Vermont's Renewable Energy Standard and the Climate Crisis

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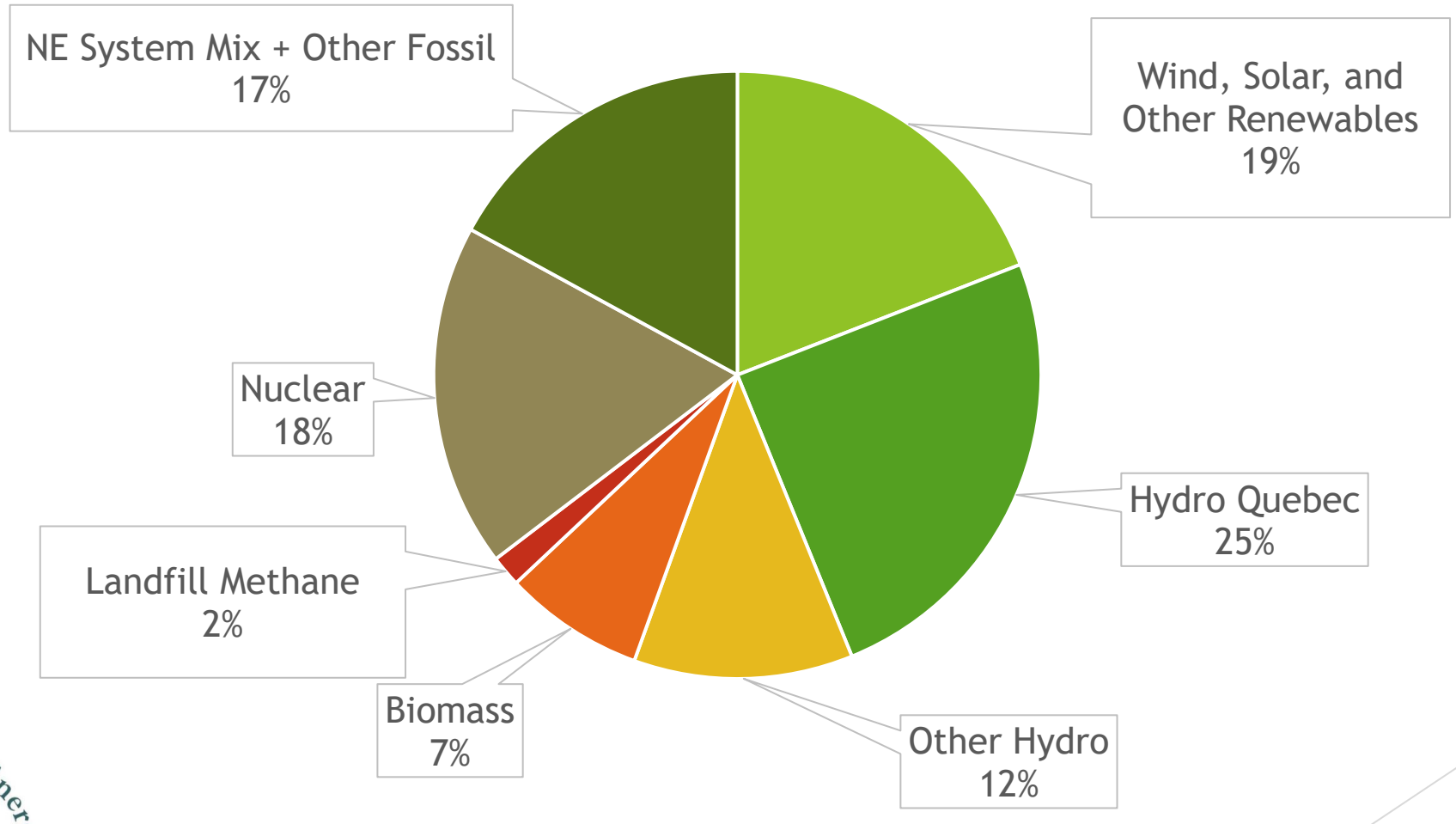
Why Vermont Needs RES Reform

