

October 31, 2017

Anne Margolis  
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Vermont Department of Public Service  
112 State St  
Montpelier, VT 05620-2601

Re: VPIRG comments regarding Act 53 Draft Report on Energy Storage

Dear Ms. Margolis,

Thank you for the opportunity to offer comments on the draft Act 53 Report as released for public review on October 11.

The storage, demand response, and smart grid industries are still nascent. Though these technologies are important to the future of our entire electric system, it still remains to be seen which technology is most appropriate and cost effective for the various issues we are trying to solve. For instance, the need for a transmission system upgrade could also be solved by storage, smart grid, and/or demand response solutions (including electrification with load control capacity). Thus, policies should aim to be technology neutral, and to create opportunities for the best, least cost solutions. Though this report was intended to focus on storage, the actions recommended and ultimately adopted should also seek to encourage smart grid and demand response solutions as well. Where one type of technology will provide broader benefits than another, that information should be transparent and accessible.

VPIRG has identified three primary categories of recommendations for the final report: 1) Defining the benefits; 2) Creating financial opportunity; and 3) Transparency and market access. VPIRG would recommend pursuing recommendations (either through legislation or regulatory processes) in each of these three categories to ensure storage, smart grid, and demand response solutions are accessible and can benefit our entire state. These actions are detailed below.

In addition, VPIRG supports longer term recommendations including a storage procurement target or the inclusion of storage in the Renewable Energy Standard, a clean peak standard, and upfront incentives for storage. However, we recognize that these goals are likely not attainable in the next 12-24 months, so we are focusing our recommendations on near-term regulatory and legislative actions.

## **1. Defining the Benefits**

In order to realize the many, diverse benefits of storage, smart grid and demand response solutions, those benefits must be clearly defined. Potential storage developers or owners must have a clear understanding of how they can derive value from a potential system. Regulators should have a clear value calculation to understand if a storage solution is appropriate when proposed. If an incentive program or other funding source is developed, a clear definition of the diverse benefits of storage will guide where that funding is most needed.

### **a. Value Stack**

VPIRG supports the creation of a statewide definition of a value stack for storage and other grid solutions. The concept of a value stack and the various benefits that should be included in the stack are

well described in pp. 10-16 of the draft report. A Vermont specific value stack would be customizable to accommodate the costs and benefits of storage, demand response, and other smart grid solutions.

VPIRG recommends including both monetized and non-monetized benefits in the value stack. While they aren't currently monetizable, the values of reliability, renewable integration, and resilience and microgrids have quantifiable financial benefits. Having a value stack that includes both monetized benefits and other quantifiable financial benefits will incentivize investors and developers to look for public private partnerships and other arrangements to share in the upfront cost in order to achieve those benefits.

#### b. Storage Prioritization Study

VPIRG additionally recommends that the Department of Public Service seek funding for a full study and map of the locational benefits of different storage technologies. The final report should define the parameters of this study more fully, but it should include at the least the following:

- Output: ranked list of the most valuable locations for storage, based on available storage technology and the diverse needs for storage around the state
- Inputs:
  - Town and regional identification of community centers and areas most needed for emergency services and community resilience that would be served by microgrids with renewables and storage
  - Locational data on grid constraints and peaks, including potential renewables curtailment or constraints
  - Location and load of commercial and industrial ratepayers that could see a financial benefit of storage to offset demand charges

## 2. Creating financial opportunity

Most of the commenters identified cost as one of the most significant barriers to adopting storage. Other New England and neighboring states have begun looking for ways to incentivize storage or otherwise create financial opportunity to change the cost equation. This creates a risk to Vermont of falling behind other ISO-NE states in our ability to reduce our peak loads, which could result in serious cost increases for ratepayers.

In order for Vermont to keep up with our neighbors on storage, and realize the diverse benefits of storage to our grid and ratepayers, we must create a financial opportunity to invest in storage for a variety of market players, including distribution utilities (DUs) and a competitive third party market.

#### a. Rate design solutions

Rate design has enormous potential to send market signals that can vary based on market needs and the specific benefits of the particular storage or smart grid solution being deployed. The draft report on pp. 29-32 included a number of rate design options. VPIRG supports the consideration of any of these or others that have not yet been discussed as determined by the end use or need.

