

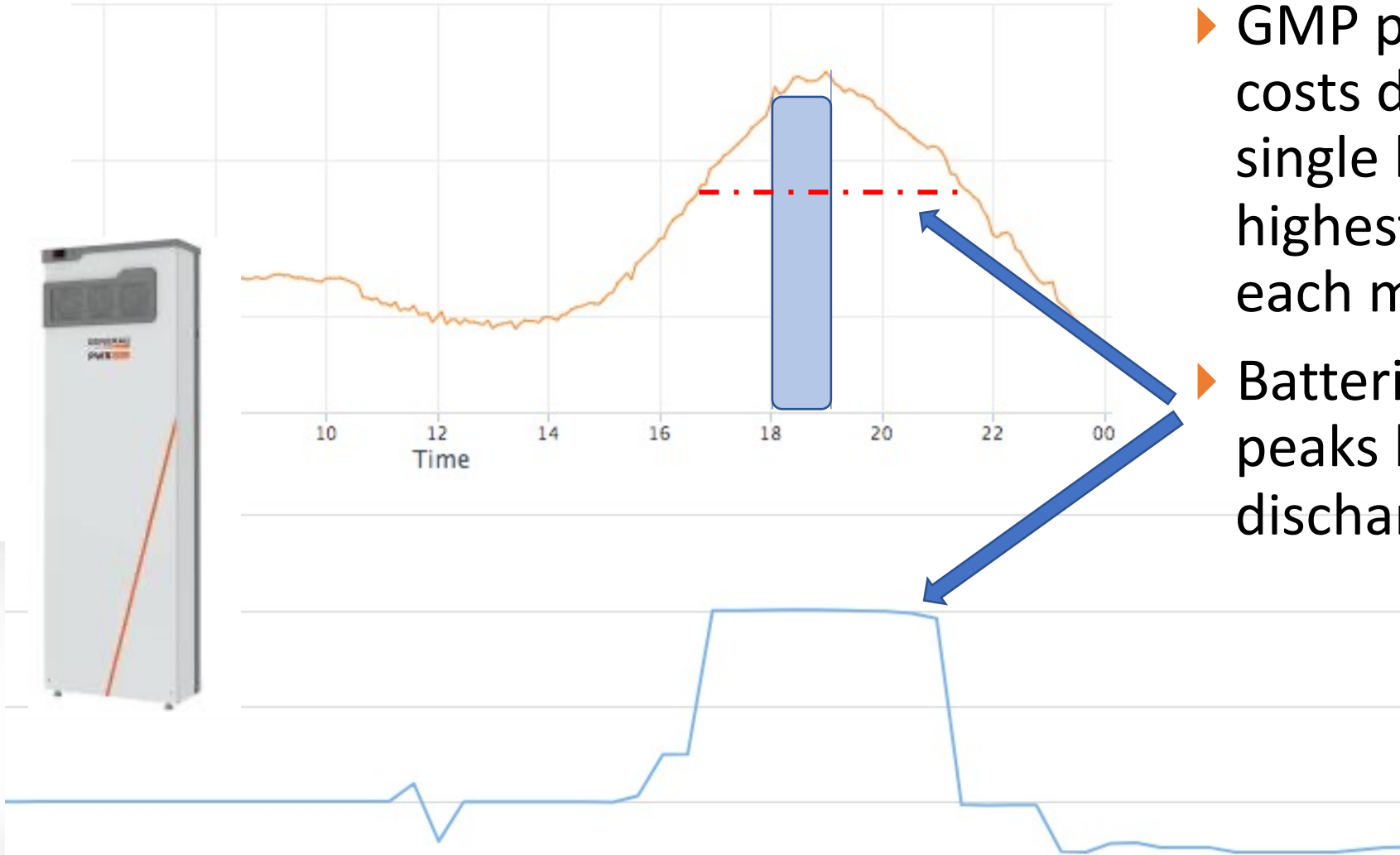


Battery Storage at Green Mountain Power

Senate Committee on Finance | April 22, 2021



PEAK SHAVING 101: GENERATE SAVINGS FOR ALL CUSTOMERS



- ▶ GMP power supply costs driven by single hour of highest VT demand each month
- ▶ Batteries lower the peaks by discharging

