Planning the Sustainable Grid of the Future

Reliable, Cleaner, Greener, Smarter

A symposium hosted by the
New York Independent System Operator

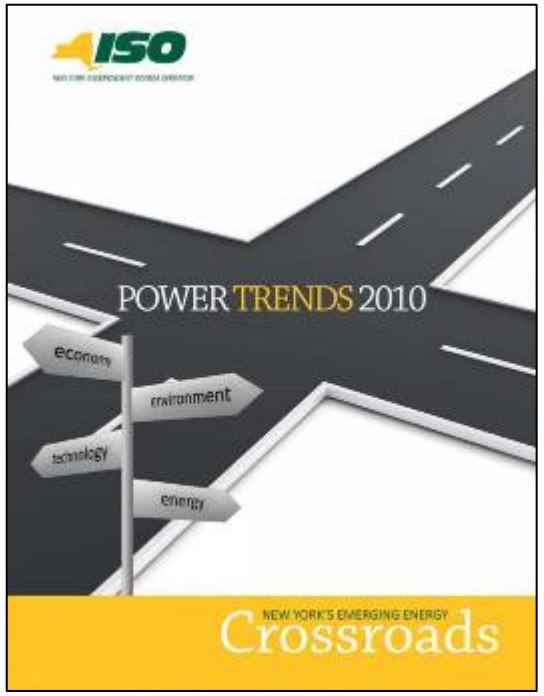
Desmond Hotel & Conference Center
Albany, New York
April 27, 2010

Opening Remarks

Stephen G. Whitley
President & CEO
New York Independent System Operator

Power Trends

- **Factors expected to influence our energy outlook:**
  - ✓ ***Pace of economic recovery***
  - ✓ ***Energy efficiency policies***
  - ✓ ***Renewable power standards***
  - ✓ ***Environmental requirements***

