Vermont's Renewable Energy Standard and the Climate Crisis

Peter Sterling & Jonathan Dowds
Renewable Energy Vermont

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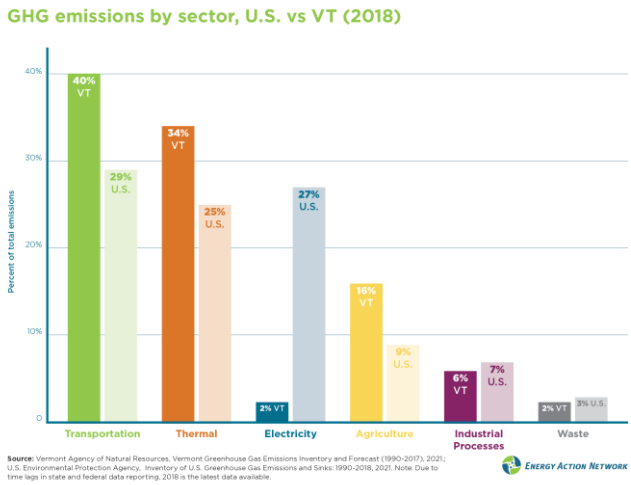
Maybe you've seen this about our GHG emissions



It's not the full story

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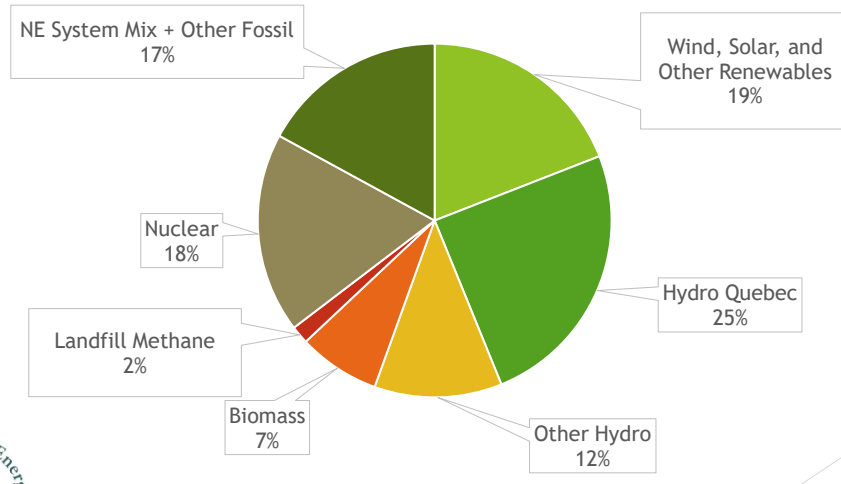
Our electricity isn't as sustainable as you'd think



Vermont's Physical Electricity Supply Portfolio 2021

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

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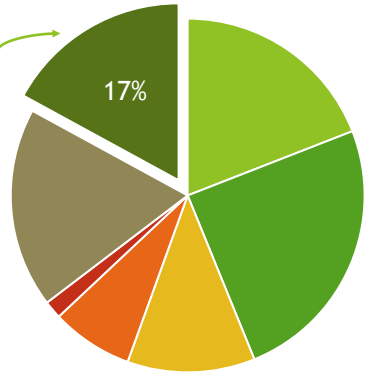
Almost a fifth is fossil fuel heavy "system mix"

ISO-NE System Mix:
Just plain dirty



System mix refers to electricity purchased on the market that is not associated with a particular power plant.

In New England, more than half of the system mix is generated using natural gas.

Vermont's Physical Electricity Supply Portfolio 2021

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

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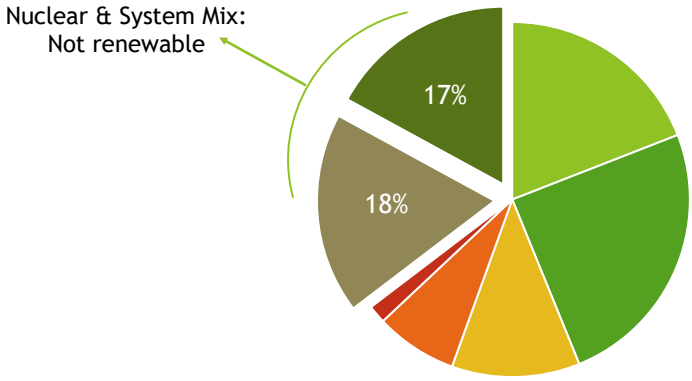
More than a third is not renewable



Vermont's Physical Electricity Supply Portfolio 2021

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

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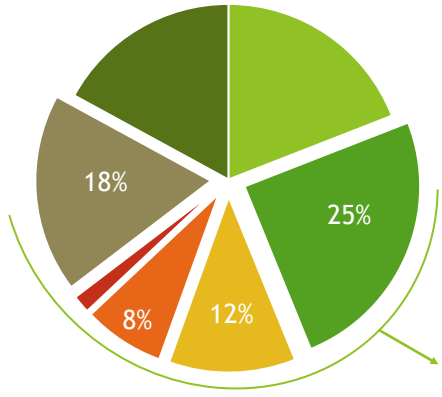
Two-thirds can't be expanded fast enough to meet projected demand growth



