

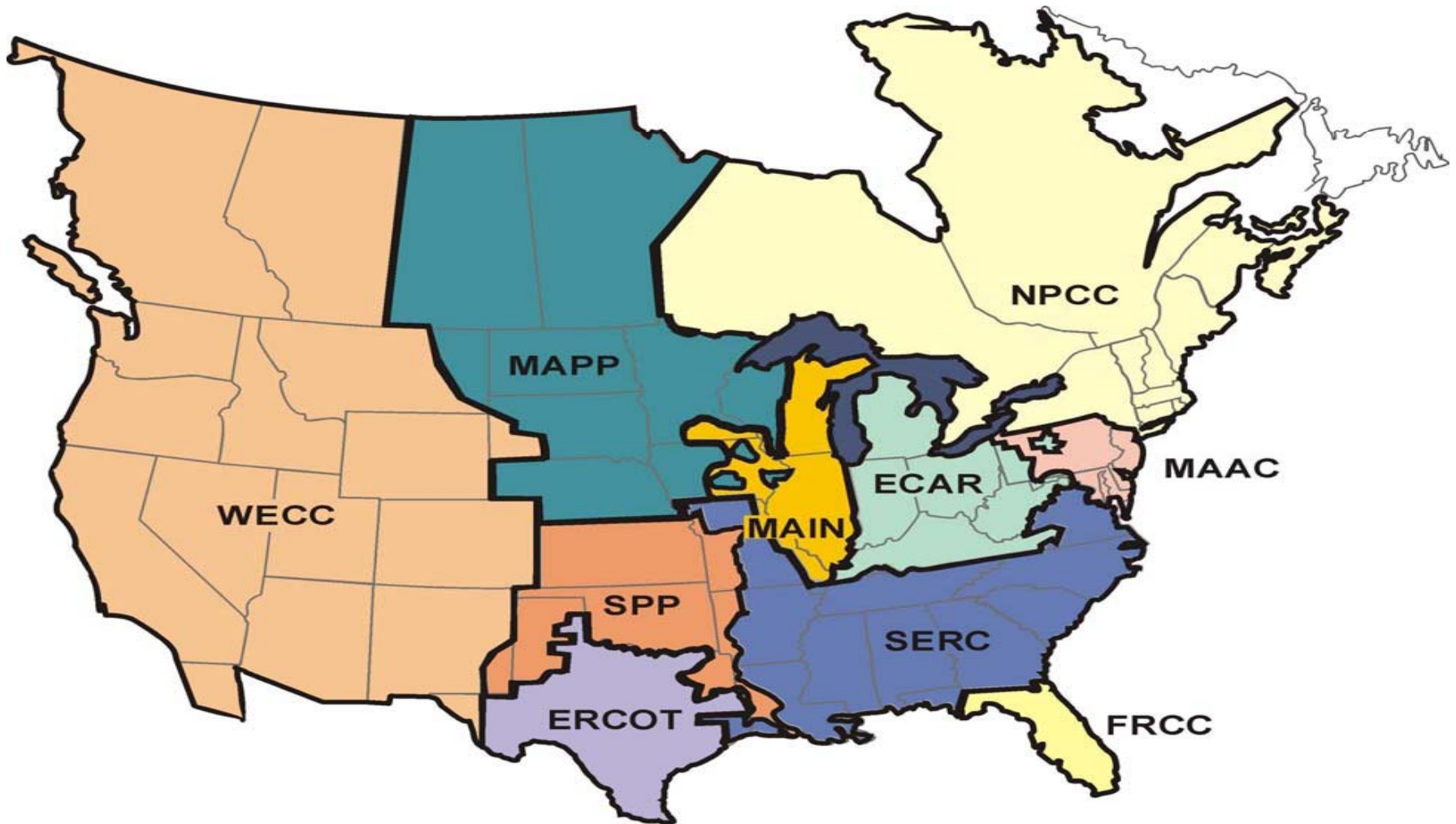
# U. S. – Canada Clean Energy Dialogue Increasing Trade in Clean Electricity

