NEEP EM&V Forum Annual Meeting

Geographic Targeting of Non-Wires Alternatives to Avoid Transmission Investments

—

Vermont's Experience

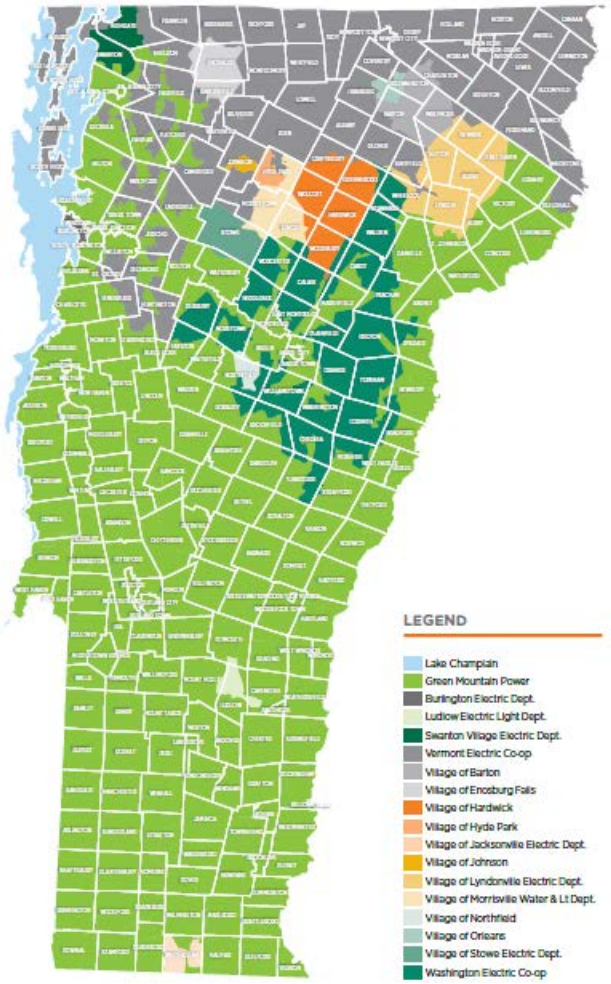
January 14, 2015

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

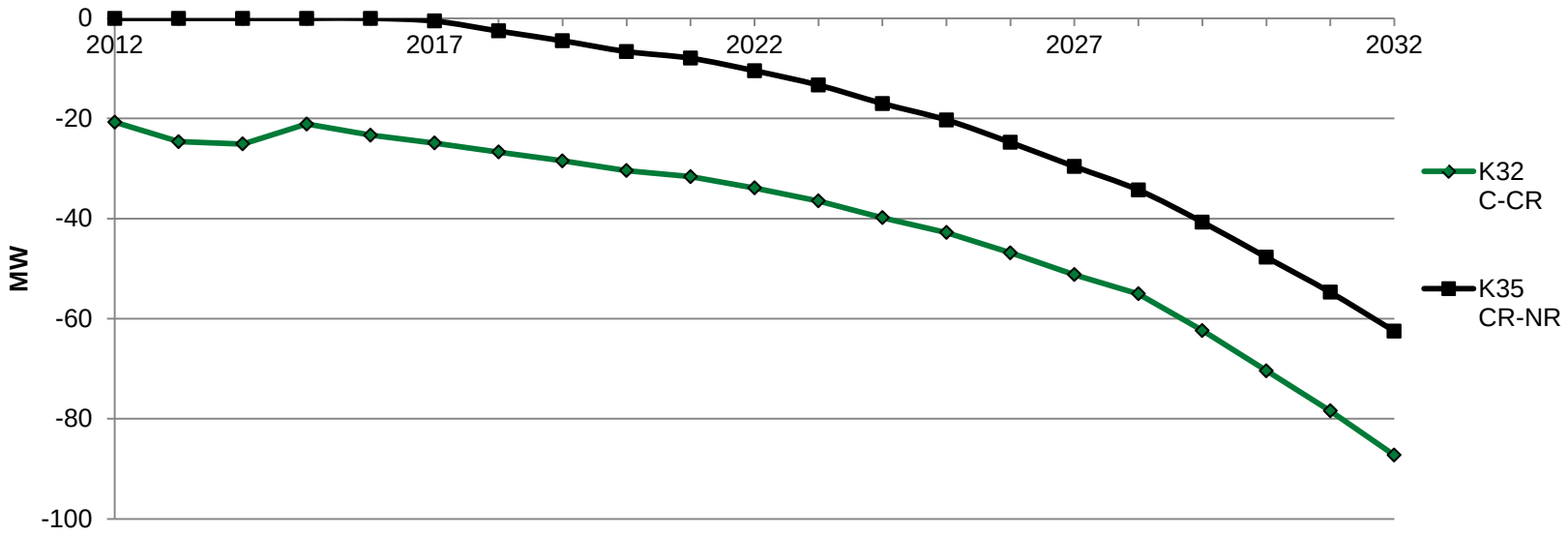
VT TRANSCO VELCO VETCO

Vermont *is* different

- Small, rural state, ~625K pop.
- 17 distribution utilities
  - 1 investor-owned
  - 2 cooperatives
  - 14 municipals
- Statewide transmission-only utility owned by distribution utilities (73%) and public benefit corp (27%) VLITE
- Vertically integrated while rest of New England has divested