Hydro, Biomass, & Nuclear:
Not scalable

Vermont's Physical Electricity Supply Portfolio 2021

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

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How did we get here? The 2015 Renewable Energy Standard (RES)

The RES set the 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
  - 99.8% met through retirement of Renewable Energy Credits (RECs) from older, out-of-state, hydro facilities
- **In-State Renewable Energy (Tier II)**
  - 10% of retail sales from in-state facilities smaller than 5MW
  - Met through net-metering (~300 MW), Standard Offer & PPAs

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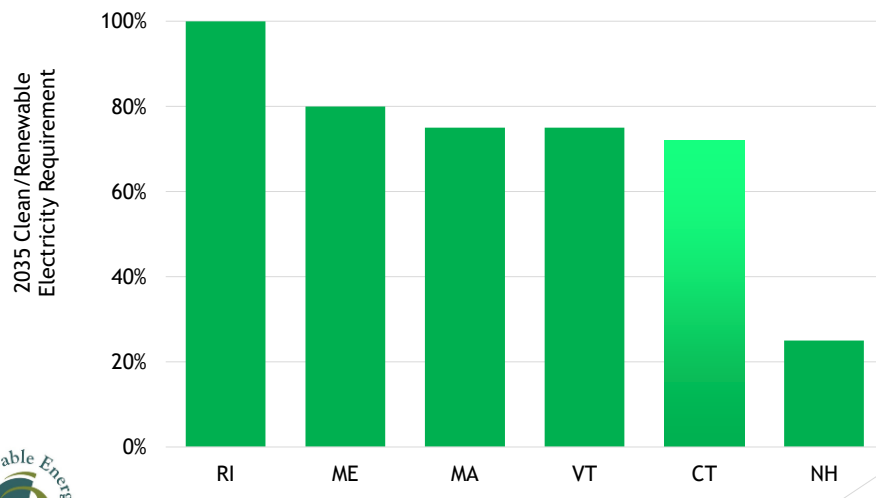
VT no longer leads on clean/renewable energy



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

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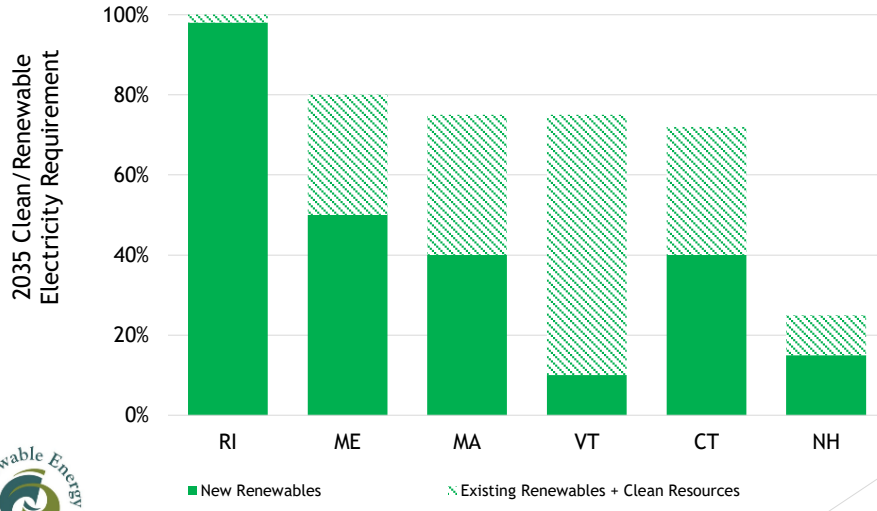
VT's requirement for *new* renewables is the worst in the region



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

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VT's RES fails to address climate change

"The RES did not incorporate the requirements … that rewarded the development of new resources."

- 2022 Comprehensive Energy Plan,
Vermont Public Service Department

"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.***"

– 2022 Annual RES Report,
Vermont Public Service Department

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The Vermont Legislature must pass a law re-aligning the RES with the rest of New England

Total Renewable Energy (Tier I)			
Current RES		**Proposed Change**	
Requirement	Satisfied By	New Requirement	Satisfied By
75% by 2032	Old hydro	100% by 2030	Significant *new* resources

In-State Renewable Energy (Tier II)			
Current RES		**Proposed Change**	
Requirement	Satisfied By	New Requirement	Satisfied By
10% by 2032	Mostly net metered solar	20% by 2030 30% by 2035	Net metered solar + MW scale solar + storage