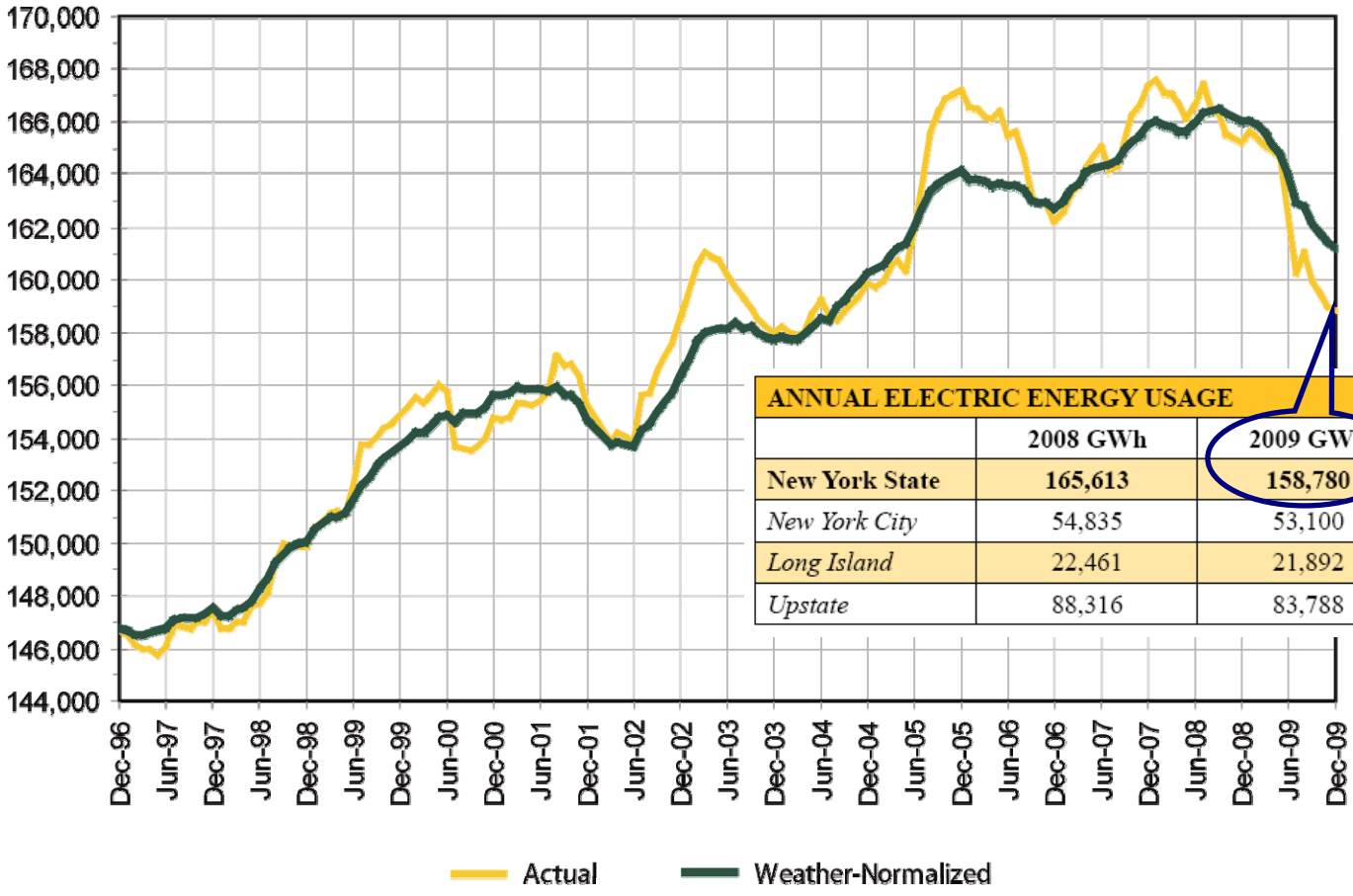


Demand & the Recession

- **Nationwide, demand for electricity dropped 4.2% in 2009 – the biggest single-year decline in sixty years**
- **The first time electricity demand has fallen in consecutive years since 1949**

New York State Electric Energy Trends

1996 to 2009 - 12 Month Moving Sum of Electricity Consumption



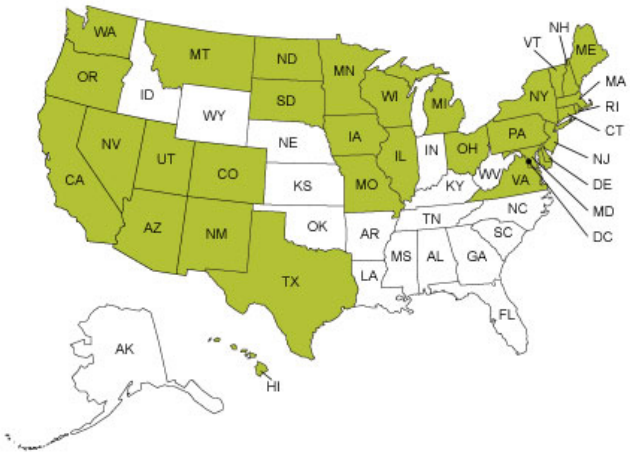
ANNUAL ELECTRIC ENERGY USAGE			
	2008 GWh	2009 GWh	Change percent
New York State	**165,613**	**158,780**	**-4.1**
New York City	54,835	53,100	-3.2
Long Island	22,461	21,892	-2.5
Upstate	88,316	83,788	-5.1

Energy Efficiency Policies

- **By the end of 2009, twenty-three states had adopted energy efficiency resource standards**
- **Proposals are pending in four states and two states have non-binding energy efficiency goals**
- **New York's Energy Efficiency Portfolio Standard -- 15% reduction of demand from forecast levels by 2015**

Renewable Power Standards

- **Twenty-nine states have adopted renewable portfolio standards**
- **Five additional states have renewable power goals**
- **NYS RPS-- 30% renewable electricity supply by 2015**



Source: U.S. Department of Energy, Energy Efficiency and Renewable Energy, November 2009.

Environmental Requirements

- **Carbon controls**
- **Nitrogen oxide emissions limitations**
- **Ozone standards**
- **Water quality protections**