60 acre 360MW NG facility in Dayville, CT

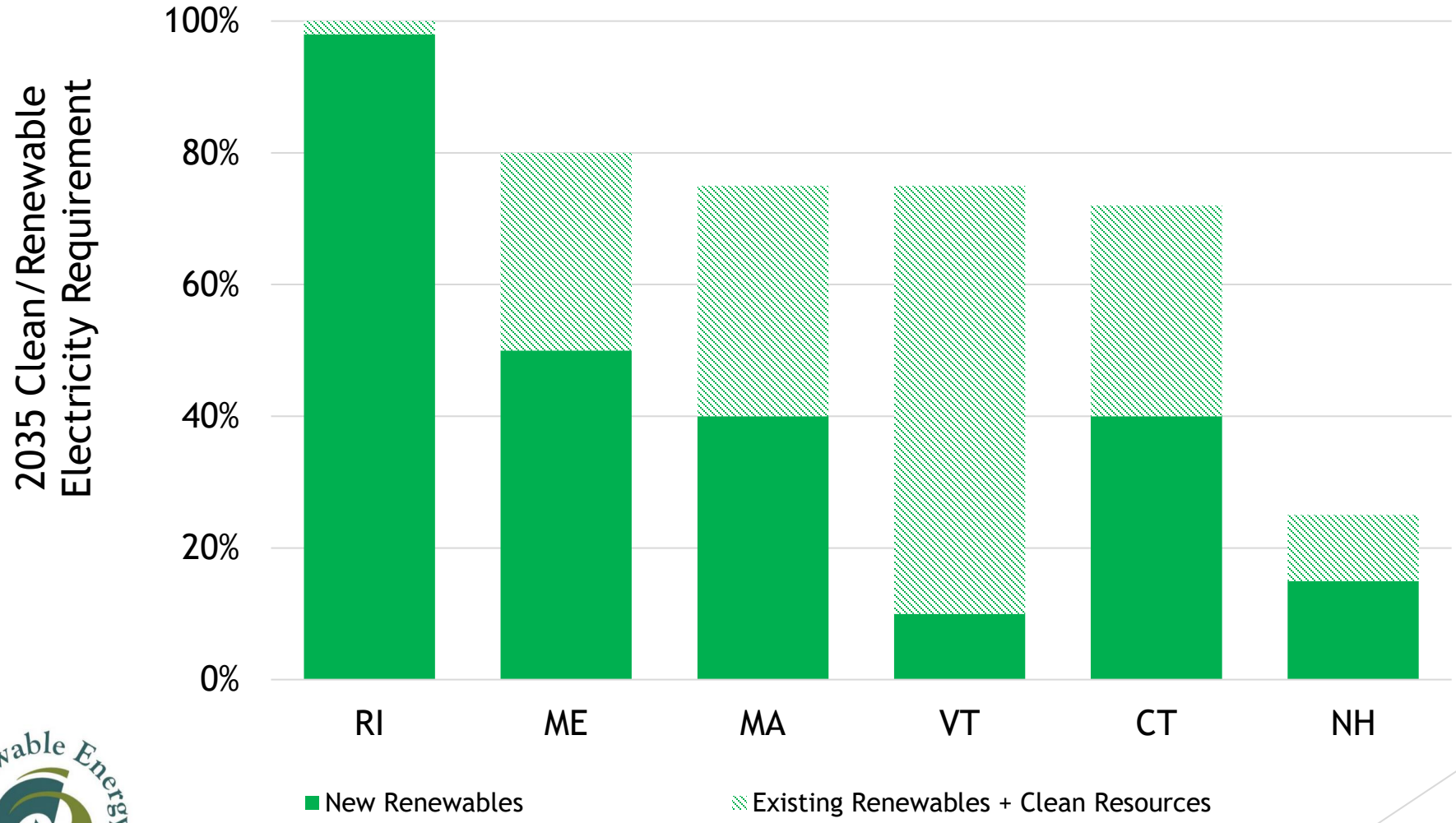
Our electricity isn't as sustainable as you'd think



