

Generation data sharing

June 20, 2019

vermont electric power company



December 2018 Year-To-Date PV Installed Capacity

State-by-State

The table below reflects statewide aggregated PV data provided to ISO by regional Distribution Owners. The values represent installed nameplate as of 12/31/18.

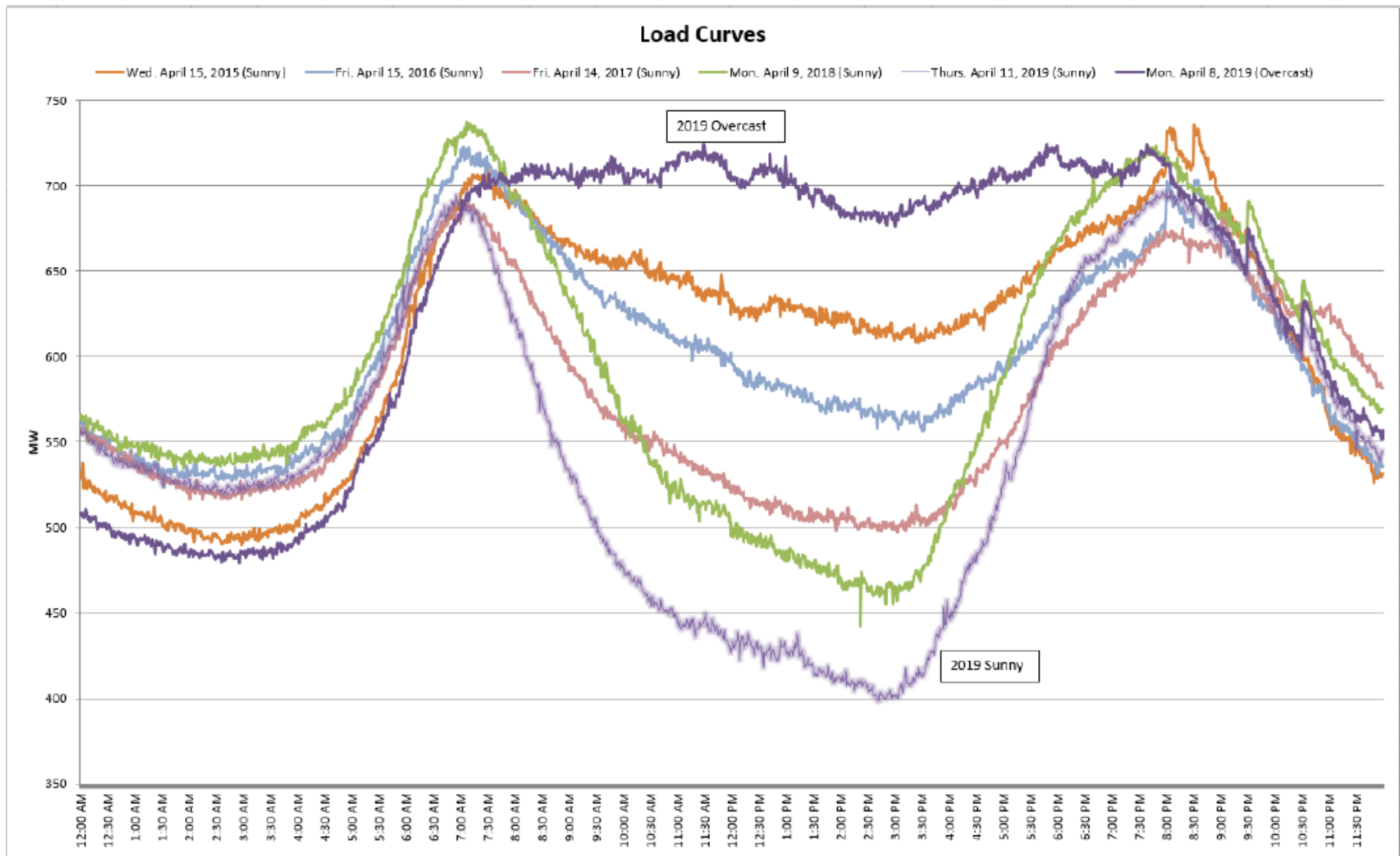
State	Installed Capacity (MW _{AC})	No. of Installations
Massachusetts*	1,871.27	90,720
Connecticut	464.34	35,889
Vermont*	306.30	11,864
New Hampshire	83.84	8,231
Rhode Island	116.66	5,993
Maine	41.40	4,309
New England	2,883.81	157,006

