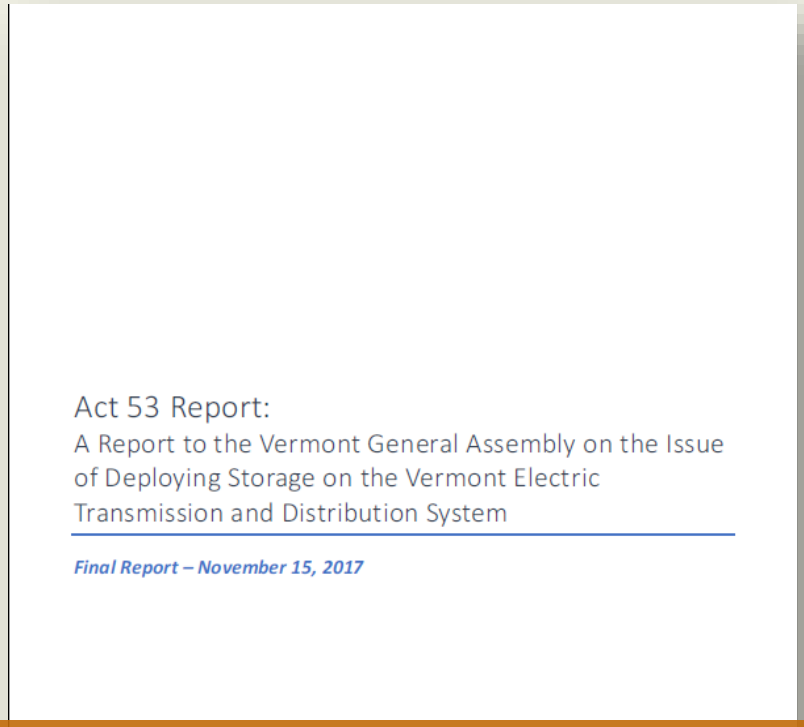
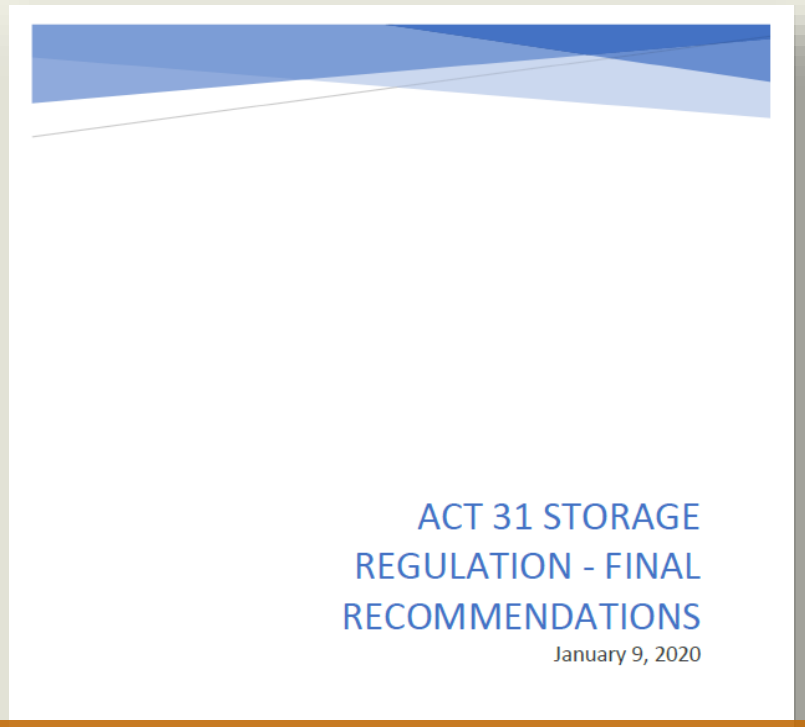
Energy Storage Regulation - Recommendations

2017 & 2019 Storage Reports





"....we view energy storage as a means to an end – rather than an end in and of itself – and thus many of our recommendations focus on pursuit of storage within the broader pursuit of a clean, efficient, reliable, and resilient grid in the most cost-effective manner for ratepayers."

