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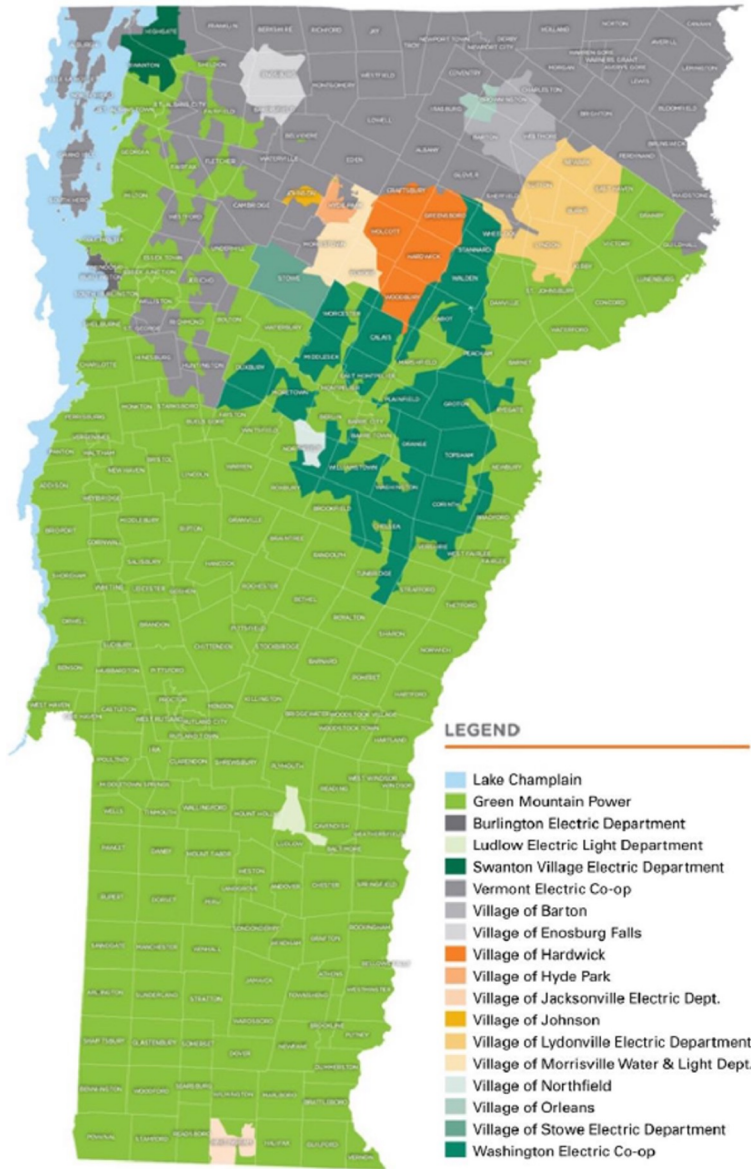
# Green Mountain Power

Introduction, Storm Response, and Innovation  
Senate Committee on Finance

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February 16, 2023

# GMP: Who We Are



GMP serves over 270,000 customers in 202 towns, covering 77% of Vermont

- 85% residential customers, 15% businesses
- Suburban and mostly rural territory with approximately 12,500 miles of distribution lines and 1,011 miles of sub-transmission
- 15 district offices across Vermont
- Just over 500 employees, including 285 members of the IBEW Local 300

On an annual basis: GMP provides 100% carbon free energy and will be 100% renewable by 2030

- Currently 78% renewable!



# A Reliable & Resilient Grid for Customers

- ▶ Reliable, Resilient Grid Now and In the Future
  - ▶ Focus on programs and projects to accelerate the necessary carbon transformation of thermal and transportation sectors
  - ▶ Equitable transition for all customers, keeping electric rates affordable
  - ▶ More than ever important to strengthen the grid as the backbone for clean electrification
- ▶ System level tools
  - ▶ Upgrading infrastructure with storm hardened construction to better withstand today's changing climate
  - ▶ Strategic undergrounding
- ▶ Service level tools
  - ▶ Transformer upgrades
  - ▶ Home, business upgrades
  - ▶ Customer Distributed Energy Resources for flexibility