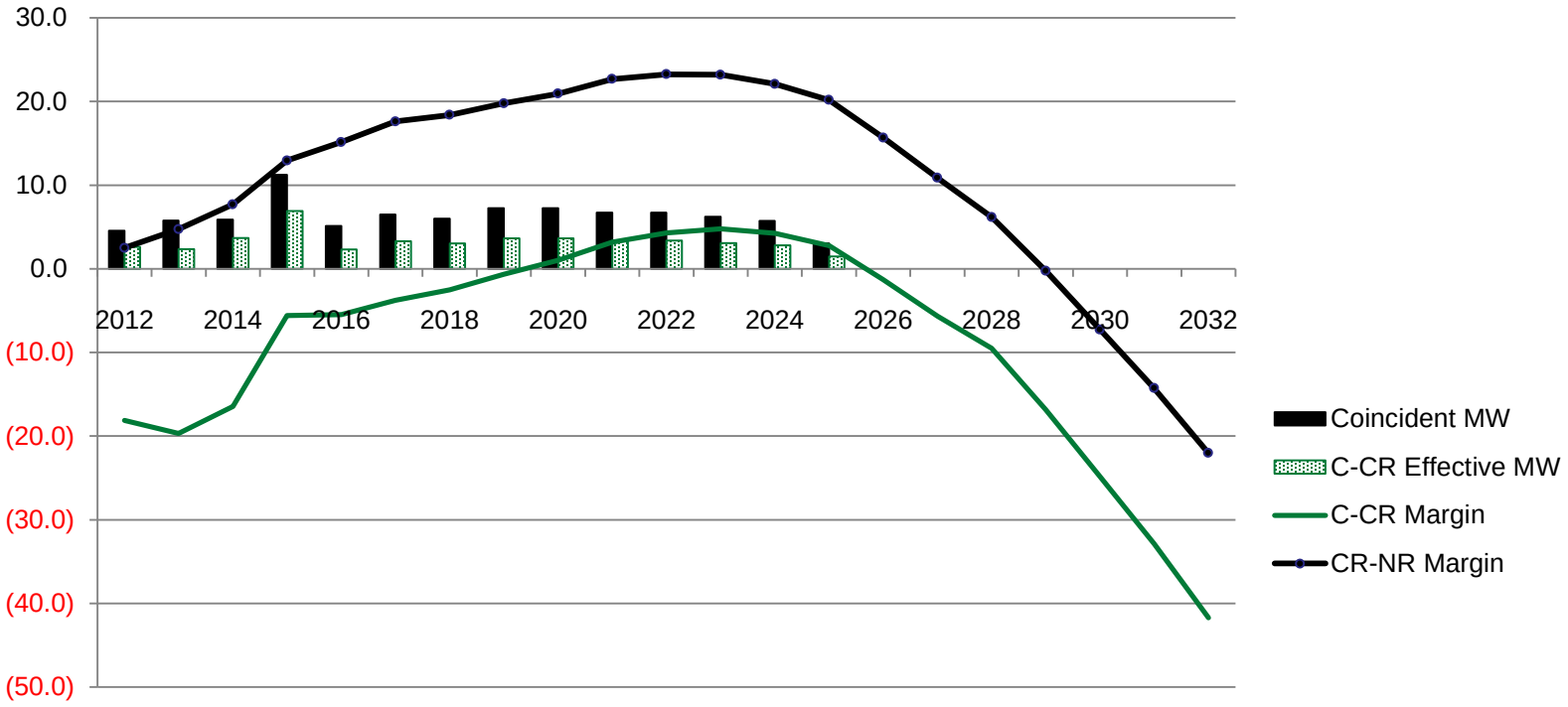


Transmission case example:$157 M Central VT upgrade avoided through Vermont's transmission planning stakeholder process



Reliability gap graphed as a negative margin—MW below zero need solutions

When EE and expected PV resources applied to gap, transmission upgrade no longer necessary



What happened?

Vermont

Late 2011: ISO-NE publishes preliminary study showing system concerns in Central VT