Vermont's Physical Electricity Supply Portfolio 2021

Source: VT Department of Public Service
REV2022 Presentation, 10/27/2022

VT's requirement for *new* renewables is the worst in the region



Sources: Database of State Incentives for Renewable Energy (DSIRE)
CT SB 10, Session Year 2022

How did we get here? Vermont's Renewable Portfolio Standard: The 2015 Renewable Energy Standard (RES)

Passed in 2015, the RES set two renewable energy targets for 2032:

- **Total Renewable Energy (Tier I)**
  - 75% of retail sales from renewable facilities that can deliver power to the New England grid
- **In-State Renewable Energy (Tier II)**
  - 10% of annual retail sales from in-state sources <5MW
  - Met through net-metering, Standard Offer & PPAs

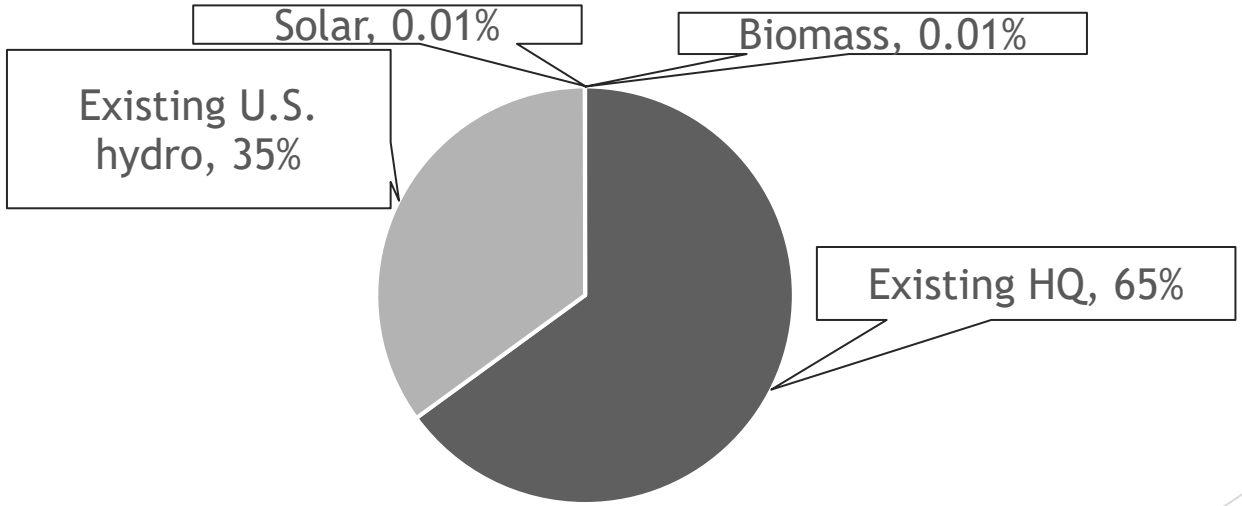
What has worked with Vermont's RES

- Has deployed solar at a steady pace
- Meeting Tier 1 requirements has not had a significant rate impact
- Provided a good transition to make RE mainstream
- Helped with economic growth

