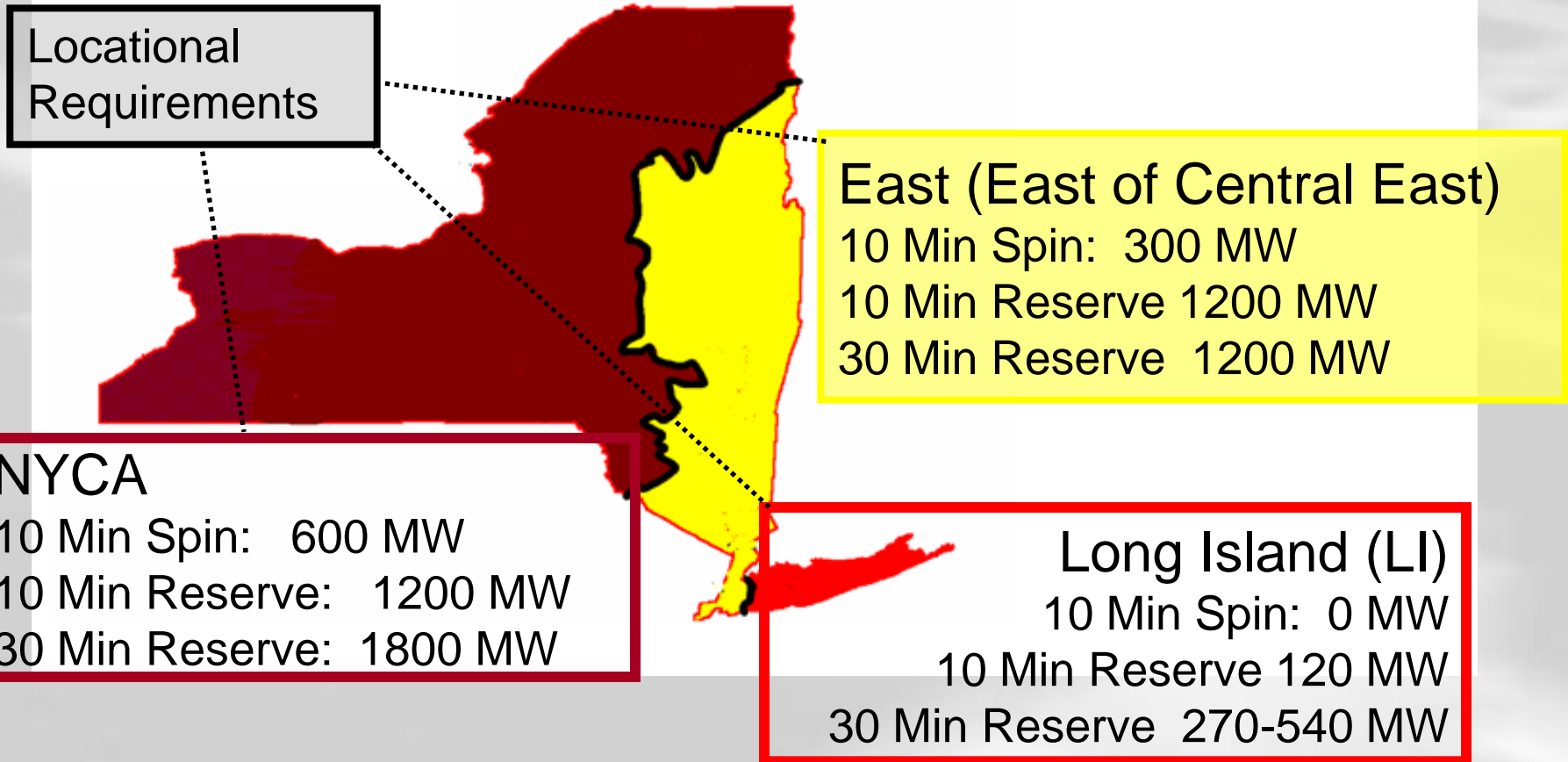
# NY's Wholesale Electricity Markets



# Operating Reserve

*Ensuring Backup Generation is Available*

*Reserve Offers are placed in DAM and RT*



# **Guiding Principles**

- ◆ **Continually strive to enable market and reliability requirements to complement each other**
- ◆ **Provide a market environment that attracts investment in energy infrastructure**
- ◆ **Institutionalize Excellence in Execution**
- ◆ **Maintain independence and objectivity on issues which affect our market**
- ◆ **Seek innovative solutions while strictly adhering to existing laws, regulation and tariff requirements**
- ◆ **Foster regulatory certainty and market transparency**