Late 2011: DUs & VELCO form study group per VT formal non-transmission alternatives (NTA) process to resolve

Regional

April 2012: ISO-NE Solutions Study proposes transmission upgrades to resolve Central VT concerns

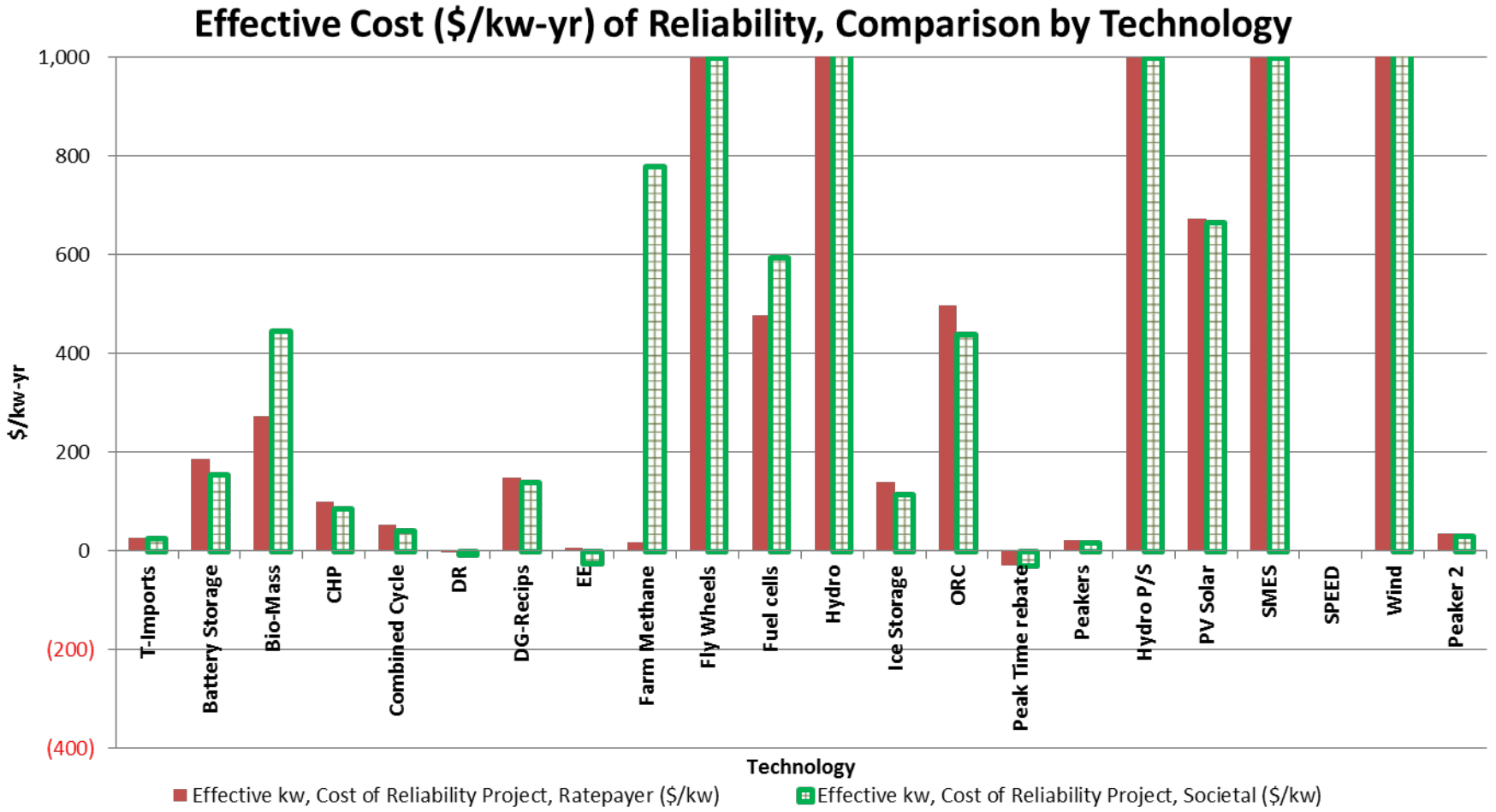
At this point, without VT NTA study requirement, a transmission solution would likely have been implemented

