Renewable Energy Vermont Comments Relating to the Renewable Energy Standard Annual Report to the Legislature

REV appreciates the chance for input in the Department of Public Service's (DPS or Department) 2020 annual report to the Legislature on the costs and benefits of the Renewable Energy Standard.

The message from the CEP, the Climate Action Plan and elsewhere is that we need to electrify everything to reduce our climate impact. We need to electrify our transportation impacts by putting more EVs on the road. We need to electrify our thermal sector by installing more heat pumps to heat our homes and buildings. In order for this strategy to have the intended climate impact we need to be honest about the existing carbon emissions inherent in our electricity sector. We cannot buy our way out of the climate crisis by buying more carbon offsets (claimed as renewable energy credits (RECs) by the utilities) from aging hydro and nuclear power plants. We must accurately account for the actual use of fossil fuels in the electric sector and look for ways to reduce purchases from the ISO New England system mix, which is largely from natural combined cycle gas plants, oil fired plants and even coal fired plants. We can do this by adding more in-state wind and solar which can directly offset those fossil fuel sources 99% of the time.

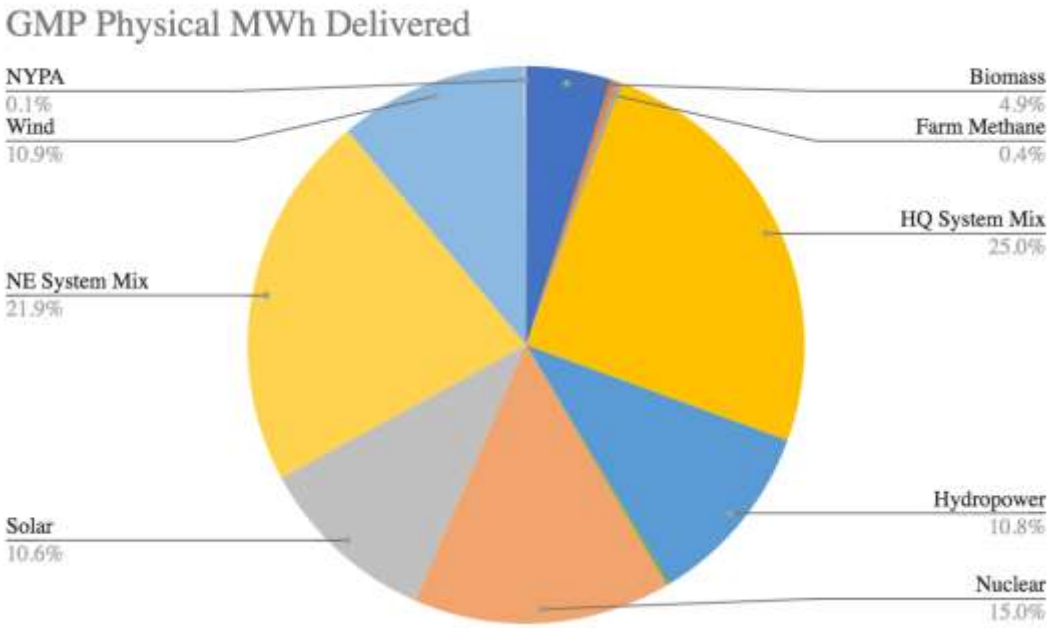
The RES requires utilities to purchase more renewable generation over time and to ramp up our reliance on renewable energy generation to the point where we get to 75% renewable electricity generation for electricity by 2032. The Climate Action Plan calls for Vermont to obtain 100% of our electricity needs from renewable sources by 2030. These goals are admirable and ones that REV wholeheartedly endorses. However, the RES must be based on a realistic evaluation of where our actual energy purchases are coming from. We cannot rely on REC arbitrage to satisfy the RES requirements. To make a meaningful contribution to addressing the climate crisis, new sources of electricity generation must come from new renewables. Otherwise we are fooling ourselves and 'greenwashing' for Vermonters the very real climate change impacts of our electricity use and thus we are not accomplishing what the RES was intended to address.

There is a REC arbitrage that's unique for VT. The vast majority of our RES is satisfied with inexpensive Tier 1 RECs that no other state counts in their Renewable Portfolio Standards and for which there is a vast supply, namely Hydro Quebec (HQ) carbon offsets or attributes. Some utilities also claim clean energy coming from aging nuclear power plants in southern New England. While these nuclear attributes are not used for compliance filings, both the utilities in RES compliance filings and the PSD in the CEP allude to this mix of nuclear and large hydro RECs constituting a clean electricity portfolio. These claims are misleading to the public and disingenuous in the claim that we are truly addressing the climate crisis.