Gordon van Welie, President and CEO, ISO New England  
May 20, 2010

# Presentation Overview

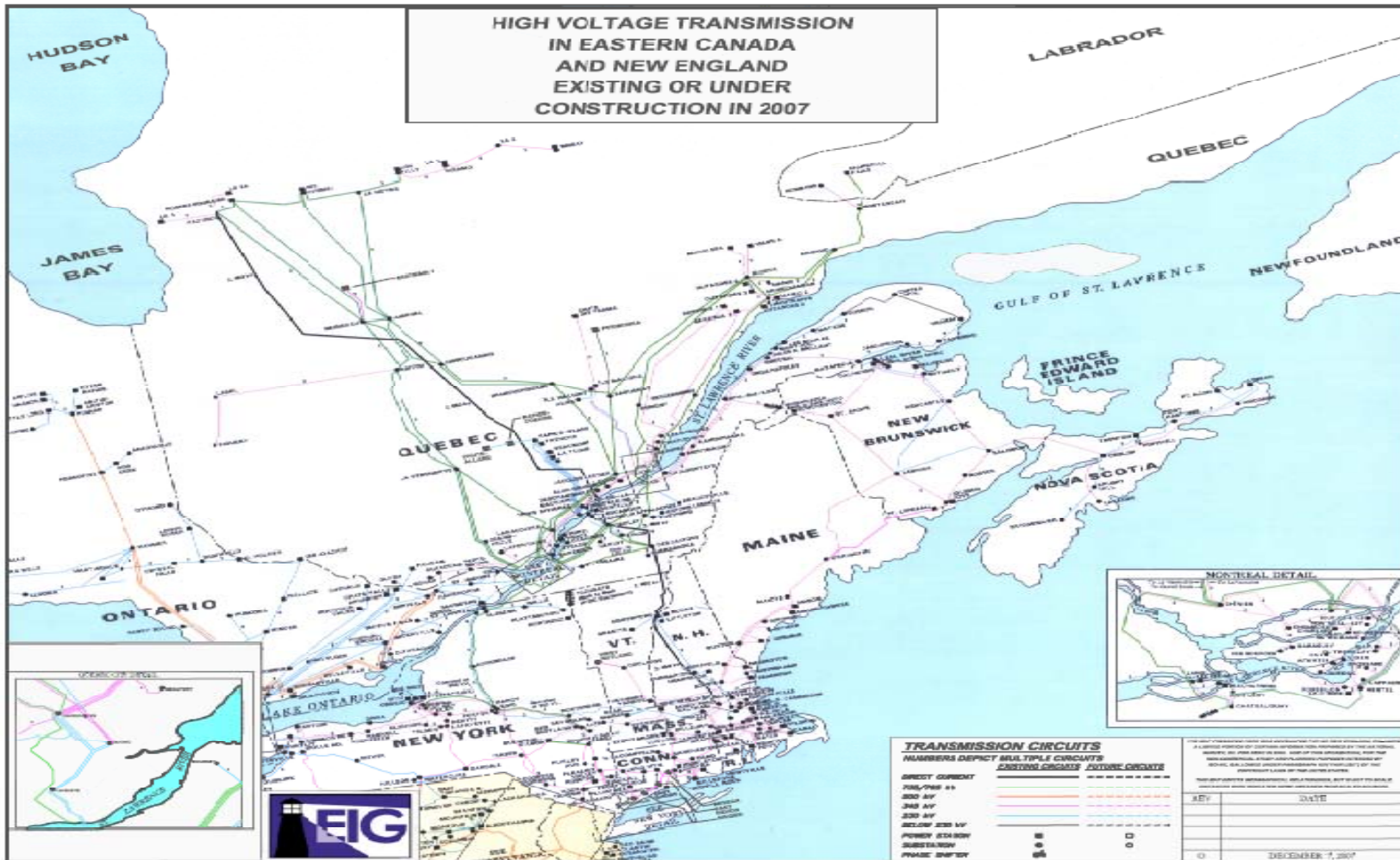
- New England's strong trading relationship with Eastern Canada
- Collaborations between the New England Governors and Eastern Canadian Premiers to develop the clean energy potential of the combined region
- U. S. initiatives for broad interconnection-wide planning aimed at development of renewables