Nov 2012: GMP & VELCO present study group results to ISO-NE showing potential for NTA to postpone Central VT upgrades

Early 2013: ISO-NE reassesses need for Central VT upgrades

Summer 2013: ISO-NE study confirms $157 million Central VT upgrade deferral

Full NTA analysis: study group evaluates wide range of alternative resources for cost effectiveness

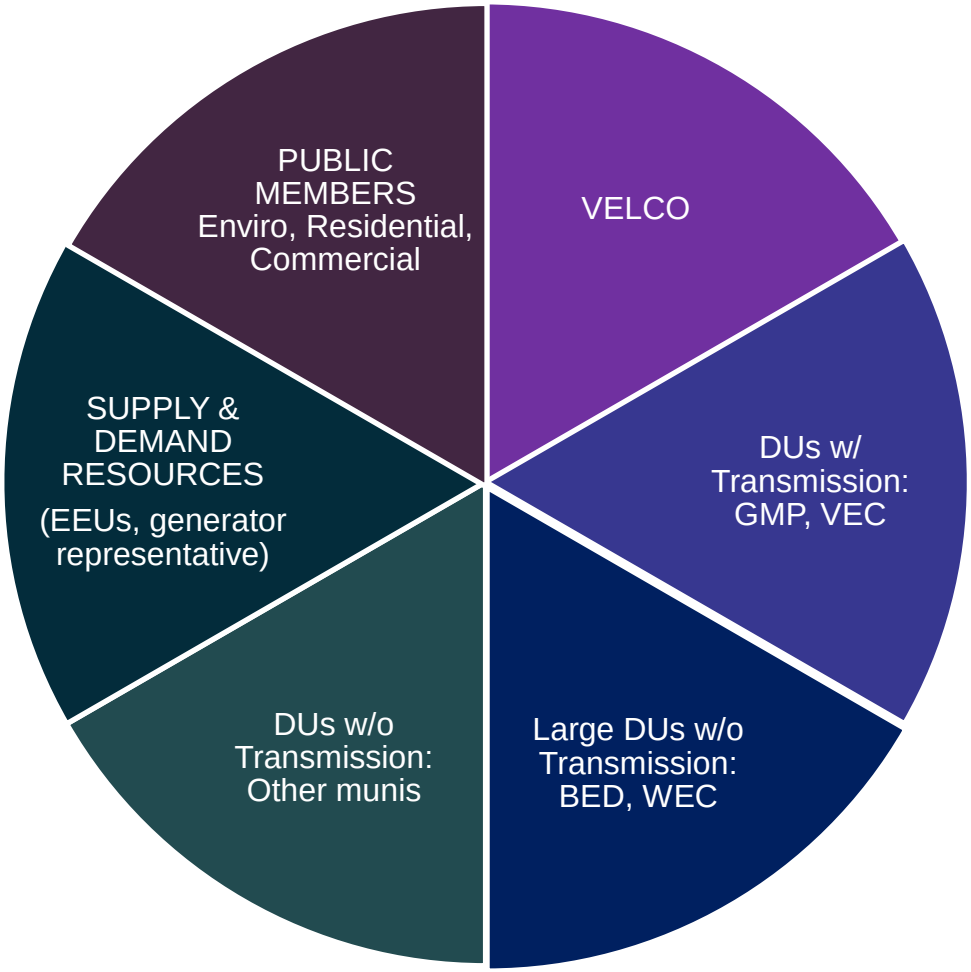


Vermont policy favors least-cost solution (wires or non-wires), requires collaborative planning & stakeholder engagement

Controversial major transmission project in 2004 led to planning legislation and Public Service Board order

- Legislation (30 V.S.A. § 218c) required prepare a **10-year** transmission plan at least every three years beginning July 1, 2006, including public outreach process
- Purpose of plan: *Identify potential need for transmission system improvements as early as possible, in order to allow sufficient time to plan and implement more cost-effective nontransmission alternatives to meet reliability needs, wherever feasible.*
- PSB Docket 7081 established stakeholder process through negotiated settlement
  - Requires **20-year** long-range transmission plan
  - Goal: *Full, fair and timely consideration of cost-effective non-transmission alternatives*
  - Created Vermont System Planning Committee—statewide reliability planning stakeholder body