The reality is that electrification without the construction of new renewables does little to nothing for the climate. Nuclear, hydro, solar and wind all run at close to capacity most of the time. If we electrify (i.e. buy an EV or heat pump), that load is added to the grid. The only way currently to produce that extra electricity is to burn more natural gas; there is nothing else to turn up. Even with the most efficient combined cycle natural gas plants, the carbon benefit of electrification is dramatically reduced if we don't simultaneously build new renewables. If we

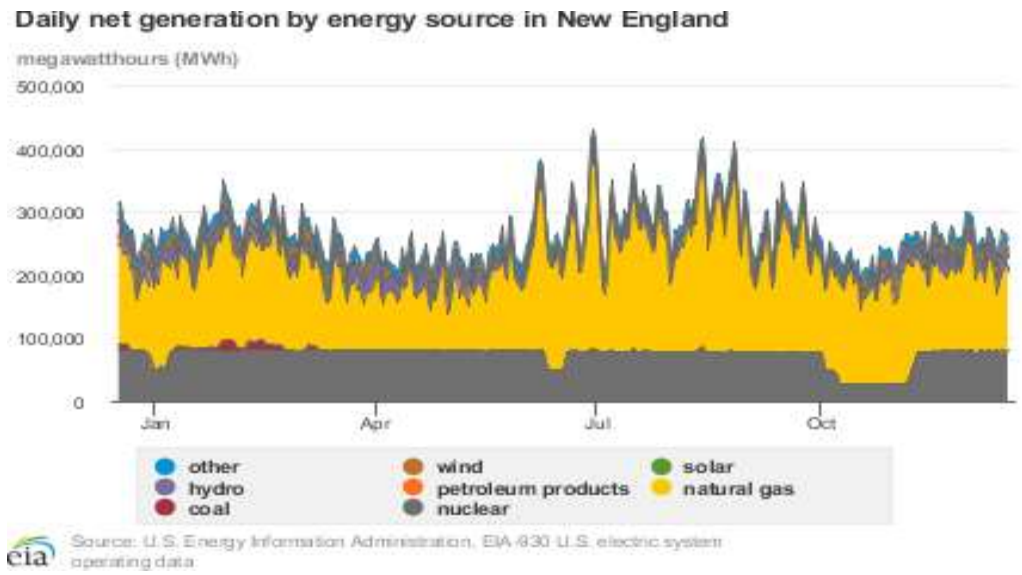
included the 20 year Global Warming Potential of the fugitive methane emissions used to produce the natural gas, it could actually be worse for the climate to electrify without building renewables (depending on which scientific studies of fugitive emissions one chooses to believe).

This graph was created using GMP's 2021 RES Compliance filing:



Contrary to the messaging from the CEP and utility filings, only about a third of the physical deliveries for GMP are from universally recognized renewables. HQ is not recognized by any other state as a renewable for RPS compliance purposes and nowhere is nuclear power considered renewable; the RES expressly disqualifies nuclear from being considered renewable.

The reality is that on a day to day basis, Vermont relies on the fossil fuels in the ISO New England System Mix to make up marginal supply needs. Encouraging the transition to electrification of the thermal and transportation sectors by, for example, promoting the installation of heat pumps and purchase of EVs will lead our utilities to buy more "environmental attributes" (paper carbon offsets) from 20th century facilities, with this new load powered by natural gas as the only possible source to increase at the margin (in New England, nuclear runs at full capacity except when refueling, hydro is hard to see and solar is almost impossible to see on the graph below). This minimizes the climate benefit of electrification, and may actually be harmful to the climate due to the highly negative impacts of fugitive methane emissions. Also note that coal shows up in the winter months when natural gas pipeline capacity is limited meaning more use of electricity in the winter will lead to increased use of coal.



The carbon offset greenwashing permitted under the active loopholes in the existing RES is clearly illustrated by GMP's 2021 and 2020 RES compliance filing spreadsheets (Figure 3 and Figure 4 below), which reported electricity and REC deliveries for 2020 and 2019, respectively. In this filing GMP reported 4 million MWH of electricity delivered to Vermont in both 2019 and 2020. Electricity from fossil fueled generation (ISO-NE system mix) was 416,000 MWh in 2019, but ballooned to 916,000 MWh in 2020 – this is almost a quarter of GMP's electricity portfolio and more than a 110% increase in its fossil fueled electricity over the previous year (Line 12 from Figures 3 and 4).