Past Challenges Met

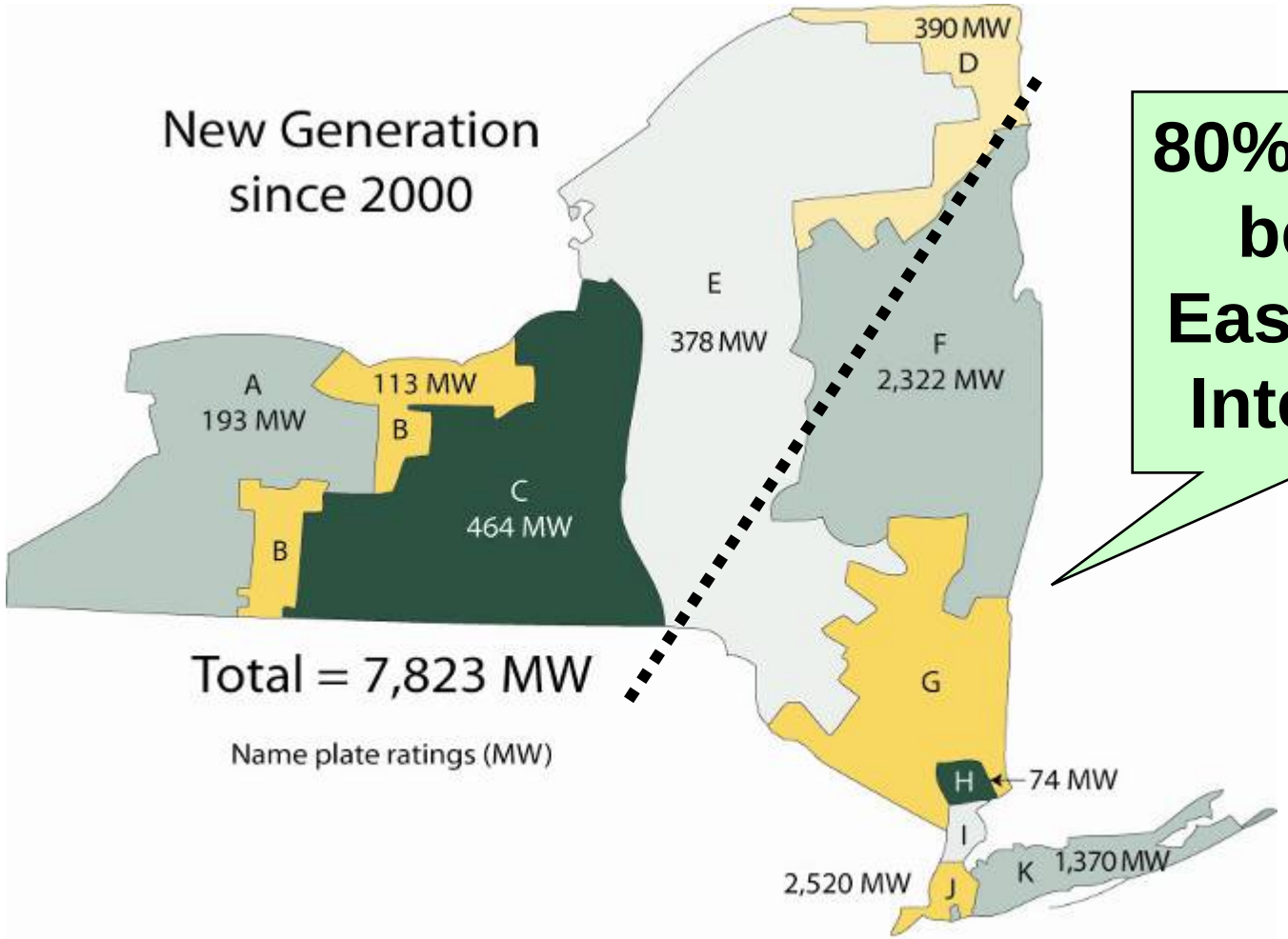
- **In 2001, the NYISO warned:**

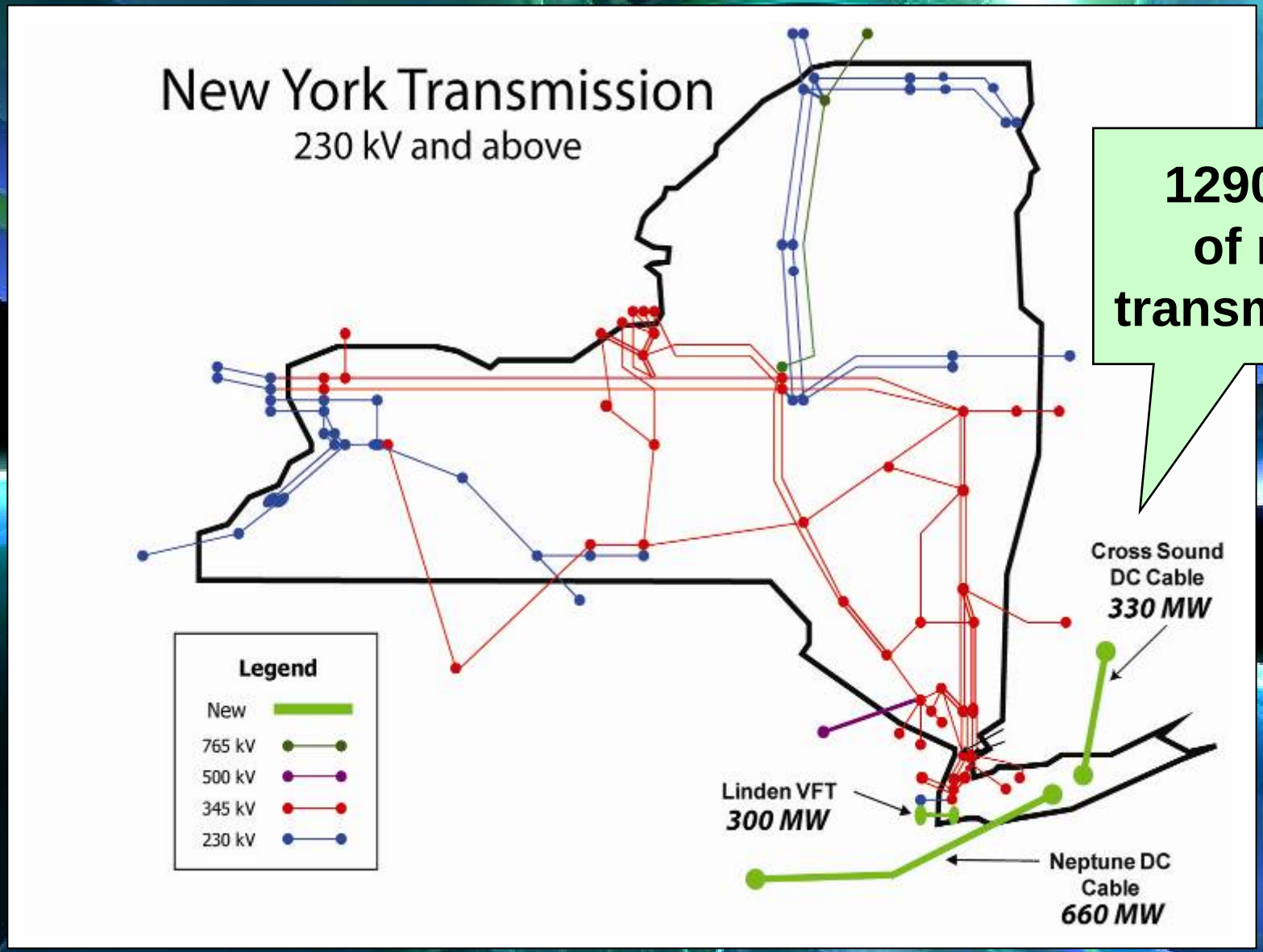
  "New York faces a growing disparity between electricity demand and in-State supply… With no major new generating plants in downstate New York fully approved for construction at this juncture, this gap will continue to widen…"

- **Today, resources are expected to continue to exceed demand through the next decade.**

