

25kW is the New 15kW: Updating Vermont's Residential Net Metered Solar Application & Registration Process to Meet Customers Electrification Needs

S.50 Testimony

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House Energy & Digital Infrastructure Committee

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About Net Metering in Vermont

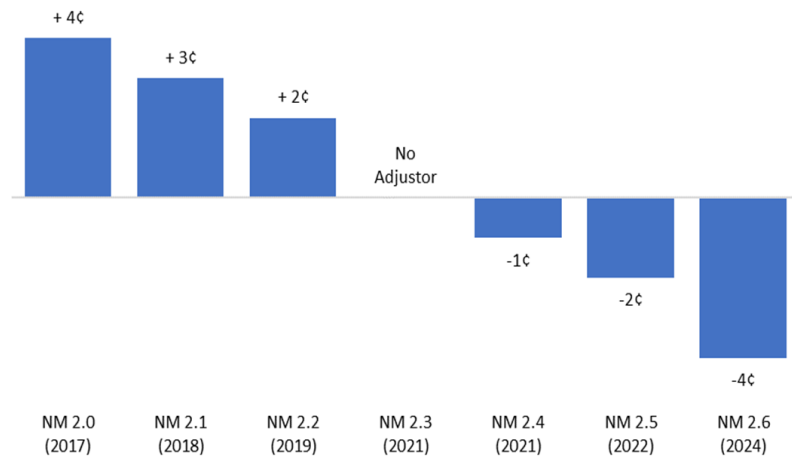
Net metering allows people to generate solar power for their own use and send extra solar power to the grid from where they live and work. People receive credit on their electric bills for the extra power they generate

Around 22,000 homes and businesses currently net meter solar in Vermont

2024 RES reform bill eliminated off-site net metering as a cost reduction measure

Since 2021, residential net metering customers have paid utilities a fee (in the form of a negative rate adjustor) on the power they use behind the meter.

PUC updates net metering compensation every two years



PUC Decreases in Adjustors to the Blended Net Metering Residential Rate

Year	# of <25kW NM Applications
2018	2,541
2019	2,627
2020	1,988
2021	2,927
2022	2,861
2023	2,296
2024	2,143

Residential NM applications have decreased 16% since 2018 and 27% since their post-Covid high in 2021



In 2014, Act 99 established that ground mount arrays $\leq 15\text{kW AC}$ use a quick registration process while ground mount arrays 15-150kW AC must go through a lengthier application process



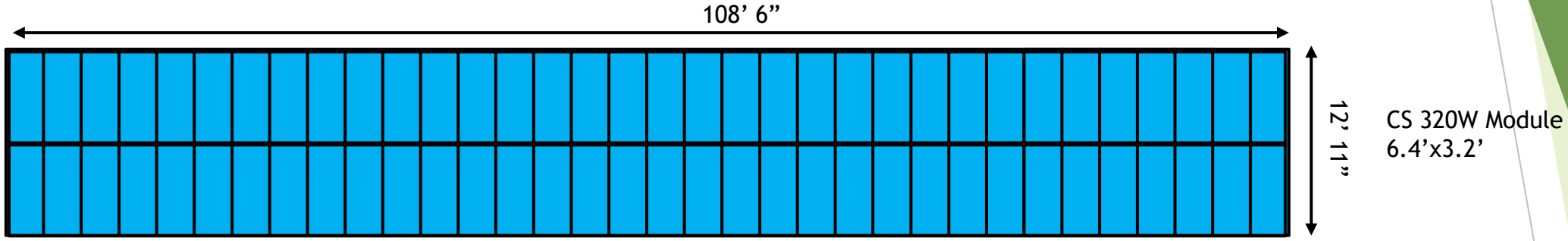
150kW AC solar array outside Lamoille Union HS



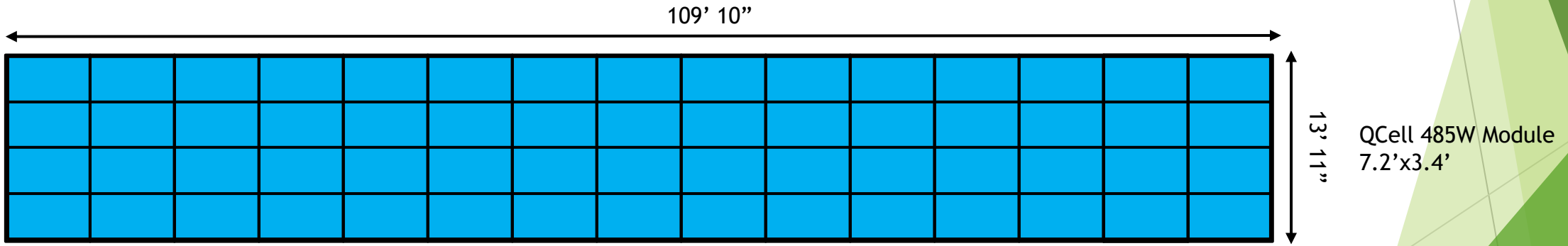
15kW AC residential solar array with 435W panels (66'x12')



Modern Solar Panels Can Produce 28% More Solar Power Using Almost the Same Amount of Land!