Figure 3: GMP 2020 RES Compliance Spreadsheet for 2019 Electricity

	A	B	C	D
1		VY 2019 Only	VY 2019 Only	Includes banked VY 2018 RECs
2	**Compliance Year Resource Mix**	**Physical MWh Delivered**	**RECs/Attributes Delivered**	**RECs/ Attributes Retired**
3	Biomass	178,613	125,223	960
4	Distillate	0	0	0
5	Farm Methane	16,861	0	0
6	HQ System Mix	1,041,728	2,741,618	2,186,787
7	Hydropower	550,974	465,965	273,266
8	Landfill Methane	10,862	10,862	0
9	Natural Gas	0	0	0
10	Nuclear	1,272,998	1,272,998	0
11	Solar	358,609	176,660	90,464
12	NE System Mix	416,200	0	0
13	Wind	445,838	445,798	0
14	REC only purchase- hydro	0	339,043	100,578
15	other (NM ex. solar)	15,563	0	0
16	other (diesel, oil)	6,728	808	0
17	other (NY system mix)	5,657	5,657	0
18	TOTAL	4,320,631	5,584,632	2,652,055
19				
20	**Compliance Costs**	**REC Cost**	**Overhead**	**Incentives**
21	Tier I	$521,638.00	$0.00	$0.00
22	Tier II	$4,029,365.00	$0.00	$0.00
23	Tier III	$5,288,311.80	$527,332.80	$4,760,979.00
24	TOTAL	$9,839,314.80	$527,332.80	$4,760,979.00

GMP did this by replacing hydro and nuclear imports in 2020 with ISO-NE fossil fuels (lines 6 & 10 in Figures 3 and 4). Line 6 of the 2020 spreadsheet (Figure 4) shows the huge volume of HQ system mix attributes GMP uses to greenwash the nearly 1 million MWh in fossil fueled electricity delivered to Vermonters. At the same time, in 2020 they acquired more than 1.8 million HQ system attributes, and more than 600,000 MWh "RECs" from the Seabrook nuclear power plant (lines 6 & 10 in Figure 4) to greenwash their renewability and carbon free claims.

Figure 4: GMP 2021 RES Compliance Spreadsheet for 2020 Electricity

	A	B	C	D
1		VY 2020 Only	VY 2020 Only	Includes banked VY 2019 RECs
2	**Compliance Year Resource Mix**	**Physical MWh Delivered**	**RECs/Attributes Delivered**	**RECs/ Attributes Retired**
3	Biomass	206,892	206,892	0.000
4	Distillate	13,382	0	0.000
5	Farm Methane	15,080	0	0.000
6	HQ System Mix	1,046,534	2,846,474	2,064,097.000
7	Hydropower	452,300	384,586	570,044.000
8	Landfill Methane	7,915	7,915	0.000
9	Natural Gas	0	0	0.000
10	Nuclear	628,041	1,289,659	1,289,659.000
11	Solar	442,897	253,140	111,684.000
12	NE System Mix	916,450	0	0.000
13	Wind	458,796	458,796	0.000
14	REC only purchase- hydro	0	0	0.000
15	REC only purchase- wind	0	0	0.000
16	NYPA	5,563	5,279	5,279.000
17	other (specify)	0	0	0.000
18	TOTAL	4,193,850	5,452,741	4,040,763
19				
20	**Compliance Costs**	**REC Cost**	**Overhead**	**Incentives**
21	Tier I	$1,368,616.02	$0.00	$0.00
22	Tier II	$5,150,979.21	$0.00	$0.00
23	Tier III	$11,247,430.16	$1,167,090.30	$10,080,339.86
24	TOTAL	$17,767,025.39	$1,167,090.30	$10,080,339.86

When a utility replaces some of its carbon-based supply with renewable output from reactors and dams built many years ago we are simply redirecting pre-existing output from one customer to another. Redirecting old resources, even if they are renewable like hydro, as opposed to building new renewable projects, does nothing to reduce the level of GHG emissions from the electric generation sector as a whole. We need new non-GHG emitting projects that displace GHG emitting projects. Displacement is the key concept.

Given the extreme threats posed by climate change and the rapid adoption of electric vehicles and heat pumps we need to make sure Vermont utilities are not buying electricity derived from fossil fuels. Tier II is the power that should be more readily recognized as valuable. It is local, additional and close to zero carbon. Currently the RES utility requirement for Tier II compliance is about 3% of a utility's power, growing to 10% by 2030, but many utilities have a lot more than they need right now. So they sell those extra RECs, at a rate of 35 cents per kwh, mainly to utilities or brokers in states that have higher RES requirements. Then, to meet their own Tier 1 RES requirement, which is now around 66%, growing towards 75% over several more years, they purchase cheap RECs, at more like 1 cent per kwh. Those utilities that claim nearly 100% renewable are making this claim through the purchase of Tier 1 RECs.

Electrifying without building solar and wind will provide little to no net benefit, as the electricity will be produced from natural gas with significant fugitive methane emissions.

REV Recommendations to Improve the RES

- Eliminate the ability of Vermont's retail electric utilities to claim a green energy portfolio by purchasing nuclear carbon offsets to cover up ISO-NE fuel purchases.
- The Department should consider phasing out the ability of distributed utilities to satisfy their Tier 1 requirements with the purchase of RECs from HQ, something that no other New England state allows
- All new energy purchases must adhere to the concept of "additionality" as describe in the GWSA, Kyoto Protocols, etc. and must be from new renewable energy sources