



New England Infrastructure Initiative

Status Update and VT Power Import Alternatives

April 2014

**House Commerce and Economic
Development Committee**

MOVING **POWER**. MOVING **FORWARD**.



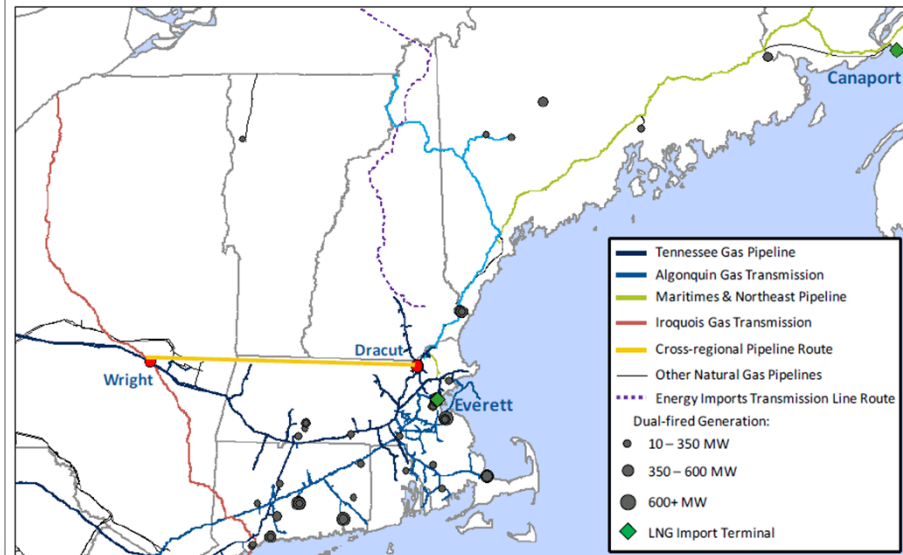
Current State

Regional Infrastructure Development Initiative

- **NE states, NESCOE and ISO-NE are pursuing a two-part regional infrastructure initiative intended to address:**
 - System reliability issues due to lack of generation when it's most needed in winter
 - Anticipated retirement of 4,000MW of generation in next five years, which will exacerbate problems
 - Electricity price spikes tied to use of oil/coal-fired generation resulting from gas-fired generation deficiency
 - Statutory RPS/GHG requirements, primarily those of CT and MA
- **Stakeholders engaged in initiative include:**
 - States' regulators and governor's staffs
 - NESCOE with assistance of Black & Veatch
 - ISO-NE
- **NESCOE request of ISO-NE:**
 - Provide technical planning and related support to secure 1,200MW to 3,600MW of new hydro/wind power, and 1,000 mmcf/day above 2013 levels of additional firm natural gas pipeline capacity
 - Provide regulatory assistance to develop and file any changes needed to ensure that an "appropriate" allocation of costs amongst New England states

Proposed Cross-Regional Gas Pipeline

Early estimate from B&V Gas report indicated a \$1.2B investment which appears to be very low for a greenfield pipeline project.



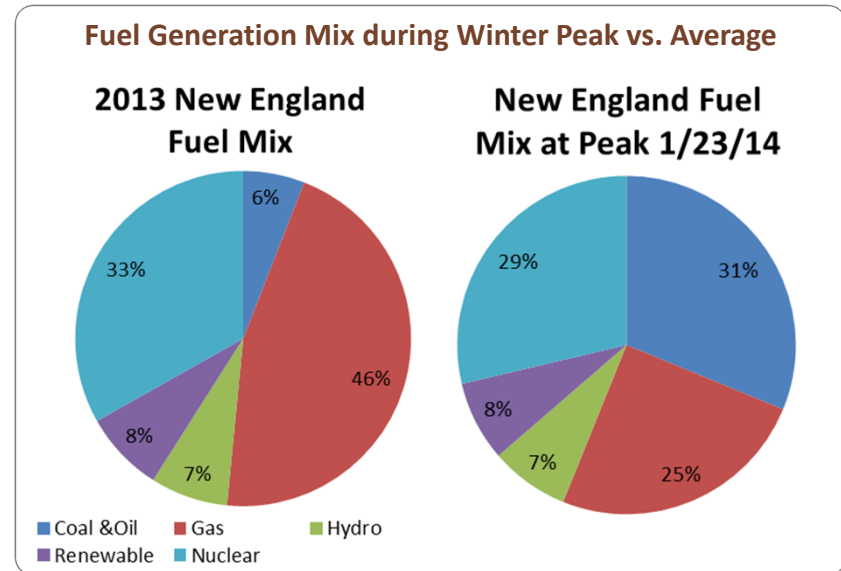
Proposed Pipeline Capacity Expansion Project (Yellow)