Vermont System Planning Committee structure



Six sectors with equally weighted votes

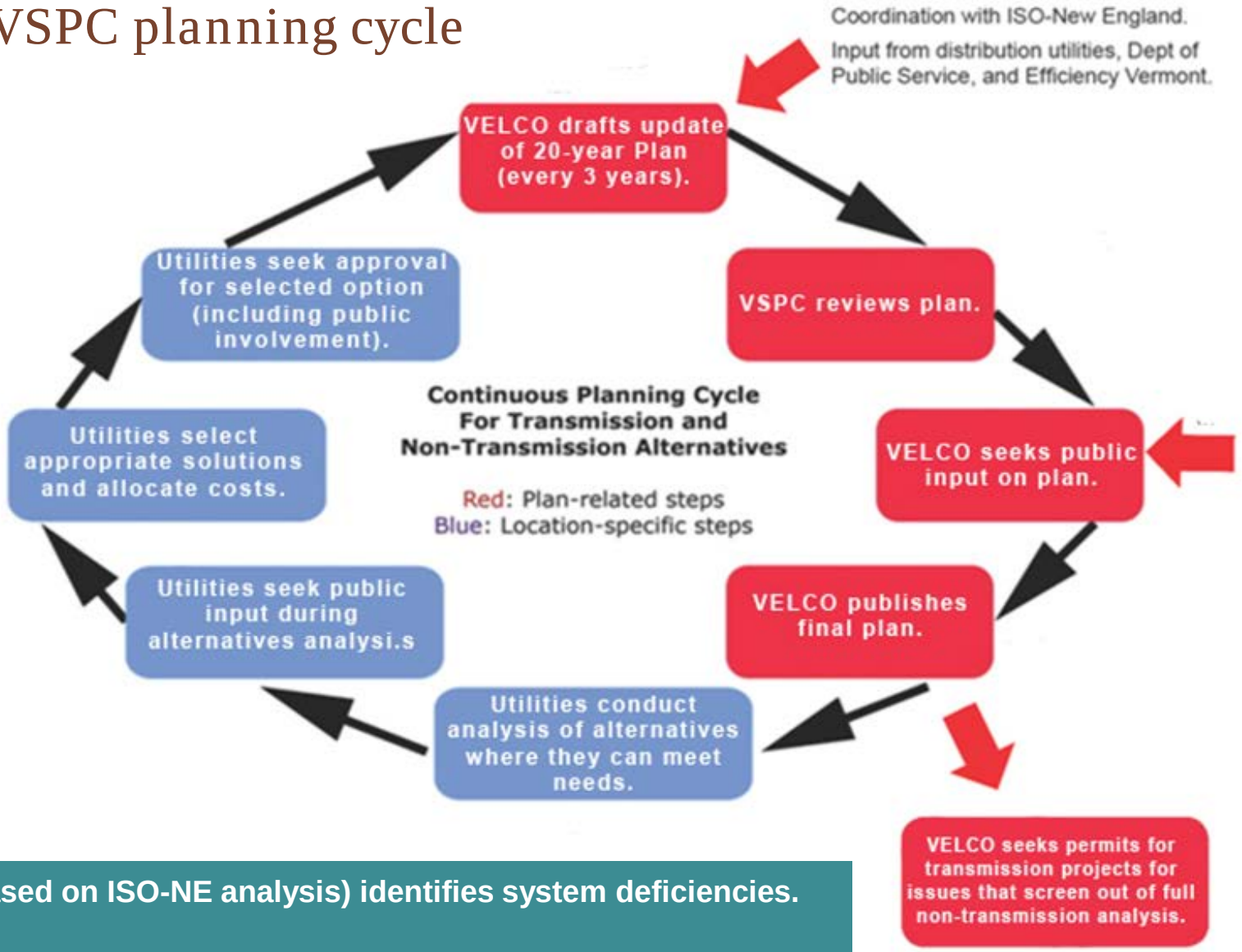
Advisory votes on…

- Affected utilities
- Solution selection
- Cost allocation
- Implementation strategy

Binding votes: (where utilities disagree)

- System level (bulk vs sub)
- Lead utility assignment

VELCO/VSPC planning cycle



VELCO Plan (based on ISO-NE analysis) identifies system deficiencies.

Detailed NTA studies provide greater detail and precision about constraints, analysis of locational effectiveness and relative costs of NTA resources.