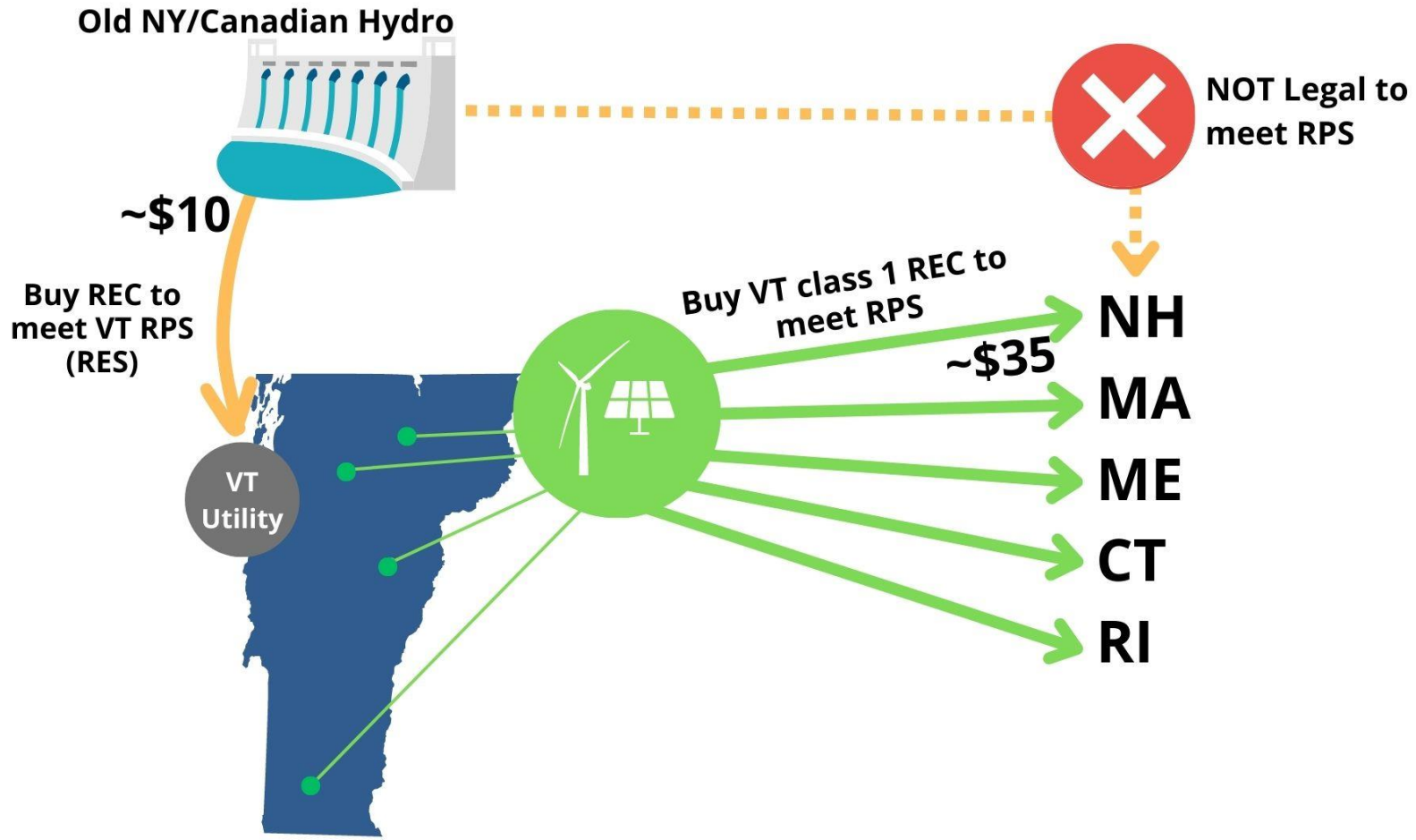
What Has Not Worked:
The RES Was Not Designed to Address Climate Change

"Much of the Tier I savings are a result of purchasing RECs from existing resources, so while Vermont is reducing its fossil fuel consumption, ***the regional impact on incremental renewable energy is limited.***"
VT DPS 2022 Annual RES Report