# New England and Eastern Canada Power Systems at End of the Eastern Interconnection



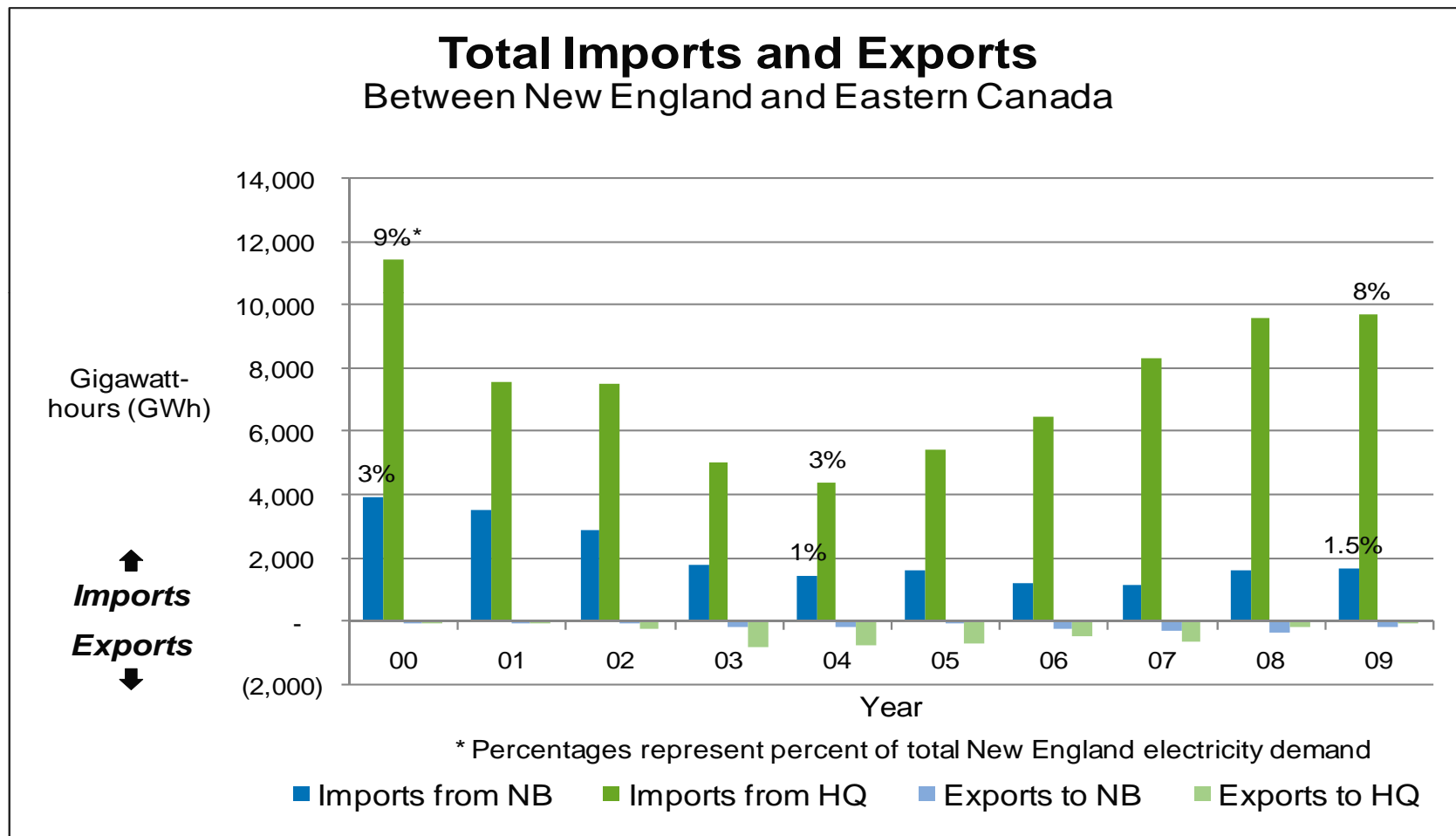
# New England, Quebec and New Brunswick Electrically Connected