# GMP's Proactive Climate Plan: Storage

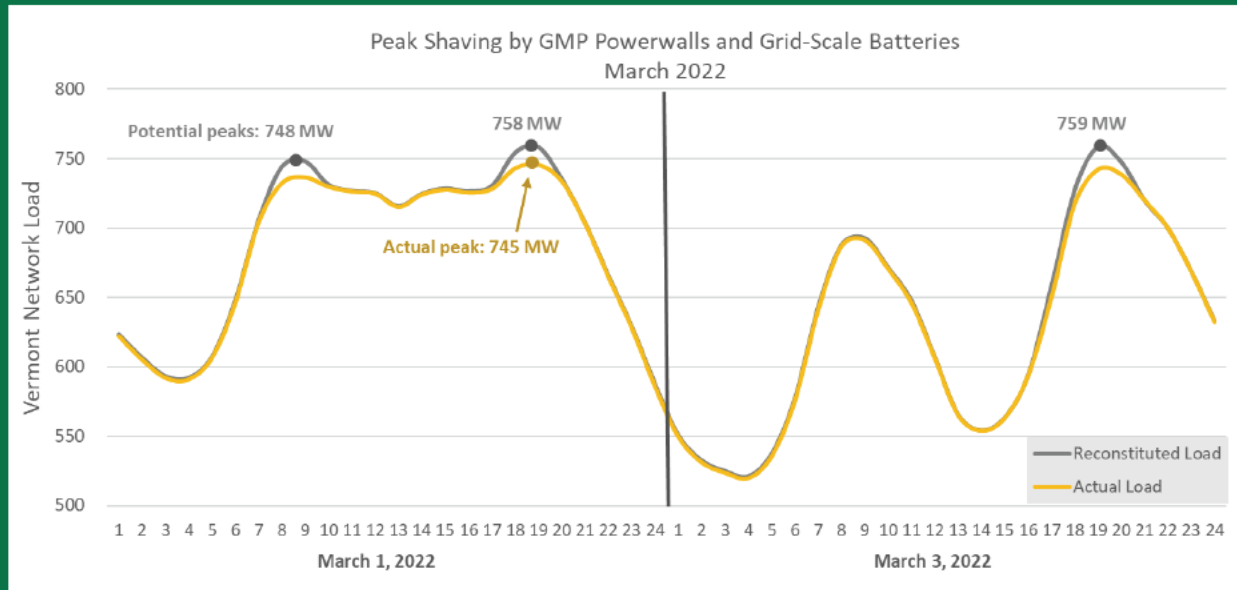
- GMP has deployed 30 MW of residential and large-scale storage throughout Vermont
- This has allowed us to begin retiring fossil peaker generators
- Battery storage strengthens the greater grid, adds resiliency, and helps lower costs for all, saving customers millions of dollars
- Circuit, Town-level Storage, can isolate to micro grid if and when larger grid goes down
- GMP deploying Resiliency Zones which are customized resilience solutions to the community
- Home Storage can last for days if managed and longer if paired with solar
- Both of these resiliency functions also work as peak reducers and frequency regulators on a day-to-day basis, which reduces costs for all customers.





# Home Battery Programs

- 4,185 GMP Powerwalls installed
- 265 BYOD battery customers
- 21+ MW of dispatchable resource
- Powerwall lease fully subscribed for 2020, 2021, 2022 and 2023 – maintaining waitlist
- IRA increasing value through tax credits
- 545 customers installed by VT installers



# Resiliency Zones



- A community hub that stays connected, even when the greater grid is out
- Initial communities were selected by examining reliability, CDC vulnerability data, and communications infrastructure
  - **Brattleboro** – Tri-Park Mobile Home battery microgrid
  - **Rochester** – Grid-scale storage + battery
  - **Grafton** – customers in a targeted area receive in-home battery, lower cost solution than traditional poles and wires
- Continuing to find opportunities to expand the program! We are, along with other DUs and DPS, putting in applications for funding through the Grid Resilience and Innovation Partnerships (GRIP), a Department of Energy program



