



INSTITUTE FOR SUSTAINABLE ENERGY

Collaborative Joint Task Force and Working Group Meeting

Paul A. DeCotis
Director, Energy Analysis
NYSERDA

October 17, 2002



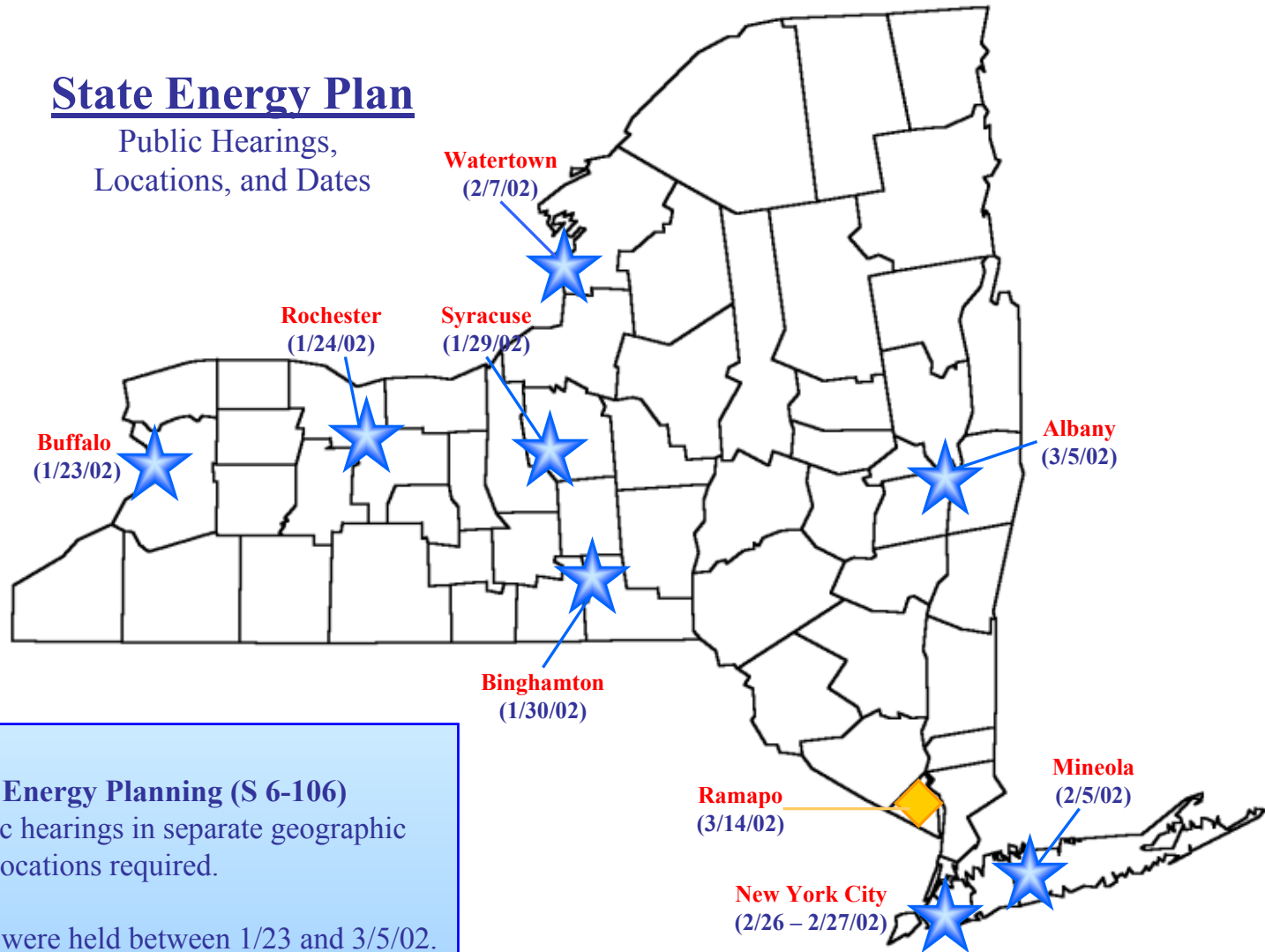
2002 State Energy Plan

- Energy Planning Proceeding
 - Statutory requirements
 - Pre-draft plan (24 outreach meetings held; 47 sets of written comments received)
 - Input from Governor's Greenhouse Gas Task Force
 - Post-draft plan (171 persons presenting testimony; 740 sets of written comment)