## High Voltage Transmission Lines



# A History of Electricity Trade with Quebec and New Brunswick

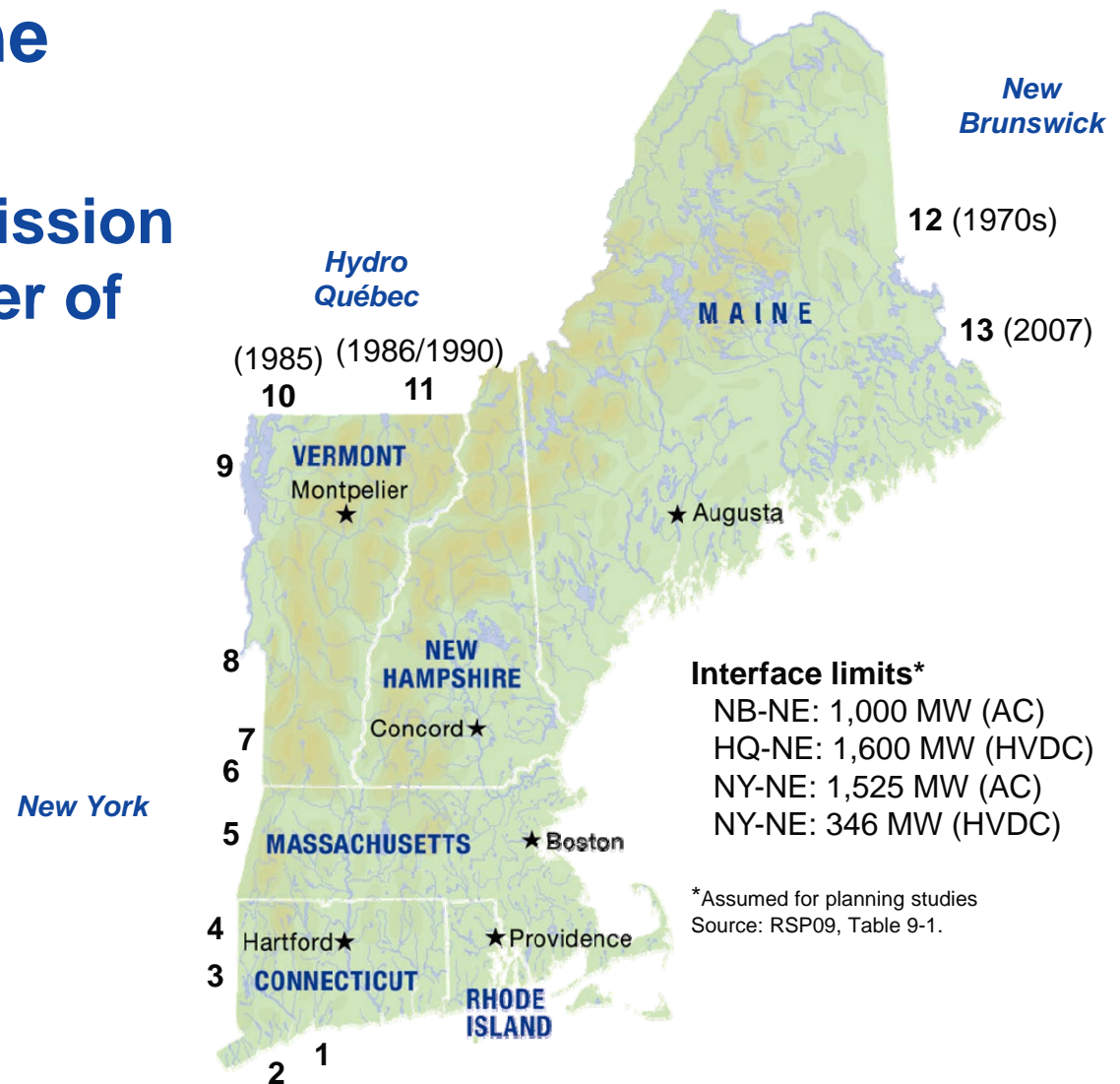
*Quebec supplies large quantities of energy to New England*