Any proposed rate design should be carefully considered for the customer class and the end use. None of these opportunities should be rolled out to consumers prior to smart grid, storage, and/or demand response solutions being available. Rate design can change the financial equation, but if new rates are

mandatory rather than optional while these solutions are in their infancy, it will only result in a ratepayer penalty. One way to ensure these rates serve the appropriate purpose is to make them end-use specific (for instance, a time of use rate specific to charging electric vehicles).

b. Sales and property tax exemptions

Solar energy plants are exempt from property tax (32 V.S.A. § 3802 (17)). The Legislature should expand this exemption to storage systems, if they are connected to renewable energy systems as defined in this section. Additionally, the Legislature should similarly extend towns' ability to exempt storage connected to renewable energy systems from real and personal property taxation as set forth for renewable energy systems in 32 V.S.A. § 3845. Finally, the Legislature should define a preferential property tax rate at the municipal and state level for storage systems, as they have done variously with wind generating facilities (32 V.S.A. § 5402c) and solar systems (the Solar Energy Capacity Tax).<sup>1</sup>

The sale of energy systems is additionally exempt from the sales tax as defined by 32 V.S.A. § 9741 (46). The Legislature should expand this exemption to include storage systems that are connected to renewable energy systems defined in this section. In fact, sub-section (C) already includes solar hot water systems with storage capabilities.

c. FEMA disaster response plan

The 2018 State Hazard Mitigation Plan and the State of Vermont Emergency Operations Plan should include a plan to develop community resilience centers powered by renewables+storage microgrids to provide critical services in times of widespread power outages. Both of these plans will be updated in 2018, making this year a critical time to affect changes in those plans.

If storage is included as a component of our emergency response and mitigation plans, the state will be eligible to receive FEMA funding for storage projects in the case of a natural disaster. These systems will prepare us and help us be more resilient in the face of a future natural disaster.

### 3. Transparency and market access

One of the most important considerations in the draft report was the issue of ownership options and delivery pathways (pp. 22-26). As we stated in our initial comments, over-reliance on one player creates the risk of a monopolized market. At best, failing to create a competitive market will result in missed opportunities for innovation and cost reduction. At worst, the entire market could shut down if that one player is no longer committed to providing the service to its customers. In this case, the storage and smart grid market is at risk of being monopolized by the DUs.

The renewable energy industry has been a competitive industry since its foundation, and we have seen the costs of this technology drop exponentially as a result. Encouraging the same competition in storage and smart grid technology will help bring the upfront costs of these solutions down as well, while ensuring a long and stable competitive market. The following recommendations would help encourage this competitive arena.

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<sup>1</sup> <http://tax.vermont.gov/municipal-officials/solar-valuation>

a. Data Access

One of the barriers for non-utility storage developers is access to data. Currently only the DUs have the significant majority of data required for determining the best locations for storage, including real time data around locational grid constraints, individual circuit peaks, and system peaks. Data aggregators including Green Button Data are providing solutions for distributed storage integrators. The State should seek out methods of making this data more widely available to potential market players.

b. Storage Permitting

As the draft report discusses (pg. 32), there is currently no explicit permitting process for storage systems. We recommend that the Legislature adapt Sections 248 and 8010 to include a defined process for interconnecting small, medium, and large storage systems. This will improve transparency for third market applicants around the full process for permitting storage systems.

c. Energy Efficiency Utility (EEU) Jurisdiction Expansion

The draft report looks to the Act 77 Report as the venue to discuss expanding the EEU jurisdiction to include storage and smart grid applications. However, VPIRG urges the Department to specifically recommend this expansion in the final report. As entities that are already tasked with (and partially compensated based on) peak reduction, the EEUs are in a unique position to work with the competitive market to determine the most applicable storage and smart grid technologies for distinct needs and facilitate bringing those technologies to Vermont, creating markets within the state, and reducing the cost to the end user. In seeking to spread the benefits and costs of storage across the state and look for innovative ways to encourage this technology, it is appropriate and necessary to look to the EEUs.

d. Competitive Market Requirement

We recognize that DUs have access to data and value streams that allow them to take advantage of the value of storage most readily. However, they are not always in the best position to look for innovative solutions that will ultimately bring down costs and increase customer access. Thus, we recommend a requirement that DUs seek competitive bids for any storage, grid upgrade, or smart grid project they propose to undertake.

If a distribution utility identifies a need for a distribution or transmission system upgrade, that DU would be required to issue an RFP for alternative solutions that would include storage, demand response, or other smart grid technologies. Similarly, if the DU identified a location where a storage project would be beneficial to the grid, they would be required to issue an RFP for alternative solutions such as demand response or other smart grid technologies. This would allow the DU and the regulator to weigh the true least-cost technology (using the defined value stack as discussed above), and encourage market innovation and competition. In addition, if one of the bids proactively proposes a solution that would provide a greater statewide long-term benefit as or more cost-effectively, but holds a higher upfront cost, utilities should be strongly encouraged to prioritize that bid. This would enable the competitive market to not only respond as a band-aid solution but also play a larger role in shaping the future of the smart grid.

As utilities seek to fulfill their Tier III requirements, this competitive bid process should also be required or strongly encouraged. In particular, when actions or proposals under Tier III may increase utility assets

or have storage or load management applications (line extensions, EVs, and heat pumps), the ability to offer those services (or propose alternatives that achieve the same goal) should be opened to the competitive market. Utilities may be fulfilling their requirements but doing so at a greater cost to ratepayers and closing the doors to a competitive market and new, innovative solutions.

Thank you for the opportunity to provide comments. We look forward to the final report.

Sincerely,

Sarah Wolfe  
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Vermont Public Interest Research Group