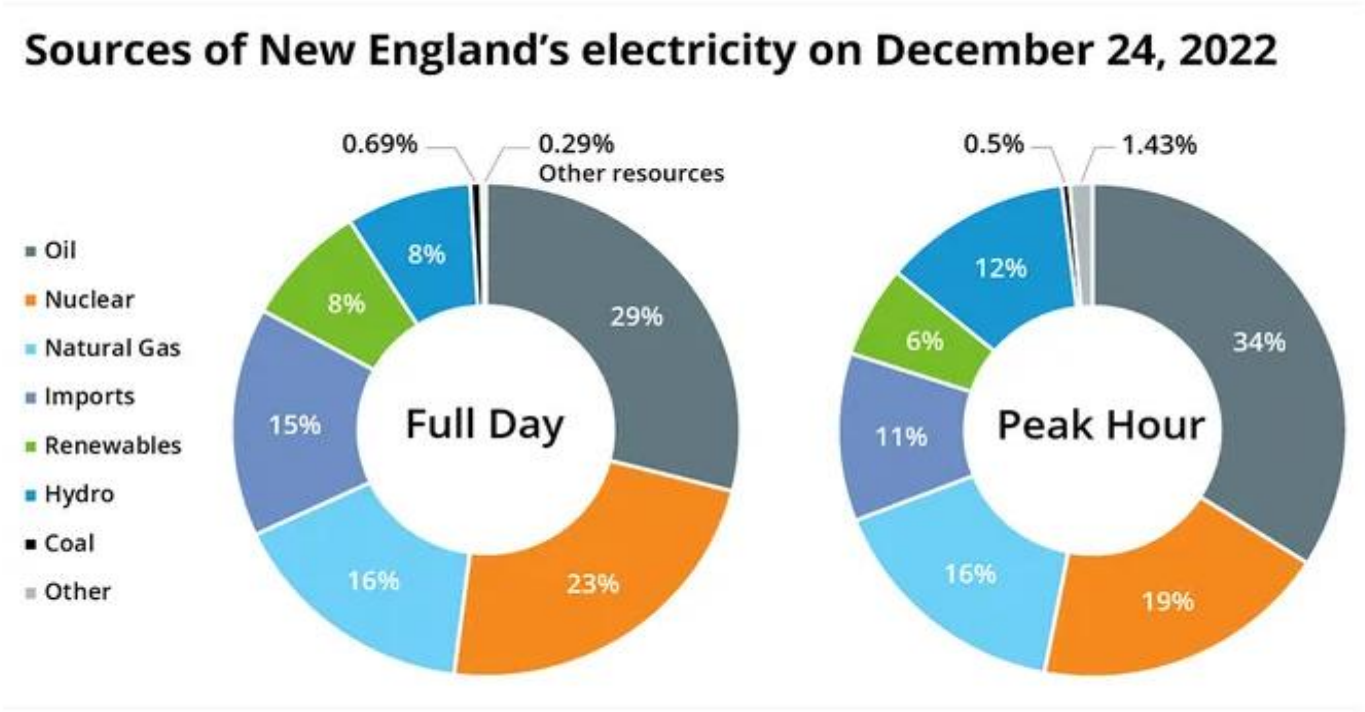
- 99.8% of Tier I requirements are met by retiring old hydropower RECs. The use of unbundled RECs from old out of region hydropower has stifled RE deployment in VT and throughout NE.
- REC's from out of region large hydro are not considered renewable under the RPS of any other NE state
- This structure disincentivizes the deployment of new renewables in Vermont and throughout NE



How the RES Disincentivizes New Renewables in New England



Accounting of RECs Masks Fossil Fuel Used in Electricity Generation



This chart from ISO-New England, the region's electric grid operator, shows the region's leading fuel source during the Christmas Eve storm was oil. *Courtesy/ISO New England*

Marginal Generation in New England

- The marginal generator is the power plant that the grid operator dispatches to meet the next incremental rise in demand.
- If over the course of a day a utility hasn't ordered enough power ahead of time to meet its demand at that point in time, it then has to go to the market and buy wholesale power in either the real-time market or the day-ahead market.
- And of all the generators who do have capacity, the one who can bid their supply at the lowest price gets to be the marginal generator.
- Data published by ISO New England natural gas from 60% to about 87% of the time depending on the month. I need to caveat that this is TIME-weighted averages, not load-weighted averages.