Current State

Regional Infrastructure Development Initiative

- **ISO-NE's Position:**

- Colder 2013/2014 winter weather created market electricity spikes due to deficiency in natural gas pipeline supply deliverability – \$1.1B in unexpected incremental energy costs in January 2014.
- Winter reliability program was key “in keeping the lights on” during coldest days of January when generation shifted from gas to oil and coal.
- ISO-NE has reiterated reliability risks associated with anticipated generation plant retirements in region (4,100MW, including 660MW in Vermont), “The region is in a precarious position for the next several winters as major non-gas resources retire and proposed market enhancements and energy infrastructure improvements are years away.”
- In light of this winter’s operating conditions, ISO-NE may continue its winter reliability program and believes regional infrastructure initiative is best alternative to resolve reliability issues related to fuel supply and generation deficiency.



Total MW Retiring in New England*	
Connecticut	528 MW
Maine	159 MW
Massachusetts	2,682 MW
New Hampshire	56 MW
Rhode Island	64 MW
Vermont	666 MW
Total	4,155 MW

*Megawatts based on relevant Forward Capacity Auction (FCA) summer qualified capacity (NOTE: total includes full and partial generator and demand response Non-Price Retirement (NPR) requests for Capacity Commitment Period (CCP) 2013-2014 through CCP 2017-2018)

Source: Status of Non-Price Retirement Requests; December 20, 2013

Current State

Regional Transmission Development Activities

- **Available Hydro Resources:**
 - Based on Black and Veatch's report, approximately 2,000MW of new resources will be available by 2022 on Hydro Quebec's System. This may be inadequate supply to support all proposed projects
- **Multiple transmission projects proposed by independent developers in New England:**
 - **Grand Isle Intertie (GII)** in NY & NE (400MW from NY to Essex, Anbaric)
 - **New England Clean Power Link (NECPL)** (1,000MW from HQ to Coolidge, Blackstone)
 - **Green Line Project** (1,000MW from Maine to Greater Boston, Anbaric/Cianbro/Powerbridge)
- **New England TO/HQ engaged in development of transmission projects:**
 - **Northeast Energy Link (NEL)** (1,100MW from Canada/Maine to South NE, NGrid/Emera)
 - **Northern Pass (NPT)** (1,200MW from HQ to Deerfield, Northeast Utilities)
 - **Highgate Expansion** (425MW from HQ to Essex, Hydro Quebec)



Note: HQ Hydro Resource

Potential Elective Transmission Projects

Proposed Elective Transmission Upgrades (ETU)

1. Anbaric: Grand Isle Intertie (230kV AC)

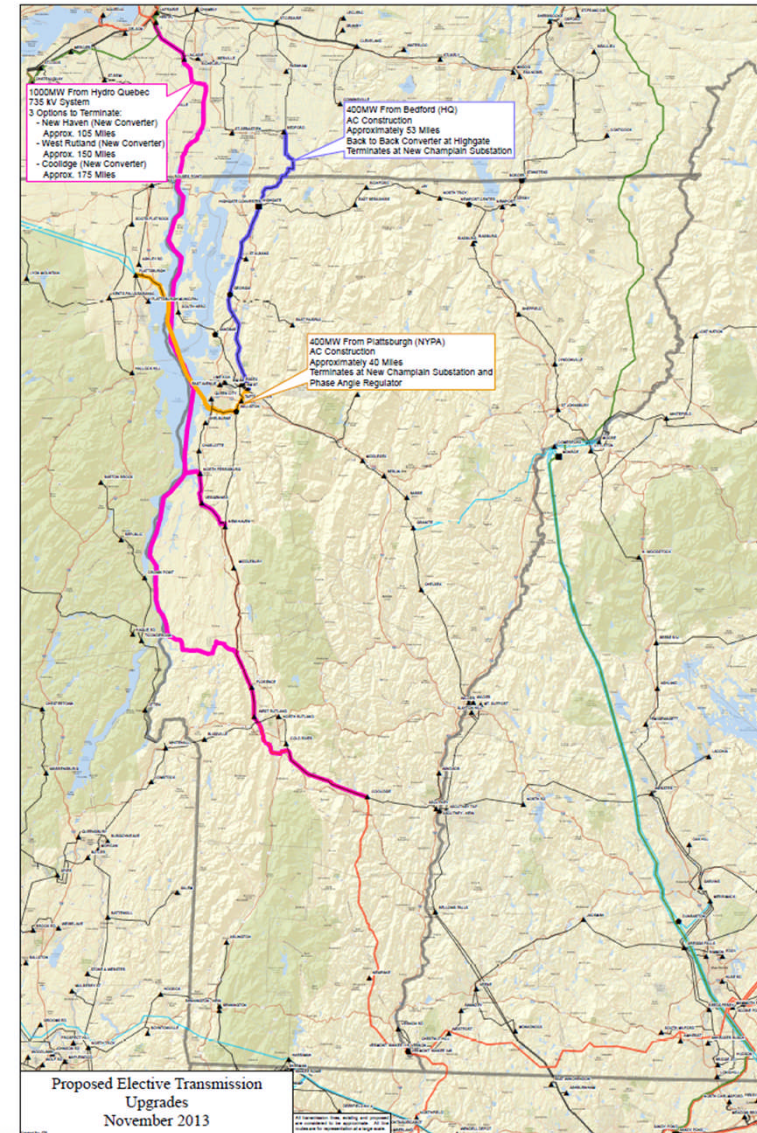
- 400 MW capacity
- 230 KV phase angle regulator-controlled tie at a new Champlain Substation site
- Plattsburgh Substation upgrade
- Submarine cables (Lake Champlain)/underground or overhead 230kV
- Target in-service date: 6/2017