- Provide a clear path to permitting storage projects
- Ensure storage projects and their operations do not adversely impact the grid or ratepayers; and
- Provide public and environmental safety

https://publicservice.vermont.gov/content/2019-energy-storage-regulatory-recommendations-2017-energy-storage-study

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Storage deployment & dockets

Project	MW	MWh*	Proceeding	Notes
Powerwall & BYOD pilots/tariffs	15.7	63	19-3167-TF and 19-3537-TF	GMP tariffs approved June 2020; 2597 installations thru 2/21; various pilots ongoing
Stafford Hill Solar + Storage, Rutland	2 (actually 4 but inverter-limited at 2)	3.4	Docket 8098	First utility storage project in VT (GMP; permitted 2014)
Panton Storage	1	4	Case No. 17-2813-PET	GMP battery co-located with solar; open docket on islanding
Essex Solar + Storage	2	8	Case No. 18-2902-PET	GMP JV Solar + Storage
Milton Solar + Storage	2	8	Case No. 17-5003-PET	GMP JV Solar + Storage
Ferrisburgh Solar + Storage	2	8	Case No. 17-5236-PET	GMP JV Solar + Storage
Dynapower S. Burlington	1.5	6	N/A	Backup power only
E. BarreCo Barre	5	20	Case No. 18-1658-PET	ESA with GMP
Viridity Hinesburg	1.9	5.3	18-3088-PET	ESA with VEC
*Assuming all batteries are 4 hours	33.3	127.4		VT peak is ~900 MW (and we have about 400 MW of PV)

As of 4/13 there were active filings for an additional 13.5 MW of storage projects

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Other VT BESS considerations

- Planning
  - GMP Climate Plan (20-0276-PET)
  - VELCO 2021 Long-Range Transmission Plan
  - 2021 State Climate Action Plan
  - 2022 State Comprehensive Energy Plan
  - 3-year Utility Integrated Resource Plans
  - Regional & municipal enhanced energy plans
- Deployment
  - Criteria (Orderly Development, Need, System Stability & Reliability, Economic Benefit, Environmental Impacts, etc.)
  - Cost-benefit analysis & cost allocation
  - Generation constraints
  - Interconnection
  - Safety
  - Co-deployment with net-metered and larger resources
  - Wholesale & retail market participation
  - Visibility, control, & interoperability
  - FERC Order 2222 & aggregations

Aggregation

- FERC Order 2222 definitions:
  - A **distributed energy resource** is "any resource located on the distribution system, any subsystem thereof or behind a customer meter."
  - A **distributed energy resource aggregator** is "the entity that aggregates one or more distributed energy resources for purposes of participation in the capacity, energy and/or ancillary service markets of the regional transmission organizations and/or independent system operators."
- *Aggregation* refers to the assembly of a portfolio of DERs from multiple customers that can be managed collectively to provide energy, capacity, or ancillary services. For example, the DR potential of multiple industrial customers or thousands of residential air conditioners can be managed as an aggregated resource, providing significant peak demand reductions, frequency response services, etc. (Enabling Third-Party Aggregation of Distributed Energy Resources: Report to the Public Service Commission of Arkansas. Regulatory Assistance Project, Feb. 2018)