# Canadian Power Imports Through Vermont and Maine

## New England transmission interfaces and number of ties:

1. New York (9)
2. Hydro Québec (2)
3. New Brunswick (2)

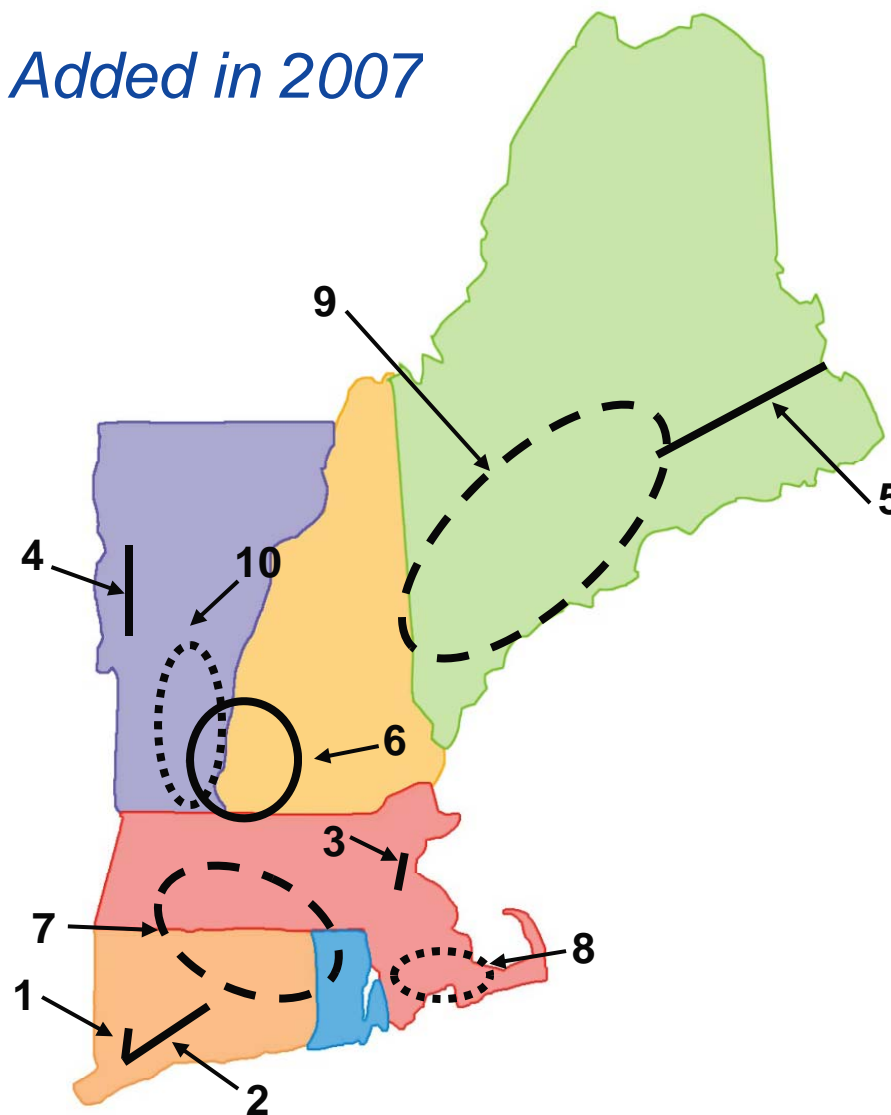


# Transmission Investment Improves Flow of Energy To Load Centers

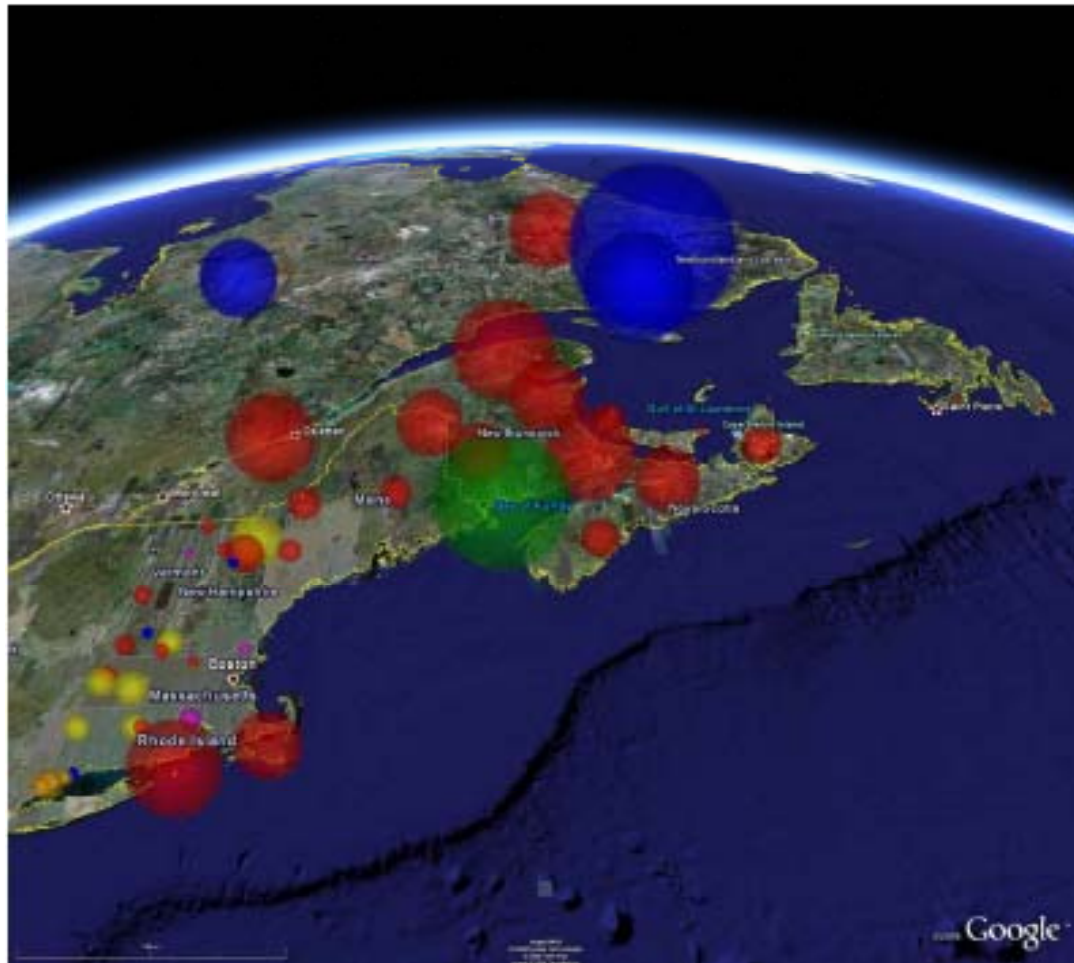
*2<sup>nd</sup> Maine & New Brunswick Tie Added in 2007*

1. Southwest CT Phase I
2. Southwest CT Phase II
3. NSTAR 345 kV Project, Phases I & II
4. Northwest Vermont
5. Northeast Reliability Interconnect
6. Monadnock Area
7. New England East-West Solution
8. Southeast Massachusetts
9. Maine Power Reliability Program
10. Vermont Southern Loop

- In service
- ..... Under construction
- - - Under study



# Looking Ahead: Vast Potential And Significant New Renewable Projects Being Proposed



Key	