2. TDI: New England Clean Power Link (320kV DC)

- 1,000 MW capacity
- 320 kV DC transmission tie
- AC/DC converter connecting to HQ 75kV system
- AC/DC converter connecting to VT 345kV system
- Target in-service date: 12/2018

3. Hydro Quebec: Highgate Expansion (Converter)

- 425 MW capacity
- 120/115kV transmission lines
- Back-to-back converter station
- Target in-service date: 06/2018



Current State

VELCO's role as Vermont's Transmission Operator

- **VELCO's Responsibilities as Interconnecting Utility**

- Participate in interconnection studies as part of ISO-NE review process to ensure no adverse impact on system reliability or operability, which studies currently include GII, NPT, and NECPL for a total of 2,600MW
- Perform other interconnection services pursuant to ISO Three-Party Interconnection Agreement, including making system improvements required to support new interconnection (paid for by developer)
- Developer is responsible for capital investment as well as on-going maintenance of system upgrades/reinforcements identified in studies (operating and maintenance expense billed back to developer)
- System studies are critical to adequately address future operation/maintenance needs and anticipate future system restrictions and limitations

- **VELCO's Responsibility as VT's transmission resource**

- Assess the impact of proposed projects on current and future use of VELCO's right of ways and ensure appropriate compensation for collocated infrastructure
- Review transmission cost impact to protect VT's ratepayers
- Assist the Vermont PSD and PSB in evaluating transmission alternatives
- Evaluate the technical and economic merit of projects to be included in regional transmission service rates

Current status/next steps

Work underway

- Continuing interaction with developers regarding physical access, environmental data, and easement conditions on VELCO rights-of-way; and seeking to secure MOUs
- Initial value components of potential partnership structure identified
- Active participation in ISO-NE interconnection process
- Working with DU owners and Public Service Dept to develop Vermont value proposition

Next steps

- Secure clearer understanding of VELCO's legal rights and responsibilities associated with projects; understand options
- Complete development of right-of-way valuation methodology
- Secure consensus Vermont value proposition and submit draft project(s) partnership proposal to VELCO Board for consideration in April

Current status of the proposed import projects

Grand Isle Intertie (Anbaric)

- Partially completed the feasibility study
- Started system impact study with NYISO and ISO-NE
- Assembling project team and reviewing alternate routes
- Met with VELCO to discuss access to rights-of-way to conduct surveys/studies
- Initiating stakeholder outreach

New England Clean Power Link (TDI)

- Started the ISO-NE interconnection process (system impact study agreement not executed yet)
- Assembling project team and reviewing preferred routes and corridors
- Met with VELCO to discuss access to rights-of-way and determine necessary studies
- Initiating stakeholder outreach
- Drafting legal agreements to establish VELCO's role in the review of the project
- Developer intends to submit permit applications in "September 2014"

Highgate Expansion (HQ)

- No ISO-NE interconnection study yet requested
- HQ production request of Transenergie is for "point-to-point service" to the US/Canada border
- Submitted inquiry to VELCO regarding project development, rights-of-way, etc.
- Discussed system limitation in Quebec's system