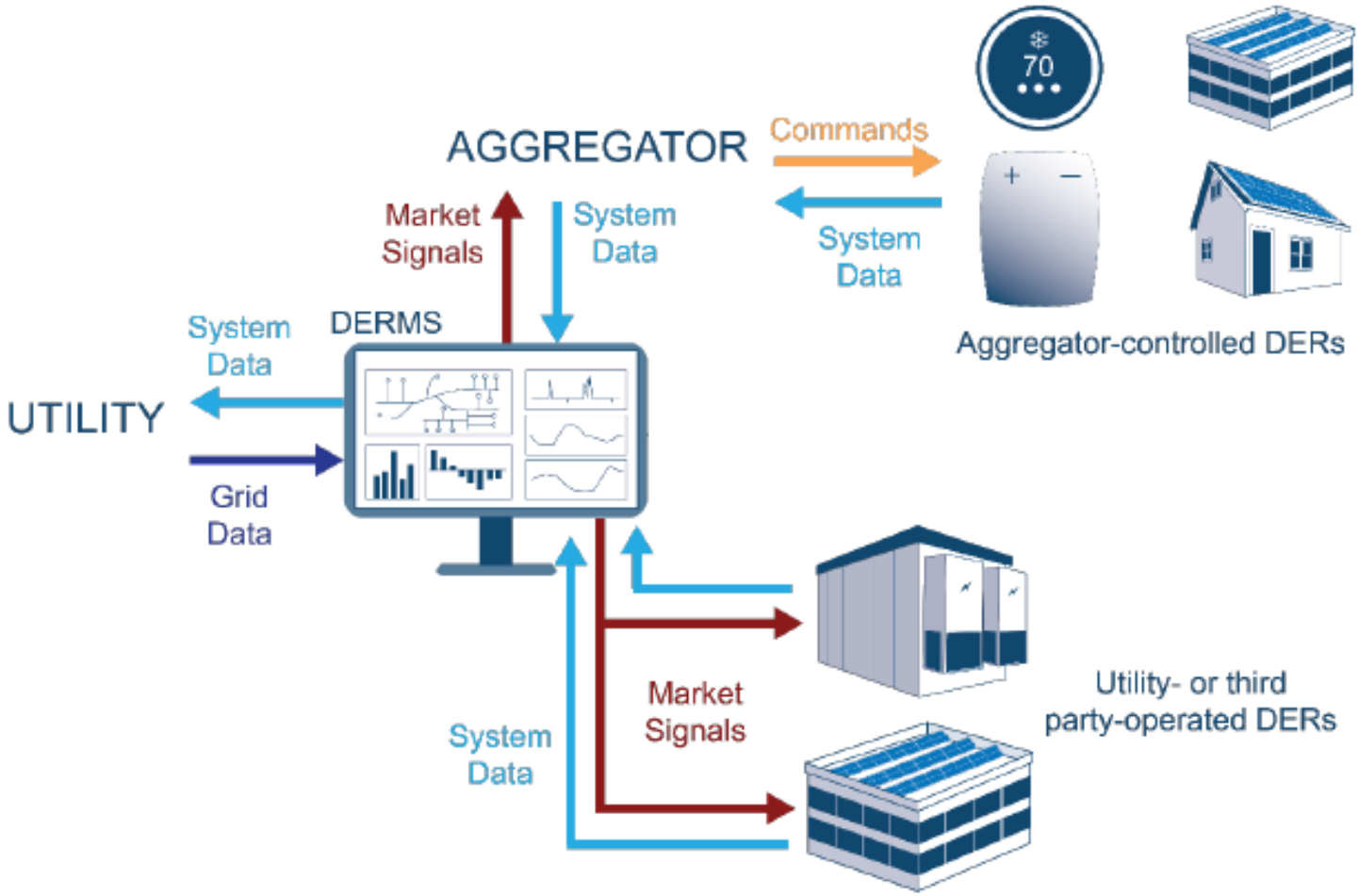

Figure 1. Example DER aggregation program structure and component interaction

Expanding PV Value: Lessons Learned from Utility-led Distributed Energy Resource Aggregation in the United States. NREL, 2019

2019/20: Act 31 Storage Regulation Recommendations

- "On or before January 15, 2020, the Department of Public Service, after consultation with stakeholders, shall provide to the General Assembly recommendations, including proposed statutory language, for the regulatory treatment of storage facilities."

- Process
  - Meetings with utilities and developers during September 2019
  - Draft recommendations for comment issued November 1, 2019
  - Written comments received from the Agency of Natural Resources, Department of Public Safety, Public Utility Commission, Vermont Electric Power Company, and Mr. Bram Towbin
  - Final recommendations issued January 9, 2020
  - Will be posted to https://publicservice.vermont.gov/content/2019-energy-storage-regulatory-recommendations-2017-energy-storage-study

Recommendations

- Secs. 3, 4, 5, 6, 10: Clarify the PUC's general jurisdiction over storage;
- Secs. 7, 8: Offer specific modifications to Title 30 requirements for storage facilities including a presumption of waivers of 30 V.S.A. § § 107-109 and – except for aggregators - § 231;
- Sec. 9: Require storage over 100 kW be subject to 30 V.S.A. § 248 review, with appropriate process modifications for smaller and aggregated storage facilities and storage facilities interconnected or otherwise co-located with renewables;
- Sec. 11: Recommend an appropriate pathway for siting and interconnection review of storage facilities; offer potential revisions to various PUC rules to include storage.

Sec. 6 proposed change

§ 203. JURISDICTION OF CERTAIN PUBLIC UTILITIES

* * *

(1) A company engaged in the manufacture, transmission, distribution, storage, or sale of gas or electricity directly to the public or to be used ultimately by the public for lighting, heating, or power and so far as relates to their use or occupancy of the public highways.

(2) That part of the business of a company that consists of the manufacture, transmission, distribution, storage, or sale of gas or electricity directly to the public or to be used ultimately by the public for lighting, heating, or power and so far as relates to their use or occupancy of the public highways.

* * *

(8) For purposes of this Section, storage shall mean an energy storage facility as defined in 30 V.S.A. § 201.

Sec. 9 proposed change

(u) For an energy storage facility, ~~A~~ a certificate under this section shall only be required for ~~an energy storage~~ a stationary facility exporting to the grid that has a capacity of ~~500~~ 100 kW or greater~~, unless the Commission establishes a larger threshold by rule. The Commission shall establish a simplified application process for energy storage facilities subject to this section with a capacity of up to 1 MW, unless it establishes a larger threshold by rule. For facilities eligible for this simplified application process, a certificate of public good will be deemed issued by the Commission by the thirty-first day following filing of a complete application, unless a substantive objection is timely filed with the Commission or the Commission itself raises an issue. The Commission may require facilities eligible for the simplified application process to include a letter from the interconnecting utility indicating the absence or resolution of interconnection issues as part of the application.~~