GMP ENERGY STORAGE SYSTEM (ESS) PROGRAM: AN OVERVIEW

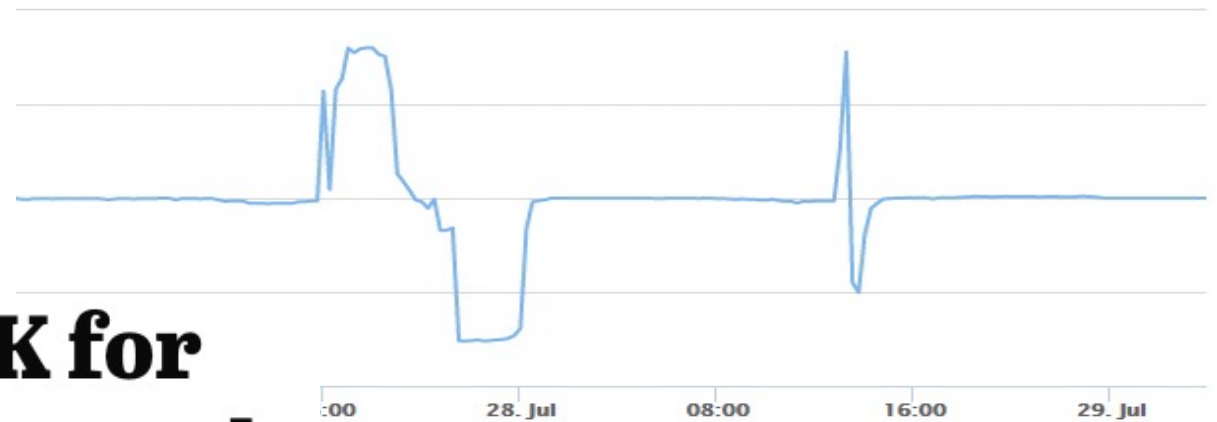


- ▶ \$55/month or \$5,500 upfront for a 10-year lease agreement
- ▶ First utility in the country to get tariff approval to offer our customers this program
- ▶ 500 customers/5MW annually
- ▶ Customer and GMP share access to the Powerwall for backup power and peak reduction
- ▶ Over 3200 batteries deployed – about 16MWs of peaking power

HOW IS IT GOING?

Tesla batteries save \$500K for Green Mountain Power through hot-weather peak shaving

2018 article in Utility Dive, savings for single peak event



[2020 ISO-New England Peak](#)

