September 15, 2023

TJ Poor
Director, Efficiency & Energy Resources
Vermont Department of Public Service
112 State St, Montpelier VT

Dear Mr. Poor,

We appreciate the Department's willingness to explore a 100% Renewable Energy Standard, but are concerned that the Department's ongoing analysis of alternative Renewable and/or Clean Energy Standards (RES/CES) lacks the scope and ambition to adequately inform forward-looking energy policy in Vermont.

The path out of the climate crisis is not a mystery. At a state, national, and international level, we must rapidly electrify and transition to renewable sources of generation, including a historic buildout of wind and solar. There is also little doubt that a highly electrified, renewable future will be served by a power sector that is dramatically different than the sector we have today. Storage, coordinated distributed energy resources, and load flexibility will fundamentally alter how the grid operates and the process of matching supply and demand will be significantly more dynamic than the historical model.

We strongly believe that the scenarios and sensitivities in your analysis should be designed to give Vermont policymakers a clear understanding of the cost and benefits of reaching 100% renewable energy in this context rather than artificially isolating generation changes from synergistic changes in how we store and use energy.

Since the output of wind and solar is variable, failure to include storage and other sources of load flexibility biases the model results in favor of large hydro and nuclear and undervalues variable renewables. In spite of this, modeling conducted by the consultant will not include any energy storage or load flexibility components. The rationale provided to support this decision was that the benefits of storage are separate from the benefits of RES reform and it would be inappropriate to include them in the RES study. From our perspective, this gets the issue exactly backward. Modeling should properly account for storage and grid flexibilities that must accompany increased renewable deployment.

We believe that this study should point Legislators to the most effective environment for a 100% RES and should thus include scenarios and sensitivities with high levels of storage. If the costs are lower in those models, that is information Legislators need when considering energy policy. Similarly, the modeling does not account for other sources of load flexibility, such as smart charging for electric vehicles that would minimize renewable integration costs. We believe these are both fundamental to the grid of the future and that accurate scenario and cost/benefit analyses must assess, calculate and reflect the impact of these strategies.

These technologies are not theoretical. They are being deployed in Vermont today, the Department is seeking grants to expand their deployment, and hundreds of millions of Federal and private dollars are going to advance these technologies. We appreciate that work, and find it inconceivable that expanding storage and increasing load flexibility will not have an important impact on the benefits and cost of transitioning to 100% renewable energy within the time frame contemplated by the models.

Additionally, we are concerned that the current study outline undervalues distributed electric generation by failing to adequately consider the benefits of optimally sited distributed energy resources on grid infrastructure and operation costs. Frequently, solar projects will need upgrades to the distribution infrastructure (such as higher capacity lines and transformers) to connect to the grid. These upgrade costs are covered by the project developer but the upgrades can provide broader system benefits. As Vermonters transition to electric vehicles and heat pumps, Vermont utilities will need to upgrade many of these facilities regardless of new renewable installations. In the instances where these upgrades overlap, the upgrades that the projects pay for can eliminate the need for the utility (and therefore ratepayers) to pay for upgrades. Upgrade costs for a single Standard Offer-sized project can run well into the hundreds of thousands of dollars. Currently, the consultant is not planning to consider this benefit though we understand that the Department is looking at ways to capture this benefit. Optimization modeling that considers geographically specific impacts of distributed energy resources in the context of Vermont would point policymakers in the direction of the energy future that brings the greatest benefit to the state.

Finally, devoting half of the modeling scenarios to "Clean" rather than Renewable Energy Standards uses resources that could be better spent conducting sensitivity analysis around different cost assumptions and benefit valuations for the Renewable Energy Standards. "Clean" is a euphemism that is primarily used to encompass nuclear energy. However, there are no credible projections that new nuclear generation will be constructed in New England within the study period. Consequently, the only impact of switching to a Clean Energy Standard is to codify Vermont utilities' current practice of purchasing power from existing nuclear facilities. That kind of statutory change would change very little in practical terms: Vermont is already relying on existing nuclear power for a sizable portion of its load. A policy that formally equates existing nuclear as on par with renewables merely codifies the status quo. The greatest shortcoming in Vermont's current Renewable Energy Standard is that it has the lowest requirement for new renewable energy of any state in New England. Finding new ways for Vermont's energy policy to rely on existing generating facilities rather than promoting the development of the new generation is counterproductive.

The state's modeling resources would be better spent understanding the impact of other uncertain cost assumptions. These include bounding the assumptions about project construction costs, future fossil fuel prices, the magnitude of transmission/distribution costs and benefits, and the social cost of carbon. There is a great deal of uncertainty around all of these assumptions and better understanding the magnitude of the effect these assumptions have is more important than considering policies to move from a Renewable Energy Standard to a Renewable Energy + Old Nuclear Standard. While the consultant has not enumerated all of the sensitivity analysis that will be conducted, it is clear that bounding these assumptions would provide a better understanding of future costs than using a single-point estimate.

With these critiques in mind, there are many elements of your efforts that we appreciate. We are grateful that the Department's baseline scenarios include a representation of the RES requirements proposed in H.320, a bill that our coalition universally supported. Though we disagree with some of the modeling decisions that have been made, the transparency with which you have conducted this process is to be lauded. We also appreciate the Department's early commitment to include the social cost of carbon in this analysis and its commitment to report the physical greenhouse gas emissions changes that these policy scenarios have at the regional level (across ISO-New England's generating portfolio and power imports). It is the ability of Vermont's energy policies to reduce climate pollution at the regional level that determines whether these policies are influencing the trajectory of the climate crisis. In your reporting on this modeling, we urge you to emphasize that if Legislators and policymakers see the RES as

a tool to combat climate change, then it is this regional perspective, and this regional perspective alone, that accurately reflects this policy's effectiveness for climate mitigation.

Sincerely,

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