* Includes values based on MA SREC data or VT SPEED data

December 2018 Year-to-Date Installed PV by Distribution Owner

State	Utility	Installed Capacity (MW _{AC})	No. of Installations
NH	Liberty Utilities	3.89	411
	New Hampshire Electric Co-op	10.16	1,008
	Public Service of New Hampshire	60.86	5,978
	Unitil (UES)	8.92	834
	Total	83.84	8,231
RI	National Grid	116.66	5,993
	Total	116.66	5,993
VT	Burlington Electric Department	6.58	253
	Green Mountain Power	253.99	9,294
	Stowe Electric Department	2.41	80
	Vermont Electric Co-op	27.38	1,230
	Vermont Public Power Supply Authority	10.37	535
	VT Other Municipals	0.10	1
	Washington Electric Co-op	5.46	471
	Total	306.30	11,864
New England		2,883.81	157,006

April Load Comparison



Distributed generation is not just solar PV

- There are other types of generation behind the meter

Interconnected Distributed Generation (kW AC)					
Generation type	Solar	Wind	Battery	Hydro	Biomass
GMP Total	259.72	1.23	14.57	23.66	5.86

- Existing hydro units moved behind the meter
 - About 25 MW of hydro have already been moved
 - Highgate Falls (9.5MW) will retire starting in 2021 per ISO-NE retirement tracker¹
 - Many more hydro units will follow

¹ https://www.iso-ne.com/static-assets/documents/2016/12/summary_of_historical_icr_values.xlsx

Planners and Operators need data

- Real time data for system awareness
 - How much and where at this instant
 - Prediction for the next 15 minutes, 1 hour, 1 day
- Historical data for
 - Understanding system behavior
 - Long term forecasting of load and generation
 - Modeling and system analysis

NERC discussing DER data sharing²

SYSTEM PLANNING IMPACTS FROM DISTRIBUTED ENERGY RESOURCES WORKING GROUP WORK PLAN						
#	Task Description	Risk Profile(s)	Strategic Focus Area(s)	Target Completion	Requested PC Action	Status
C1	Review of IEEE Std. 1547-2018 for impacts to BPS <i>Technical review of IEEE Std. 1547-2018 and development of any guidance on determination and effective use of performance requirements and settings within IEEE St. 1547-2018.</i>			Q3-2019	No	
C2	Reliability Guideline: Communication and Coordination Strategies for Transmission Entities and Distribution Entities regarding Distributed Energy Resources <i>Develop recommended strategies to encourage coordination between Transmission and Distribution entities on issues related to DER such as information sharing, performance requirements, DER settings, etc.</i>			Q4-2019	Yes	
C3	Educational Material to Support Information Sharing between Industry Stakeholders <i>Develop material to educate industry stakeholders on practices, recommendations and technical work developed by other industry organizations.</i>			C4-2019	No	
C4	Review of MOD-032-1 for DER Data Collection <i>(In coordination with activity M4) White paper reviewing MOD-032-1 and providing potential modifications to the standard to facilitate data collection for DERs for interconnection-wide modeling.</i>			Q2-2019	Yes	
C5	Coordination of Terminology <i>Review of existing definitions and terminology and development and coordination of new terms, for consistent reference across sub-groups.</i>			Q2-2019	No	
C6	NERC Reliability Standards Review <i>Review EPRI and prior NERC documentation regarding possible Reliability Standards modifications; work with NERC Staff to develop any prioritization of possible standards modifications.</i>			Q3-2019	Yes	
C7	Tracking and Reporting DER Growth <i>Coordinated review of information regarding DER growth, including types of DER, size of DER, etc. Consideration for useful tracking techniques for modeling and reliability studies.</i>			Ongoing	No	

² https://www.nerc.com/comm/PC/System%20Planning%20Impacts%20from%20Distributed%20Energy%20Re/SPIDERWG_Work_Plan-2019-01-10.pdf

Proposal

- Send telemetered DG SCADA data to VELCO through established data sharing protocol (ICCP)
 - Should be part of interconnection process
- Send installed nameplate regularly (monthly)
 - Helps estimate real time generation
 - Multiply installed nameplate by % production of SCADA gens
- Create a working group
 - Understand how data is monitored and archived
 - Real time monitoring, scheduled downloads, SCADA, AMI, communication link
 - Technology for automated sharing of real time and nameplate data
 - Standards, naming convention, and other considerations
- Work on short term forecasting effort separately