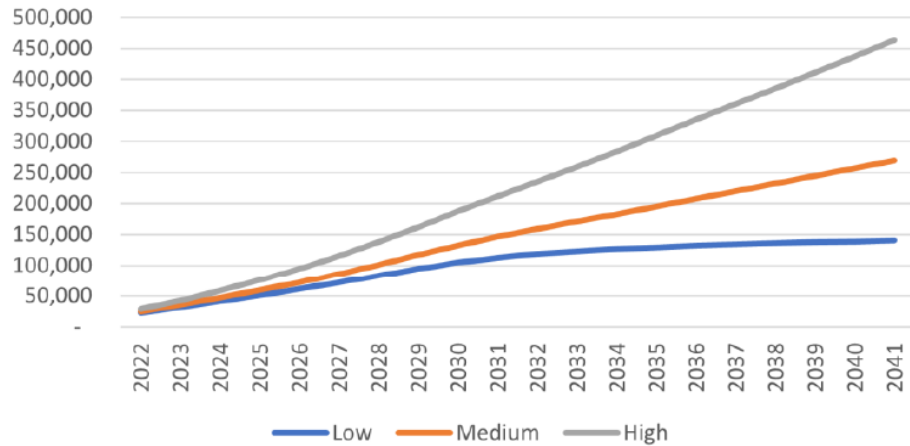
# Storm Prep & Planning

- We monitor 4 forecasters and multiple weather models days in advance of any storm.
  - Forecasters-
    - VT Utility Forecaster Roger Hill
    - Disaster Tech-Northern VT University born weather prediction
    - National Weather Service-Burlington (12 VT Counties)
    - National Weather Service-Albany (2 VT Counties)
  - Weather Models-
    - GFS-Global Forecast System
    - Euro-European Forecast Model
    - NAM-North American Model
  - Outage Prediction-
    - Internal GMP present weather vs prior weather prediction
    - Disaster Tech-Prediction based on total precipitation and how much is frozen.
  - Customer Outreach: Proactively alert customers/communities
    - Text alerts, emails, social media, web site, press releases, robo-calls, critical care customer outreach
- All of these tools, along with industry experience at GMP, help us make decisions on the possible impacts from forecasted weather events so we can supplement our team with external crews as needed, pre-position crews as the forecast calls for, and have robust communication to customers.

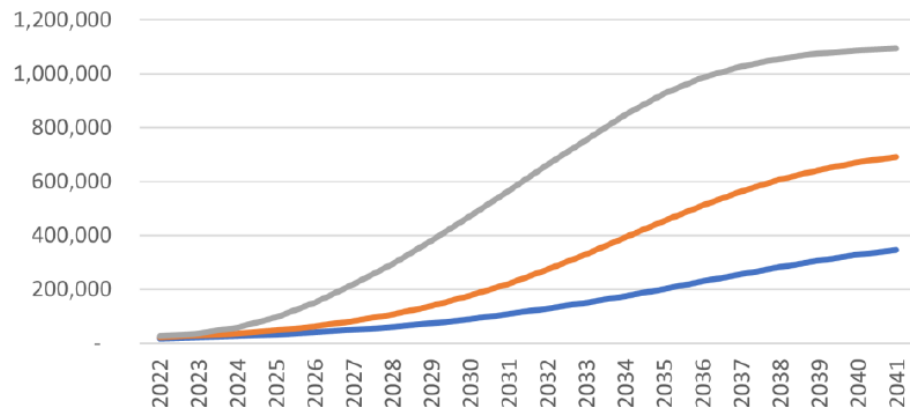


# Electrification Driving Decarbonization

Aggregate Consumption from CCHPs (MWh)



Aggregate Consumption from EVs (MWh)



- ▶ Customers switching to electric for heating and transportation help cut carbon emissions
- ▶ GMP & other DUs meet Tier III requirements of Renewable Portfolio Standard by incentivizing these fossil fuel-switching measures
- ▶ These programs have cut 306,000 metric tons of carbon = to taking 66,000 gas cars off the road
- ▶ GMP with customers added 34,000 MWhs of new electrification load so far this year, helping lower costs and carbon
- ▶ This year incentives have helped add:
  - ▶ 8,300 heat pumps
  - ▶ 500 heat pump water heaters
  - ▶ 1,300 electric vehicles
- ▶ GMP conducts regular planning studies on projected load growth. Flexible resources will play large role in the future integration of electrification



# Accelerating EV Adoption through Charging Deployment



## Public charging:

- GMP is on track to install at least 10 DC fast charger sites in FY 2023. There are about 40 DC fast chargers today in Vermont.
- State's plan for NEVI funded fast chargers was approved. Awaiting RFP to begin installations.

## Workplace and multi-family charging:

- ACCD has \$7M in funds soon to be rolled out statewide to accelerate level 2 charging buildout at workplaces and multi-family buildings, as well as public DC fast charging

## Residential charging:

- ~2,200 level-2 chargers incentivized and enrolled in EV rate helping cut carbon & costs

# Cutting Carbon & Costs: Load Management Innovation

- ▶ **Storage-integrated Cold Climate Heat Pumps (CCHP):**  
Storage helps customers through outages and through peak events
- ▶ **Integrated controls:**  
By device and through single thermostat to control CCHPs and any backup heating system
- ▶ **Smart Panels:**  
Circuit-level monitoring and management – largest impediment to successful fast electrification likely to be in the customer home (panel and service sizing for example)







Questions?

[Candace.Morgan@greenmountainpower.com](mailto:Candace.Morgan@greenmountainpower.com)

[Josh.Castonguay@greenmountainpower.com](mailto:Josh.Castonguay@greenmountainpower.com)