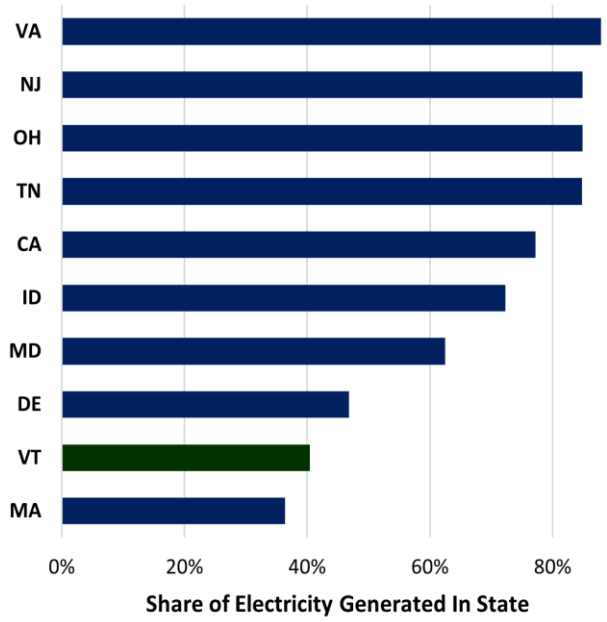
The VT Legislature must pass Renewable Energy Standard (RES) reform legislation to bring sufficient new renewables on line to help Vermont meet its greenhouse gas reduction goals by:

1. Replacing the current Tier 1 renewable energy purchasing requirement with one capping energy purchases from existing renewable sources at 40% by 2035

2. Increasing the existing 10% in state renewables purchasing requirement to 20% by 2030 and 30% by 2035

3. Creating a new "new renewable energy" purchasing requirement of 30% new renewables of any size from within New England by 2035.

Why increase in-state renewables: Vermont is 49th in the U.S. in share of energy produced in state



Source: EIA *State Electricity Profiles* Data for 2020

This matters for:

Environmental Justice

* NE has 81 oil & natural gas plants that operate at >10% capacity
* VT has NO natural gas plants & 5 oil plants that each run <9hrs/yr

VT Energy Security & Resiliency

* Global warming means wet, freezing snow storms more the norm
* WEC has a $300,000 budget for emergency storm mgmt.- the Xmas snowstorm cost $1.3m

Economic Development

* 6,965 jobs in the RE energy sector in 2017, 5,656 jobs in 2022- a 19% decrease in 5 years
* For a 500kW NM array it's not uncommon for it to generate $120,000 in grid upgrades, $2,000/yr state taxes, $3,000/yr in municipal taxes and $10,000/yr to landowner

More information on RES impacts

- **Cost:** Next Era estimates for generation later this decade: Wind+Storage $14-$21MWh, Solar+Storage $17-$24MWh, existing NG $25-$47MWh, new NG $56-$69/MWh
- **Land Use:** Current Tier II requirements will take ~700 acres of solar. 20% Tier II will require an additional total of ~2,300 acres of solar. UVM study: residential sprawl consumes 1,500 forested acres/year
- **Prime Ag Soils:**

  * Vermont has 1 million acres. The Farmland Information Center estimates that 21,000 acres of agricultural land in Vermont were developed for residential land uses 2001-2016 with another 41,000 acres projected to be converted between 2016 and 2040.

  * In 2022, the PUC issued CPGs for 19 solar projects 250 kW or larger. Collectively, <100 acres of PAS fell within the area of disturbance for these projects

- **Forests:** A 2021 study by Synapse Energy Economics found converting 1 acre of typical NE forests to solar takes 15x more carbon out of the atmosphere than forestland. This carbon balance will not shift in favor of maintaining forest cover until the marginal emissions rate in New England is reduced by 94%

More details at www.revermont.org/2023-policy-priorities/

Renewable Energy Vermont

Goals for RES Reform

- Capping energy purchases from existing renewable sources at 40% by 2035 to replace the current “Tier 1” renewable energy purchasing requirement
- Increasing the existing 10% in state renewables purchasing requirement to 20% by 2030 and 30% by 2035
- Creating a new "new renewable energy” purchasing requirement of 30% new renewables of any size from within New England by 2035
- Ending the use of unbundled RECs from out of region old hydropower
- Direct the PUC to develop rules that guide and support the development of community solar and to create new procurement programs to ensure Vermont can affordably meet its in state renewable energy goals

Why Vermont Needs RES Reform

Every kWh of electricity generated by new solar in Vermont reduces electricity generation from fossil fuel plants elsewhere in New England