VSPC NTA analysis process

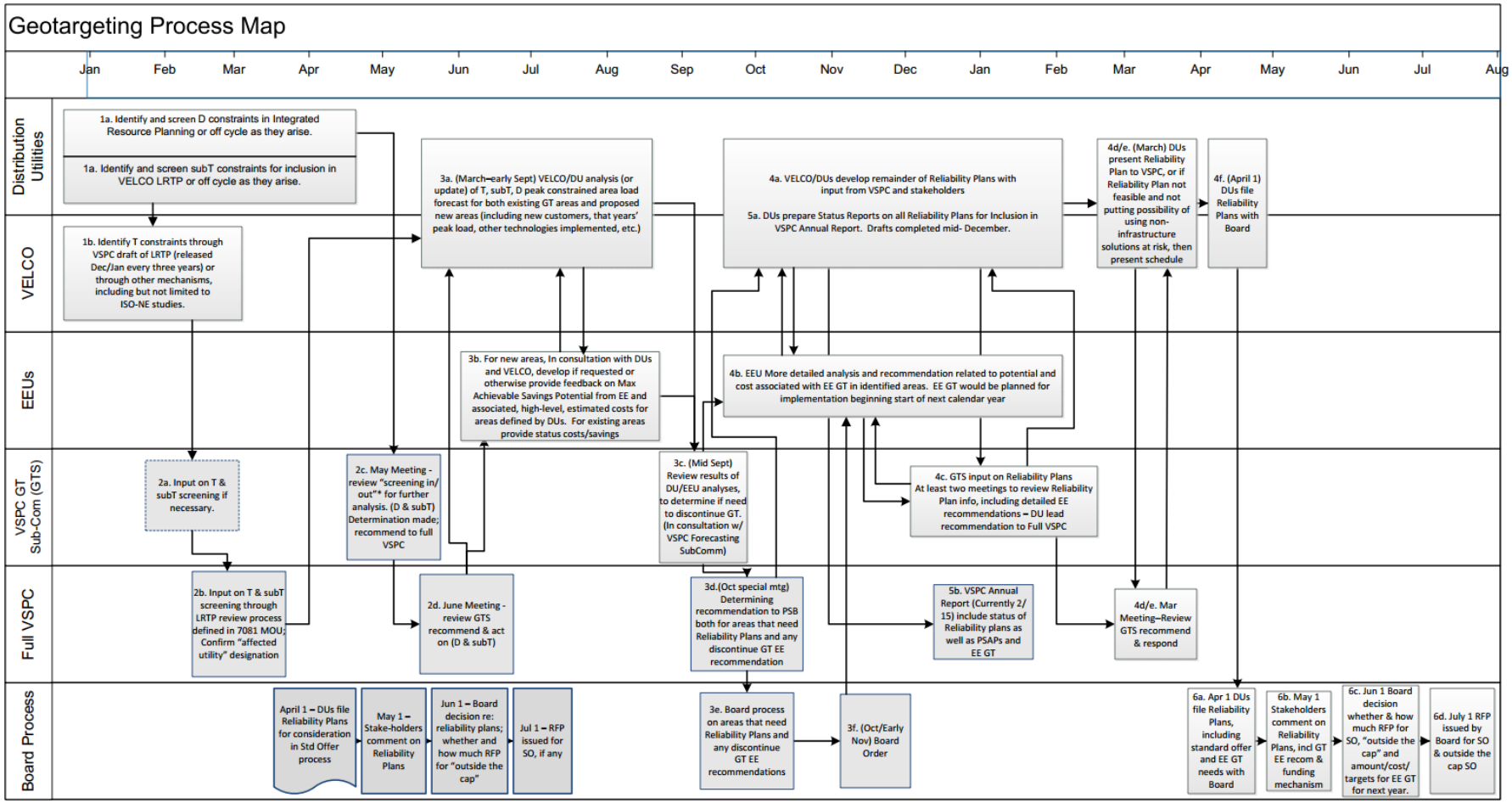
- **Step 1: Screening**
  - All projects screened during Long-Range Plan development using adopted NTA screening tool
- **Step 2: Full NTA analysis if "screened in"**
  - All "affected utilities" led by "lead utility" (as defined by 7081 MOU) required to participate

See screening tools at: http://www.vermontspc.com/about/key-documents

In 2013 feed-in-tariff proceeding, distribution-level issues were added to the process and VSPC better integrated EE & DG in planning

- Utilities develop “reliability plans” for any identified transmission or distribution reliability issue. Plans address:
  - Reliability plan requirements (Docket 7081)
  - Energy efficiency geographic targeting
  - Standard offer (feed-in-tariff) geographic targeting (7873) where “sufficient benefit” to the grid exists
- VSPC now charged with recommending both supply side and demand side geographic targeting to PSB annually
- VSPC enables transmission project vetting, one-stop, multi-stakeholder engagement

Clearly defined process ensures proper analysis



(there will not be a test)