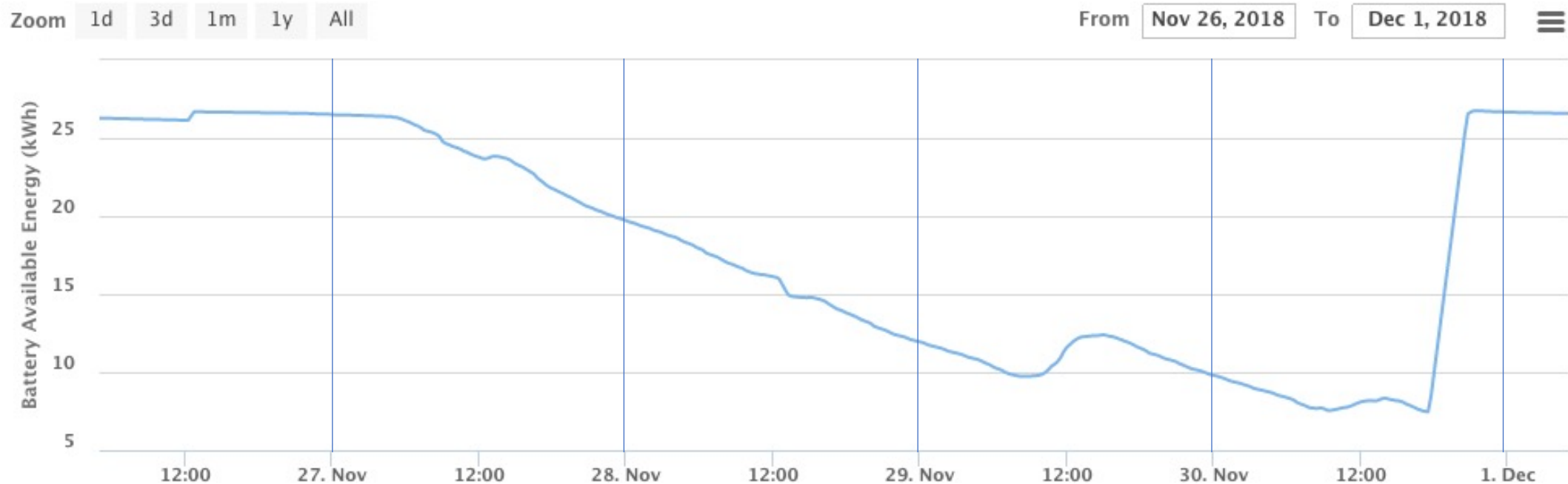
13 MW curtailed = \$1M saved

2019 Greentech Media article after Halloween windstorm

Batteries vs. Blackouts: 1,100 Homes Powered Through Vermont Outage With Storage

Utility Green Mountain Power's pilot programs paid off with clean, distributed backup power amid a statewide outage.

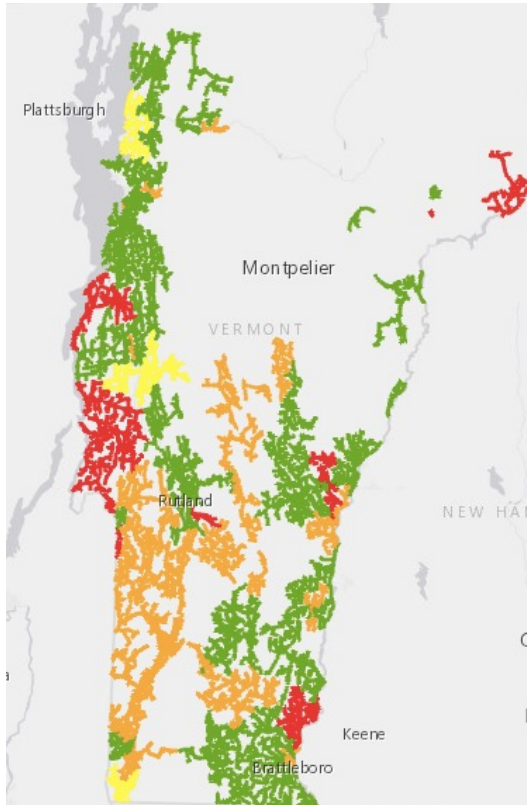
CUSTOMER STORIES



“The Powerwalls pumped our water, ran our lights, appliances, TV, and computers, and even powered our electric snowblower just as seamlessly as if we were connected to the grid”