Positive Trends

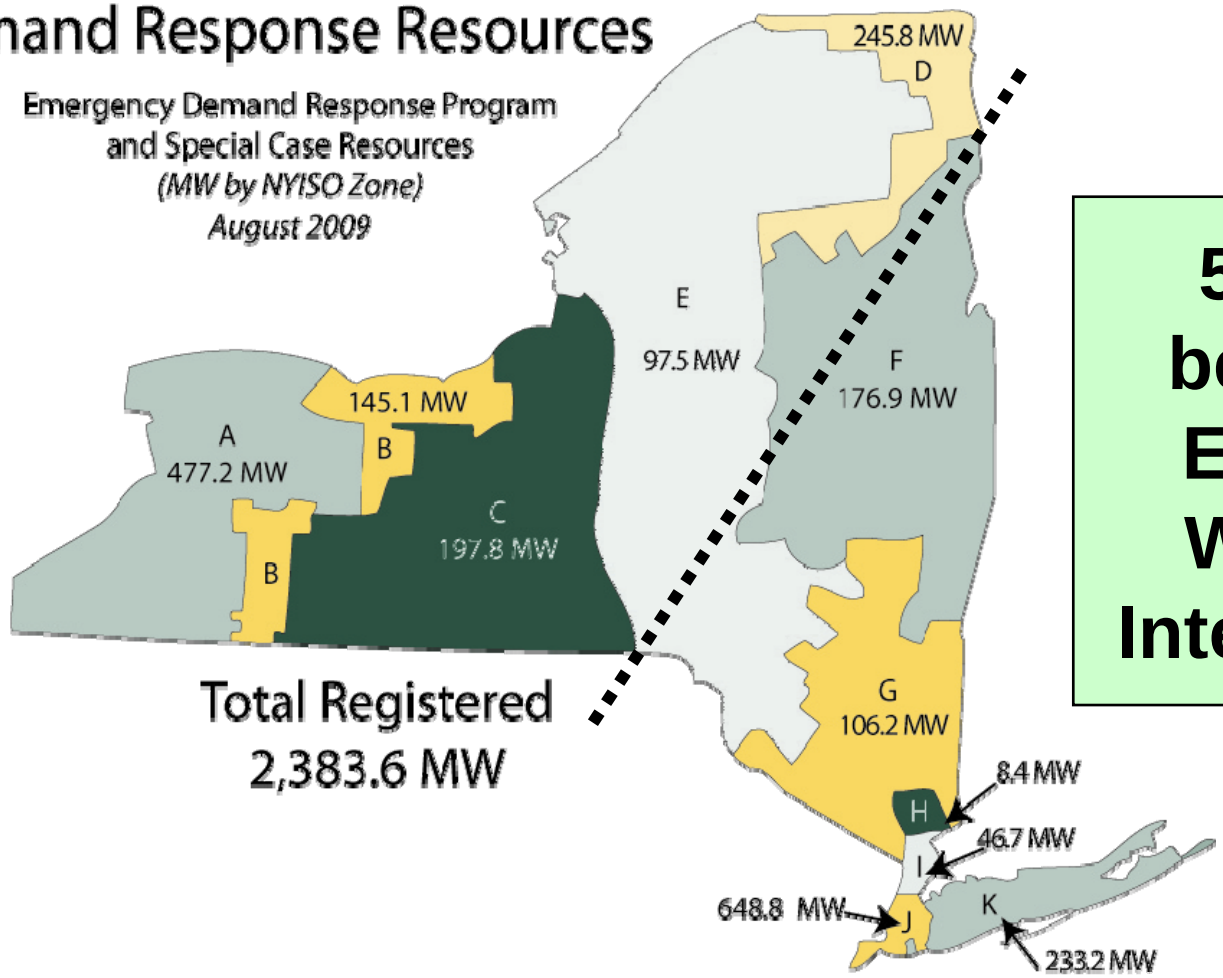
- **Since 2000, New York has added**
  - ✓ *Over **7,800 MW** of new **generation***
  - ✓ *Nearly **1,300 MW** of new **transmission***
  - ✓ *Nearly **2,400 MW** of **demand response***


New Generation
since 2000
390 MW
D
E
378 MW
F
2,322 MW
A
193 MW
113 MW
B
B
C
464 MW
Total = 7,823 MW
Name plate ratings (MW)
G
H
74 MW
I
2,520 MW
J
K
1,370 MW
80% added below East-West Interface


New York Transmission
230 kV and above
1290 MW of new transmission
Cross Sound DC Cable
330 MW
Linden VFT
300 MW
Neptune DC Cable
660 MW
Legend
New
765 kV
500 kV
345 kV
230 kV

Demand Response Resources

Emergency Demand Response Program
and Special Case Resources
(MW by NYISO Zone)
August 2009



Total Registered
2,383.6 MW

50% below East-West Interface

A Greener Grid

- **Integrating variable, renewable resources**
  - ✓ ***Innovative technology***
    - **Smart grid**
    - **Energy storage**
  - ✓ ***Progressive collaboration***
    - **Mending seams – Broader Regional Markets**
    - **Enhanced interregional planning - EIPC**

A Sustainable Recovery

- **Energy Efficiency Policies and Programs -- Moderate Growth**
- **Focus on Renewable Energy Resources**
- **Technological Advances -- Smarter Grid**
- **Expanded Regional Collaboration -- Markets and Planning**

Today's Agenda

- **Panels to discuss:**
  - ✓ ***Grids without Walls – Broader Regional Markets***
  - ✓ ***The Carbon Constrained Economy***
  - ✓ ***Transmission Planning in the U.S. - The Eastern Interconnection Planning Collaborative and the Value of Enhanced Interregional Planning***

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