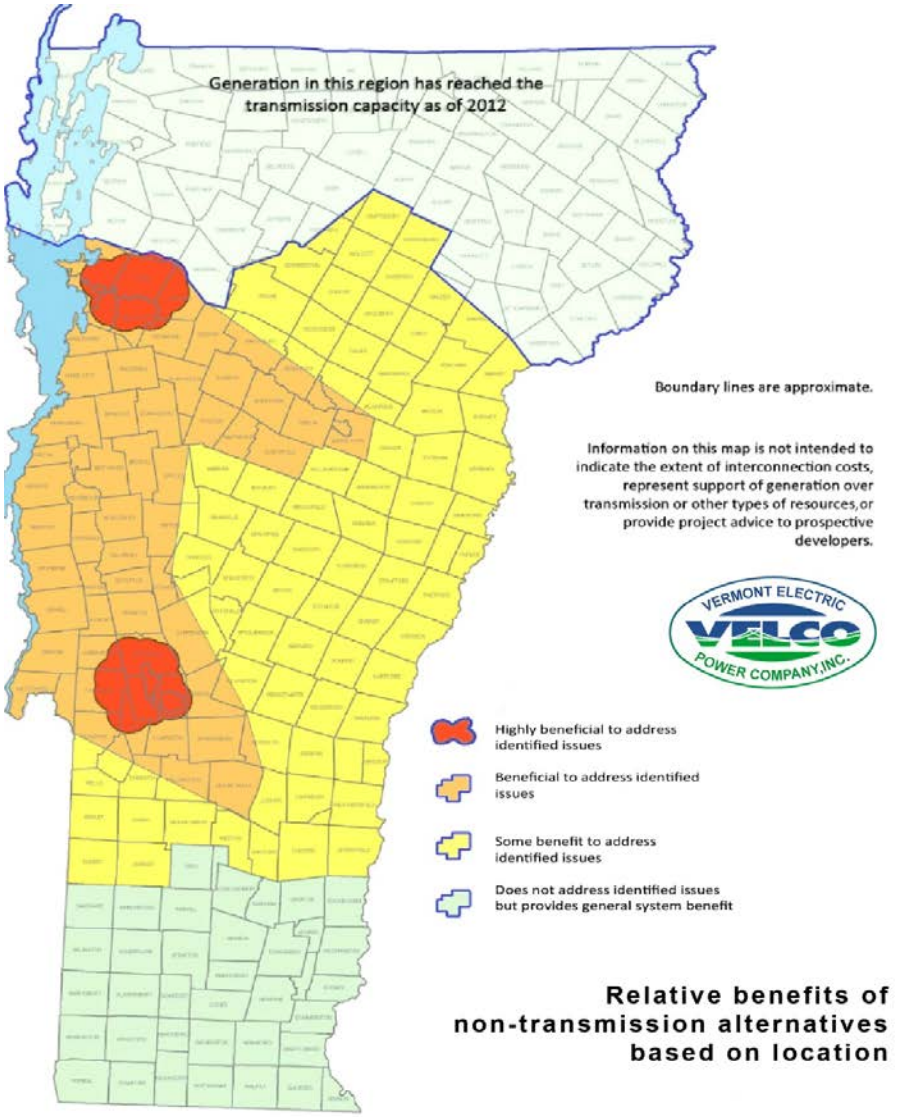
Provided GT guidance to stakeholders in 2012, but more work needed for effectiveness

2012 Plan included map *roughly* depicting relative benefit to transmission grid of new generation or load reductions by location

- Color coding very rough, drawn by hand

Zones of benefit based on ISO-NE VT/NH NTA analysis

Benefits much more precisely analyzed in context of full NTA studies



Observations about VT example and process

- EE plays a big role but fills the gap *in combination* with other resources, which are growing rapidly
- Integrated look at DG & EE is critical: no one element caused the result
- Project need is based on *forecast*, which has many assumptions; could change rapidly in volatile times; regular reassessment needed
- Benefits of a robust stakeholder process:
  - Regulatory certainty
  - Stakeholder buy-in
  - A little more certainty of the need
- Biggest policy issue: no level playing field for NTA vs transmission funding

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