- Gerry Hawkes, GMP Customer who rode through a 4-day outage

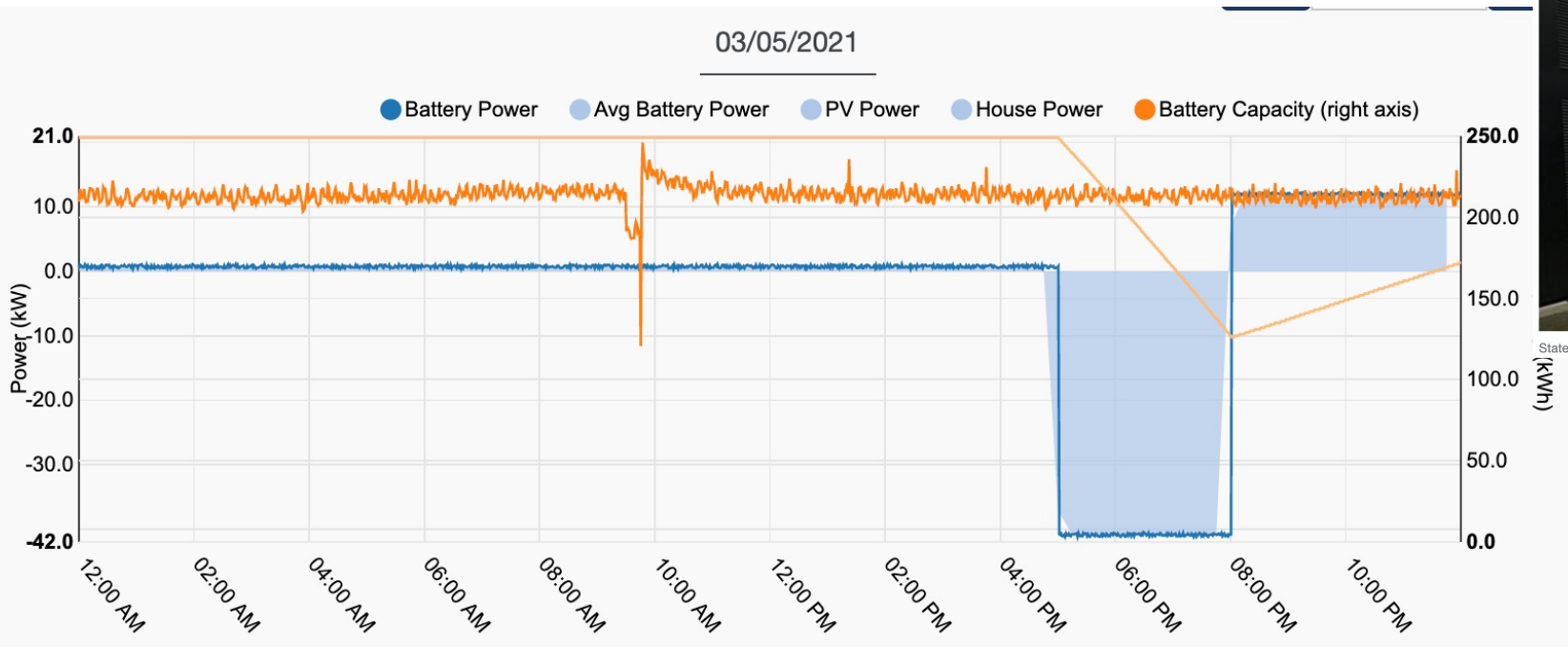
BRING YOUR OWN DEVICE



- Customers enroll their own energy storage system allowing GMP access for peak shaving and earn up to \$10,500.
 - \$850/kW
 - +\$100/kW if in a constrained area of the grid
 - Largest utility incentive in the country
- 1MW installed
- Up to 5MW annually