# NYISO Markets

## *A showcase in advanced market design*

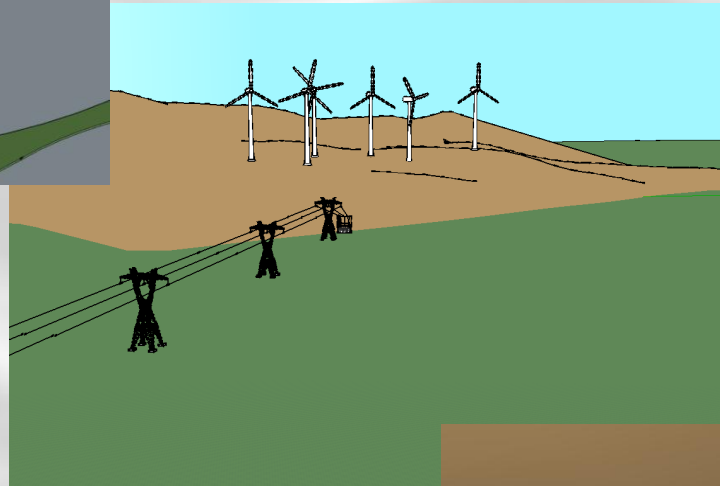
- ◆ Full two-settlement LBMP market for Energy and Reserves
- ◆ Co-optimization of Energy, Operating Reserves and Regulation
  - Bid Based Security-Constrained Economic Dispatch (SCED) and Commitment (SCUC)
  - Scarcity pricing for operating reserves
  - Bid Production Cost Guarantees (Uplift)
  - Virtual Bidding
  - Demand Side Participation
  - Economic dispatch of wind
- ◆ Transmission Congestion Contracts (TCC)
- ◆ Installed Capacity Markets (ICAP)
- ◆ Market Power Mitigation
  - Conduct/ Impact tests and Automated Mitigation Procedure

# ***Strategic Planning***



# NYISO Vision

*Broader Regional Markets*



*Expanded  
Interregional Planning*

*Smart Grid Future*



# Core Values

- ◆ **Accountability**
  - *Taking responsibility to do what needs to be done*
- ◆ **Quality**
  - *Commitment to excellence in all our processes, systems and products*
- ◆ **Integrity**
  - *Commitment to honest and ethical actions*
- ◆ **Team Work**
  - *Working together, succeeding together, respecting each other*
- ◆ **Customer Focus**
  - *Listening, caring, delivering*
- ◆ **Innovation**
  - *Pursuing creative and sound solutions*
- ◆ **Enthusiasm**
  - *Having a passion for our work and our interaction with our customers, stakeholders and policy makers*

# NYISO Mission

The mission of the New York Independent System Operator, in collaboration with its stakeholders, is to serve the public interest and provide benefit to consumers by:

- ◆ *Maintaining and enhancing regional reliability*
- ◆ *Operating open, fair and competitive wholesale electricity markets*
- ◆ *Planning the power system for the future*
- ◆ *Providing factual information to policy makers, stakeholders and investors in the power system*

# **Strategic Objectives**

- ◆ **A Leader in Reliability**
- ◆ **A Leader in Market Design**
- ◆ **Authoritative Source of Information on Key Issues**
- ◆ **Excellence in Execution**
- ◆ **Sustain and Enhance Robust Planning Processes**
- ◆ **Leader in Technology Innovation**

# Key Initiatives to Meet Strategic Objectives

## A Leader in Reliability

- *Enhance NYISO operations and planning with expanded dependency on natural gas-fired generation while incorporating significant quantities of renewable generation, and retirements of older less efficient fossil-fired generation in NYS and in neighboring systems*
- *Review and enhance NYISO system restoration plan (black start program)*
- *Enhance system visualization capability*
- *Implement new primary and alternate control centers*

# Key Initiatives to Meet Strategic Objectives

## A Leader in Market Design

- *Implement Broader Regional Markets initiatives (see Appendix)*
- *Enhance capacity markets by implementing new capacity zones in NYS and reviewing the benefits of broader forward capacity markets*
- *Increase the growth and effectiveness of Demand Response resources including enhanced aggregation capability, direct communication capability as well as development of a real time market for demand response*
- *Enhancements to scarcity pricing and transmission congestion contract (TCC) markets*