Outreach on Draft Plan (Hearings)

State Energy Plan

Public Hearings,
Locations, and Dates



Article 6: Energy Planning (S 6-106)

At least 3 public hearings in separate geographic locations required.

- 9 Public hearings were held between 1/23 and 3/5/02.
- 8 geographic locations (two in New York City)
- 1 “People’s Energy Forum” in Ramapo, NY 3/14/02.

Issues Raised in Public Comments

- Protect and maintain energy infrastructure and security
- Implement a renewable portfolio standard
- Close all nuclear power plants, particularly Indian Point
- Support renewal of Power Plant Siting Law and Energy Planning Law
- Extend and increase Public Benefits program

Issues Raised, *Continued*

- Establish goals (and or targets for improving energy efficiency; use of renewable energy; and reduction of greenhouse gas emissions)
- Support distributed generation
- Support significantly more electricity generation

Major Findings Summary

- Demand forecasts (all fuels) - increasing
- Supply availability - more resources needed
- Energy use diversity - could improve
- Energy prices – high relative to national and regional averages
- Energy security - a remaining concern
- Energy systems infrastructures - need to maintain and improve
- Environment - continuing to improve and more can be done

Energy Planning Process

5 Policy Objectives

- **Support** safe, secure, and reliable operation of State's energy and transportation infrastructures
- **Stimulate** sustainable economic growth, spur technological innovation and job growth, through market forces
- **Increase** energy diversity in the State's economy
- **Promote** and achieve a cleaner and healthier environment
- **Ensure** fairness, equity, and consumer protection in competitive market

Policy Recommendations

- **21 Major Policy Recommendations:**
 - Diversify the State's energy mix (alternative fuels and resource competition, including establishing a bio-fuels industry)
 - Greater investments in energy efficiency (25% reduction below 1990 primary energy use/unit of Gross State Product by 2010)
 - Renewable energy (increase share of renewable energy 50% from 10% of primary energy use to 15% by 2020)
 - Support the continued operation of existing electricity generation
 - Become a national leader in distributed generation R&D and use
 - Maintain electric and gas system safety and reliability
 - Re-authorize Article X (PSL) and Article 6 (Energy Law)

Policy Recommendations, *Continued*

- Reduce greenhouse gas emissions (5% below 1990 levels by 2010 and 10% below 1990 levels by 2020)
- Study the security of the State's energy infrastructures
- Reduce traffic congestion and delays, with an eye on reducing adverse environmental impacts
 - Enhanced public transit
 - Improved transportation systems management, including intelligent transportation systems
 - Capital improvements

Energy Infrastructure Issues

- Adequacy of electricity generation (peak and energy)
 - Regional issues (upstate versus downstate)
- Substitution of (competition between) new transmission resources and new generation
- Adequacy of natural gas and petroleum infrastructures to meet electricity generation needs and core demand

Energy Infrastructure Issues, *Continued*

- Nuclear power plant safety
- Coal generation repowering (advanced coal)
- Role of energy efficiency, distributed generation, and renewable energy resources (across all sectors and end-uses)
- Transportation infrastructures (all modes)

Natural Gas Study Objectives

- Determine potential imbalance between future natural gas supply and demand in the State
- Evaluate the impact of future natural gas demand on the supply and infrastructure of petroleum fuels
- Assess the impacts on electricity system reliability from contingencies involving an increase in natural gas-fueled electricity generation
- Develop a modeling capability to merge electricity system and natural gas system planning