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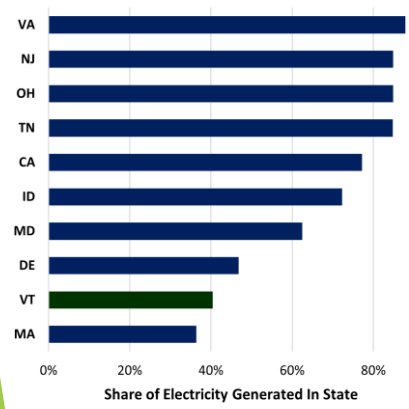
Why increase in-state renewables: Vermont lags in energy production



Source: EIA *State Electricity Profiles* Data for 2020

This matters for:

- **Environmental Justice**
- **VT Energy Security**
- **Economic Development**

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Environmental Justice

- Every kWh of electricity from wind and solar reduces electricity generation from fossil fuel plants in New England.
- These fossil plants are disproportionately located in vulnerable communities.

Report: The proposed Peabody power plant will exacerbate existing health inequalities

November 04, 2022 By Miriam Wasser

The Peabody Municipal Light Plant's Waters River substation on Pulaski Street currently has two gas peaker power plants. The Massachusetts Municipal Wholesale Electric Company has approval to build a third plant in the flat grassy area where the two yellow trucks are parked. (Robin Lubbock/WBUR)

Source: WBUR

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Economic impacts of doubling in-state renewables

Leverage federal tax credits

- 30% - 50% of the cost of new renewables and storage
- Direct payment available for non-profits, school districts, and municipalities

Increasing in-state renewable deployment generates jobs *throughout* Vermont

- In 2016, when solar installation peaked, the sector employed 7,000 people
- As of 2022 it's down to 5,600

Sources: SEIA Inflation Reduction Act Factsheet
2022 Vermont Clean Energy Industry Report

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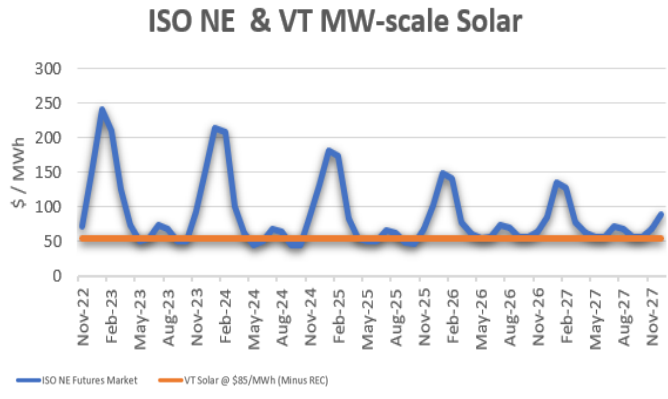
Economic impacts of doubling in-state renewables

- Minimize ratepayer exposure to expensive and volatile market electricity
  - Larger solar projects provide electricity more cheaply than natural gas



Source: Thomas Hand, MHG Solar REV2022 Presentation

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Net Metering Makes Sense: NH Study Values Distributed Energy at ¢17/kWh

- VT DPS values distributed solar at ¢9/kWh, undervaluing the benefits of net metered power

2021 – Value of Distributed Energy in New Hampshire

Source: **Value of Distributed Energy Resources Study commissioned by the New Hampshire Department of Energy**

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Land use impacts of doubling in-state renewables

2030 Load Forecast Assumptions & Tier II Requirements	
2030 Load Forecast Source	DPS 2022 RES Compliance Model
Tier II Requirement	20%
2030 Load Forecast (MWh)	5,984,438
Current Tier II Generation (MWh)	330,028
Other In-State Generation (MWh)	-
Required New Generation (MWh)	866,860

New Renewable Project Scenario Modeler

Project Type	Average Project Size (kW)	Average Capacity Factor	Tier II Generation	Capacity (MW)	Annual Output (MWh)	Number of New Projects	Approximate Acres Utilized
Traditional NM (<50 kW)	10	0.13	33%	251	286,064	25,120	395
New Solar Tarriff (50kW - 1 MW)	750	0.15	22%	145	190,709	194	1,103
Standard Offer 2.0 (1 MW - 5 MW)	4000	0.18	45%	247	390,087	62	1,484
		Total	**100%**	**644**	**Tier II requirements met**		**2,983**

- 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

Source: REV modeling. See more at https://www.revermont.org/2023-policy-priorities/

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A thing so 'shocking and offensive' it literally can't be permitted

"**Building clean energy is the project of our era on earth**. And at some level, it really is an aesthetic issue. When we look at a solar panel or a wind turbine, we need to be able to see — and our leaders need to help us see, because that's what leadership involves — that there's something beautiful reflected back out of that silicon: people finally taking responsibility for the impact our lives have on the world and the people around us. We are in an emergency, and an emergency calls for imagination, for literally seeing things in a new way. To hide that truth behind a screen of words is — well, offensive and shocking."

Bill McKibben

Rutland Herald op-ed 10/21

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For more information see REV's RES policy page:

https://www.revermont.org/2023-policy-priorities/

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