C&I BYOD

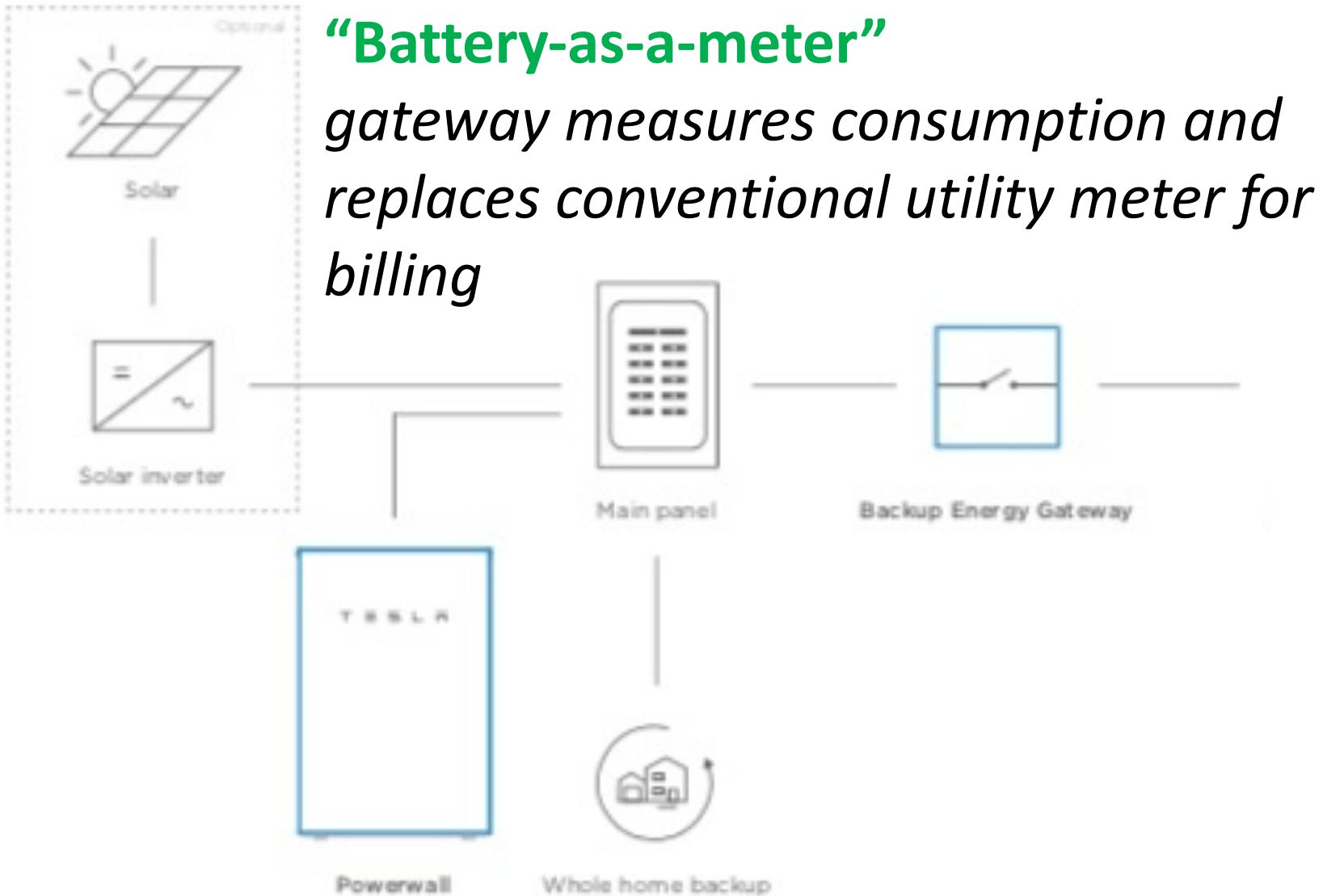
Vermont's State House first in nation with battery backup power



Statehouse backup battery (Green Mountain Power)

GMP Peak event. Battery responded for 3 hours at 41kW continuously.