Findings Summary

- Efficiency of new combined-cycle gas-fired generators \Rightarrow demands will be significantly less than might have been expected
- Gas supplies should be adequate for electric reliability, but the need to burn oil remains
- Additional natural gas capacity of 300 to 800 MDT/day would facilitate meeting environmental & economic goals
- Oil infrastructure (storage) should be preserved to help assure future security and reliability

Role of Energy Efficiency and Renewable Energy

- Evaluate potential efficiency savings, and generation from renewable resources
- Determine technical, economic, and achievable potential of these technologies
 - Statewide, for 5 electricity load zones

Energy Efficiency Technical Potential 2022

Sector	Electricity Savings (GWh)	Summer Peak Reduction (MW)	Winter Peak Reduction (MW)
Commercial	38,826	11,891	5,959
Residential	23,939	9,526	5,296
Industrial	8,227	1,351	1,273
Total	70,992	22,768	12,528

Renewable Energy Technical Potential 2022

Technology	Generation (GWh)	Installed Capacity (MW)	Summer Peak Capacity (MW)	Winter Peak Capacity (MW)
Wind	45,943	17,029	3,218	7,610
Hydropower	31,158	7,147	2,572	3,358
Biopower	6,732	1,036	969	986
Landfill Gas	1,119	135	135	135
Photovoltaics	53,046	33,001	8,555	1,479
Solar Thermal	6,456	7,962	3,331	230
Fuel Cells	38,253	4,857	4,653	4,691
Total	182,707	71,167	23,433	18,489

Regional Energy Issues

- Approximately 8% of New York's electric energy requirements are imported (net)
- Nuclear power provides approx. 26% of Statewide electric energy requirements
 - Closing nuclear units would:
 - Increase the use of fossil fuels, raise prices, and increase pollutant emissions
 - Effects would be more regional in nature

Regional Energy Issues, *Continued*

- Electricity transmission constraints affect power flows
 - Central East Interface (Utica to Albany bottleneck)
 - New York City (Poughkeepsie and Kingston)
 - Long Island
- Enhanced transmission system capacity is controversial (TransÉnergie 330 MW cable from Connecticut to Shoreham, LI)

Long Island Electricity Overview

- 118 miles long; 2.8 million people; 4,800 MW and 20,000 GWh of electric load
 - LIPA owns 1,344 miles of transmission and sub-transmission lines delivering power to 175 substations
 - 5 transmission interconnections to neighboring electric systems
 - LIPA has right to purchase power output from KeySpan and independent generators
 - 93% of load must be from resources on-island (98% if Muni's are included)