# **Key Initiatives to Meet Strategic Objectives**

- *Continue to support new initiatives in System Planning, including the EIPC, the NYS Energy Planning Board, and the study of transmission upgrades as potential solutions to power system problems projected in NY*
- *Conduct stakeholder outreach activities in leadership forums, national and international conferences as well as professional and standard setting groups*
- *Provide NYISO independent analysis to Market Participants, state or federal agencies, and standard setting entities*
- *Enhanced transparency and consideration of consumer impacts in NYISO initiatives*

# Key Initiatives to Meet Strategic Objectives

## Excellence in Execution

- *Enhance and develop practices to attract, retain, motivate and lead the talented workforce that is required to implement strategic objectives and initiatives*
- *Continue to implement “best practices” in NYISO business operations*
- *Continue projects to reinforce/enhance cyber security protocols and best practices*

# Key Initiatives to Meet Strategic Objectives

## Robust Planning Processes

- *Strengthen planning capabilities to effectively implement NYISO's Comprehensive Reliability Planning Process (CRPP) and Economic Planning (CARIS) Process*
- **Perform Transmission Assessment Studies for Future Reliability and System Resiliency**
- *Comply with FERC Order 1000 in collaboration with stakeholders and neighboring regions to enhance NYISO's existing planning processes, including the addition of inter-regional cost allocation methodologies.*
- *Continue to support new initiatives in System Planning, including the EIPC, the NYS Energy Planning Board, and the study of transmission upgrades as potential solutions to power system problems projected in NY*

# Timeline of Major NYISO Initiatives

1999	2001	2002	2003	2004	2005
SMD 1 (Day Ahead Market, Real Time Market, Installed Capacity Market, Transmission Congestion Contracts, Special Case Resources)	Emergency Demand Response	Automated Mitigation Procedure	Capacity demand curve added to spot auction		SMD 2 (Advanced Modeling of Real Time Market)
	Day Ahead Demand Response		Scarcity Pricing Introduced	Comprehensive Reliability Planning Process (CRPP)	Reliability Needs Assessment added to CRPP
	Virtual Bidding Introduced				Scarcity Pricing for Reserves
2006	2007	2008	2009	2010	2011
Excellence in Execution	Enhanced Billing and Pricing	Demand Response for Ancillary Services	Broader Regional Markets (BRM) Initiated	Limited Energy Storage Devices provide regulation services	Smart Grid Initiative
	Six Sigma	Data Center Visualization		Strategic Tariff Review	Broader Regional Markets implemented at HQ interface
	Process Mapping		Capacity Market Mitigation Introduced	Wind on Dispatch	Economic Planning (CARIS)
				Eastern Interconnection Planning Collaborative (EIPC)	New Data Center

# Timeline of Major NYISO Initiatives

2012	2013	2014	2015	2016
PJM 15-min Scheduling	Northeast 15-min Scheduling	New Lower Hudson Valley Capacity Zone Implemented	HQ 15-min Scheduling	Broader Regional Markets Ancillary Services
PJM Market-to-Market	New Control Center	Disaggregated Virtual Resources	Northeast Market-to-Market	Buy-Through Congestion
Enhanced Day Ahead Demand Response	Real Time Demand Response	Improved Demand Response Communications	PJM CTS	
New Lower Hudson Valley Capacity Zone approved by FERC for next Demand Curve Reset Cycle	Enhancements to Scarcity Pricing	Ranger Optimization	Implement Forward Capacity Market	
Eastern Interconnection Planning Collaborative (EIPC) Phase II Completed and Organization Permanently Established	FERC 1000 Implemented	Multi-Duration TCC Auctions	Enterprise-Wide Resource Planning System	
Improved Gas/Electric Coordination	Grid Visualization	Gas Pipeline Visualization		
STARS Projects Submitted to NYSPSC	DOE Smart Grid Investment Grant Completed	Consumer Advisory Council Recommendations		
Forward Capacity Markets Report Recommendations	Project Management Platform			
Black Start Program Review	Enhanced Market Design for Storage			



NEW YORK INDEPENDENT SYSTEM OPERATOR

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

**[www.nyiso.com](http://www.nyiso.com)**