Layout of a pre-2017 15kW array using 66 320w panels covering roughly 1400 ft²



Layout of a modern 25kW array using 60 485w panels covering roughly 1500 ft²

Average residential solar panel size in 2014: 250W
Average residential solar panel size in 2024: 435-500W

Application Process

15kW-150kW

45 day advance notice to abutters and mandatory ANR review for wetlands

Mandatory PUC 30-day review after the 45 day advance notice period even if there are no objections to the application

Utility interconnection approval is required before a CPG application can be submitted

Utility must issue interconnection approval letter to the applicant stating any additional requirements for interconnection by the 31st day following the completed interconnection application

Can be further delays in application process of unknown duration- No mandated timeline for the PUC to issue a CPG

Minimum time to complete application process: 4 months

\$5,000-\$20,000 to hire consultants to complete application process

Registration Process

≤15kW

No advance notice or ANR review required

A utility has 15 days from when an application is filed to raise interconnection concerns. Once a concern is raised, the 15 day clock is stopped until resolved

CPG and interconnection approval happen simultaneously

Almost never additional delays beyond the 15 days

Rarely >30 days to complete registration process

No additional costs associated with registration process



Sample Annual Electrical Consumption in a Modern Electrified Home

Average residential load in Vermont is about 6,700 kWh/yr

EV Charging (30 minute commute)	3,000 kWh/yr
Heat Pump Water Heater	1,300 kWh/yr
Heat Pump (1 room)	3,000 kWh/yr
Heat Pump (1800 ft ² well insulated home)	8,000 kWh/yr
Heat Pump (>3000 ft ² home)	15,000-20,000 kWh/yr

With a couple of heat pumps and even one EV, this easily increases usage to above what can be supplied by a 15kW system.

Building a 25kW instead of a 15kW array produces enough extra electricity every year to power a Ford Lightning for over 25,000 miles!



The Potential Cost of This Change is Minimal

Even if all 129 homeowners who put up a 15kW array in 2024 had instead put up a 25kW, the cost shift, even using the Public Service Department's highly flawed methodology, would only be 15¢/yr to the average Vermont household



17kW Array in Southern Vermont

Flawed Net Metering Cost Shift: Lost Sales + Above Market Electricity

The lost sales argument runs counter to fighting climate change:

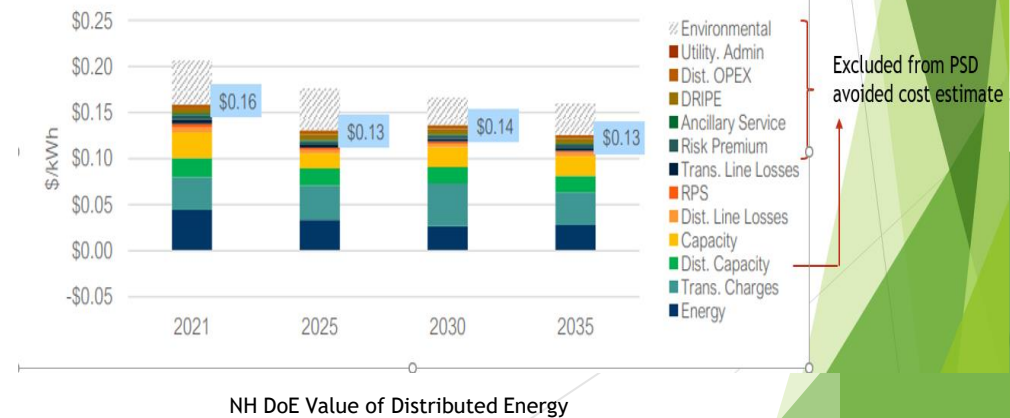
- ▶ Energy conservation efforts and other societally beneficial investments that combat climate change and reduce household energy burden also reduce utility sales
- ▶ Switching from an electric water heater to a heat pump water heater causes 3,864kWh in “lost sales” while a new 7kW net metering solar array causes 7,200 kWh of “lost sales”

PSD’s calculations of the above market electricity from net metering doesn’t account for many benefits of behind the meter generation including historic savings from peak shaving and the value of grid upgrades paid for by net metering customers

In 2022 the NH DoE completed a “Value of Distributed Energy” study that estimated the value of residential solar. While these numbers are not directly translatable to Vermont the study includes many benefits that the PSD has not quantified.

NH values the electricity from net metering at 17¢/kWh in 2025 while PSD values this electricity at 7¢/kWh adding to the “cost shift”

Figure 10. Average Annual Avoided Cost Value for Residential South-Facing Solar PV Array Installed in 2021 (2021\$)^a



Two Similar Sized Arrays, Two Very Different Results: Larger Backyard Projects Not Built!

15kW residential solar array in Barnard



Registration Process: CPG granted by the 15th calendar day after submission almost all the time

25kW residential solar array



Application Process: Four months minimum for a CPG

Only 12 CPG applications have even been filed since 2020 for 15-25kW AC projects

The uncertainty, cost, and length of time needed to complete the 15kW-150kW registration process is restricting the capacity of backyard solar projects!