OTHER PILOT PROGRAMS: RESILIENT HOME



PANTON MICROGRID

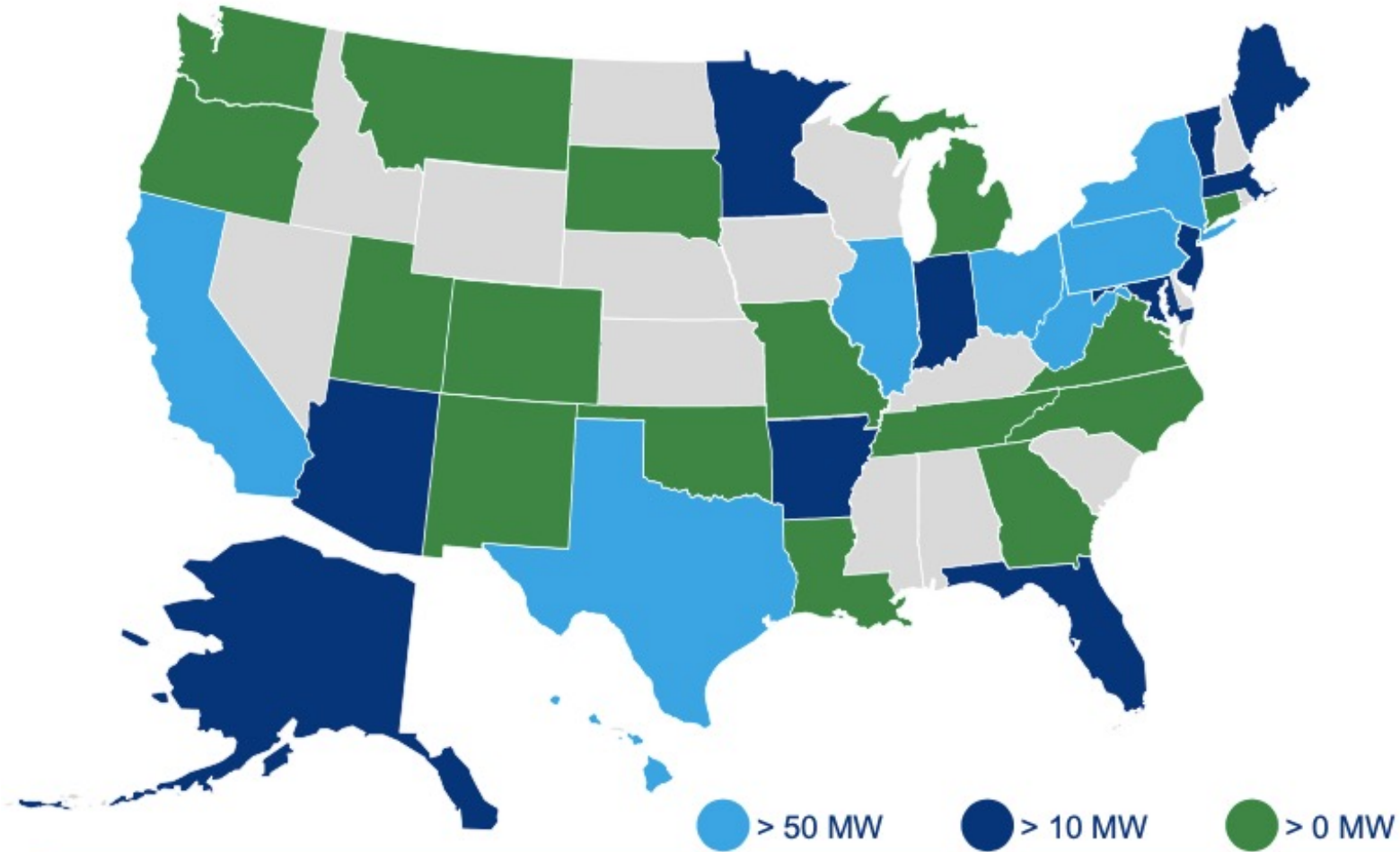
- Partnered with community several years ago
- Local solar first, providing clean power close to where it is consumed
- Then added batteries = this saves all GMP customers money
- 5MW solar & 1MW
- Now adding microgrid capability, will be online in June



PPAS & OWNED PROJECTS

Energy Storage Project	Resource Duration (hours)	Allocated Annual Hours	Peaking Capacity (MW)
WEG Barre (PPA)	4	400	3.3
Springfield (PPA)	2	200	4.9
Georgia (PPA)	2	200	4.9
Engie NAVA (PPA)	4	400	4.9
Engie South St. (PPA)	4	400	2
Essex Storage	4	Unlimited	2
N. Ferrisburgh Storage	4	Unlimited	2
Milton Storage	4	Unlimited	2
Panton Storage	4	Unlimited	1

U.S. FTM snapshot: Active projects as of the end of 2019



A full global project database is available as part of the [Wood Mackenzie Energy Storage Service](#).



Think Big, Start Small and Scale Fast

~Jim Carroll