LI Electricity Resources Overview

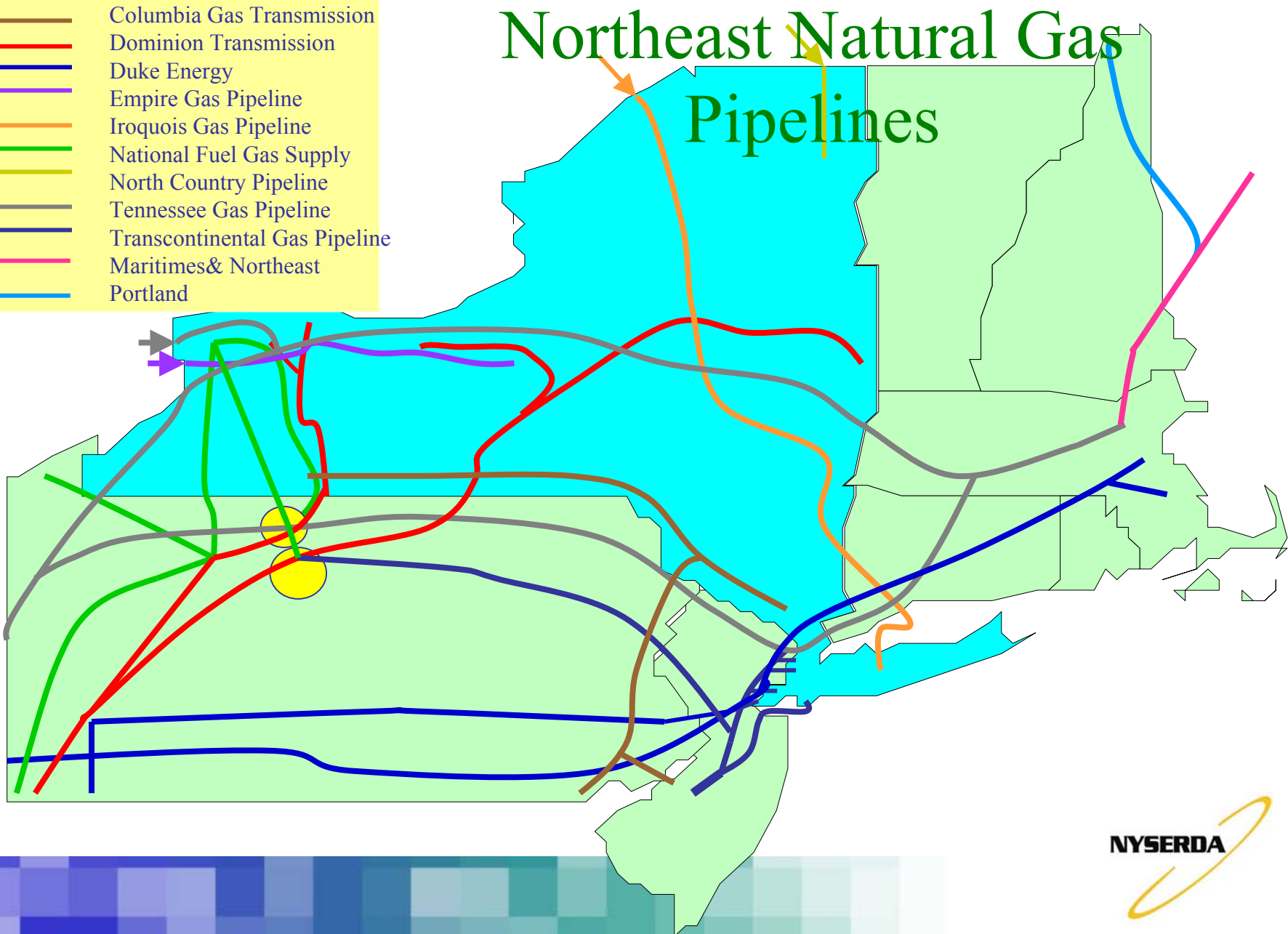
- 2,634 MW base-load steam units
- 1,404 MW from combustion turbines
- 204 MW nuclear (Nine Mile Point 2 – 18% share)
- 560 MW power purchase agreements (on and off-Island) – incl. Entergy Fitzpatrick power
- 100+ MW of load reduction; 200+ MW callable
- 10 simple-cycle gas turbines (summer 2002)
- 10 truck-mounted turbines (summer 2002)
- New resources planned ... wind, repowering, new units

LI Transmission Projects Overview

- New cables and replacements and enhancements
 - TransÉnergie 330 MW
 - Second Cross-Sound cable up to 600 MW (RFP)
 - 330 MW marine cable connecting to NJ (Neptune)
 - Other merchant ties under consideration
 - Various cable replacements and enhancements