Orange	fuel cells
Purple	landfill gas
Blue	hydro
Yellow	biomass (wood)
Red	wind
Green	nuclear

## Greater Integration Likely in the Future

- New Brunswick developing itself as “energy hub” within the Atlantic Provinces -- and as a gateway to the New England Market via Maine
- Hydro Quebec proposes new 1200 MW HVDC line to a location in southern New Hampshire
- Champlain Hudson Power Express seeking FERC approval to develop DC transmission from Quebec to points in New York City and Connecticut

# Governors & Premiers Resolve to Pursue Renewables

2008

- Renewables to mitigate climate change

2009

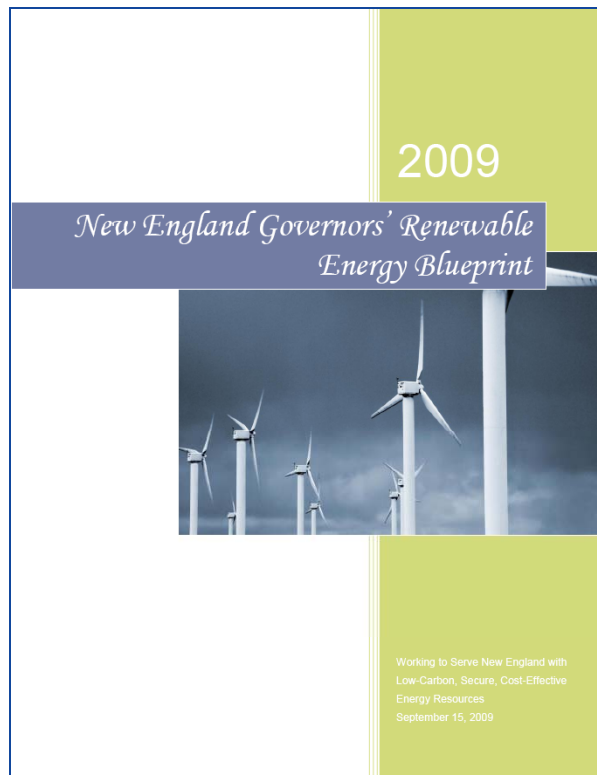
- Pledge to develop cost-effective renewables
- Procurement mechanisms for renewable power