Northeast Natural Gas Pipelines

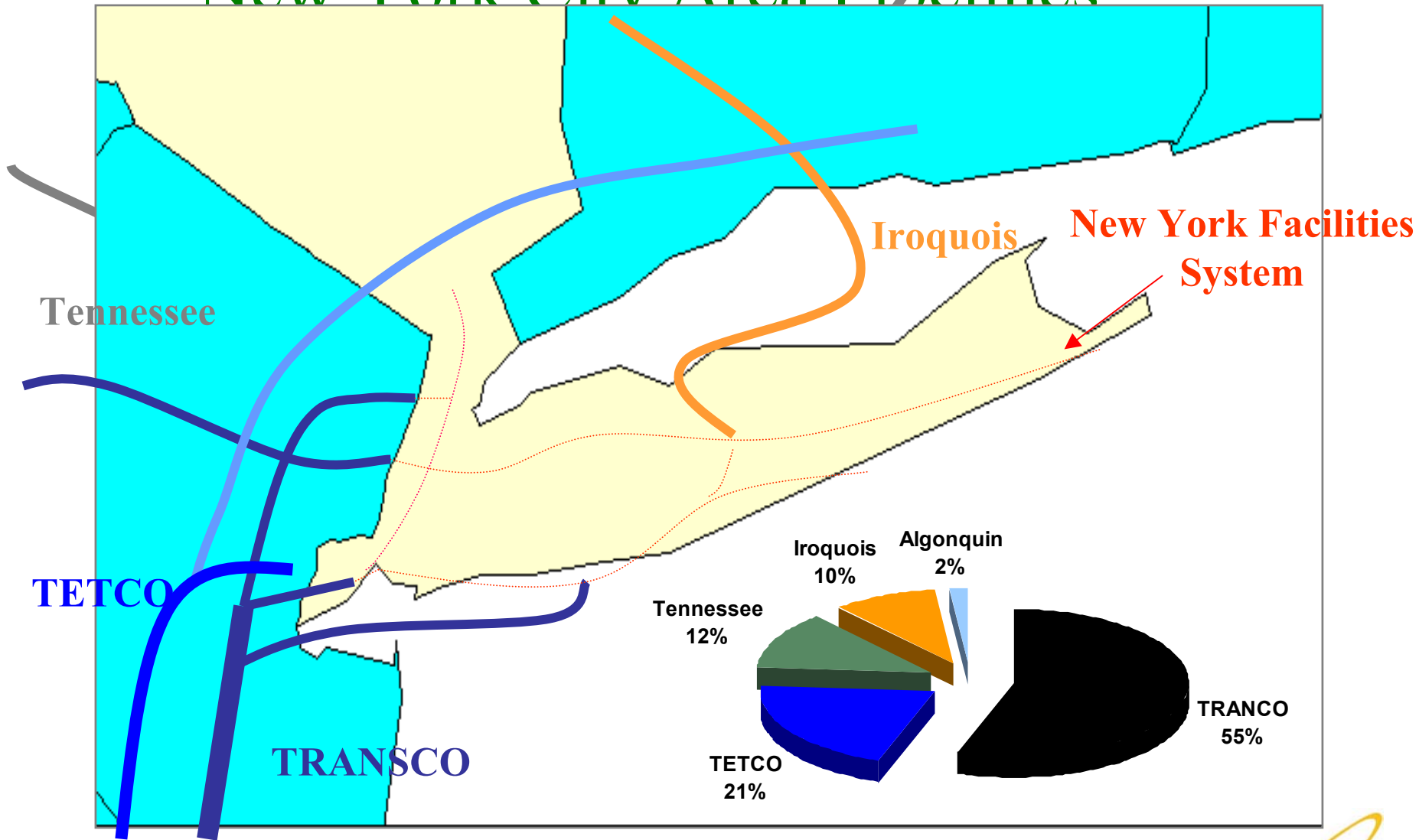
- Columbia Gas Transmission
- Dominion Transmission
- Duke Energy
- Empire Gas Pipeline
- Iroquois Gas Pipeline
- National Fuel Gas Supply
- North Country Pipeline
- Tennessee Gas Pipeline
- Transcontinental Gas Pipeline
- Maritimes & Northeast
- Portland



Proposed Gas Pipeline Projects

- For service to Long Island
 - Duke/KeySpan, Islander East Project (285 MDT/D)
 - Tennessee pipeline, CT-LI Lateral project (450 MDT/D)
 - Iroquois Eastern LI Expansion project (175 MMCFD) Milford, CT to Shoreham, LI

New York City Area Pipelines



Next Steps

- Regional coordination and analysis of critical issues
- Assessment of State's (regions) infrastructure needs as circumstances and markets change
- Competing issue of security and safety, and costs and reliability
- Need for more contingency planning