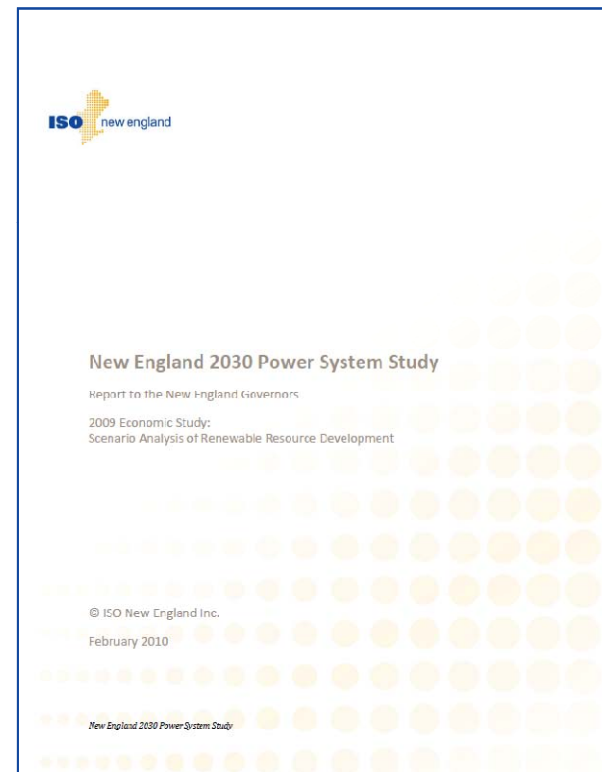
**Pictured: NEG/ECP 2008**

# Governors Develop 20-year Renewable Energy Vision and Blueprint in 2009

*Reinforces potential of greater Canadian integration and off-shore wind*



**States' Blueprint as guiding policy and regulatory framework**



**ISO economic study as technical support**

# Transmission for 3,000 MW of Imports

- Potential new transmission ties to Eastern Canada
  - Import 1,500 MW from Québec via new +/-450 kV HVDC line
    - Preliminary cost estimate: \$1.6 billion
  - Import 1,500 MW from New Brunswick via new +/-450 kV HVDC line
    - Preliminary cost estimate: \$2 billion
  - Cost estimates represent only the cost of potential transmission facilities in New England



# Transmission for 12,000 MW of Wind

- New higher voltage backbone loop around New England
  - Local loops to collect wind in Maine
- Preliminary cost estimates:
  - 500 kV: \$19 billion
  - 765 kV: \$25 billion



# Governors' Renewable Development Efforts Continue in 2010

- A second study to analyze the impact of replacing New England's retirement-age coal and oil-fired generators with new renewable resources and Canadian imports
- Regulatory authorities consider coordinated procurement of resources -- and multi-state transmission siting
- States actively engaged in interconnection-wide planning process

# Broad U.S. DOE-funded Interconnection-wide Planning Has Begun

- 24 Planning Authorities awarded \$16 million to establish Eastern Interconnection Planning Collaborative (EIPC)
  - Roll up of existing regional plans, study resource futures and perform detailed transmission expansion plans
- 39 states awarded \$14 million to establish Eastern Interconnection States Planning Council (EISPC)
  - To input to EIPC study work
- Initial report: June 2011
- Final report: June 2012



# New England Perspective on Interconnection-wide Planning

- Interconnection-wide plans should be based on existing regional plans
  - Ensures inclusion of transmission in development and future scenario development within the regions
  - ISO New England participation captures current level of Eastern Canadian resources
- U. S. and Canadian regulatory authorities are urged to ensure:
  - Participation of Canadian planning entities
  - Inclusion of Canadian resources and transmission in the base case model and future planning methodologies

The logo for the Eastern Interconnection Planning Collaborative (EIIIPC) features the letters 'EIIIPC' in a bold, green, sans-serif font. The letters are set against a background of a stylized green grid pattern.

Eastern Interconnection Planning Collaborative