

An aerial photograph of a large-scale solar farm. The solar panels are arranged in neat, parallel rows across a green field. The farm is surrounded by dense green trees and a few buildings are visible on the left side. The overall scene is bright and clear.

Clean Heat Standard & Electrification

House Energy and Technology Committee | February 2, 2022

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
 - Vegetation management
 - Storm hardening and smart controls
 - Strategic undergrounding
- Service level tools
 - Transformer upgrades
 - Home, business upgrades
 - Customer Distributed Energy Resources for flexibility



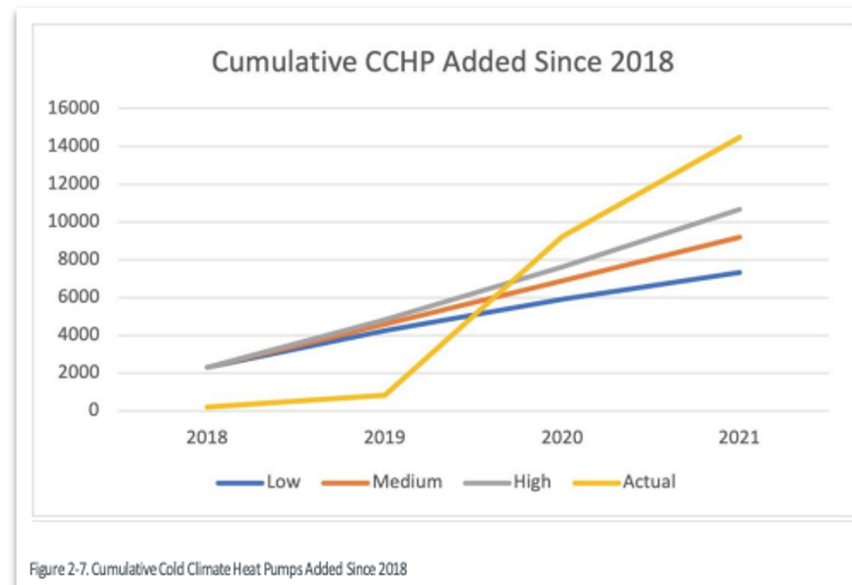
Cutting Carbon & Costs: Load Management Innovation

- **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



Customers and CCHP

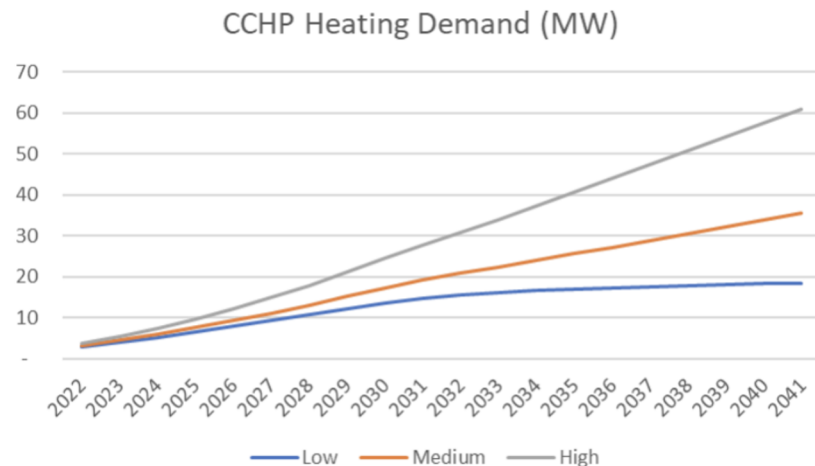
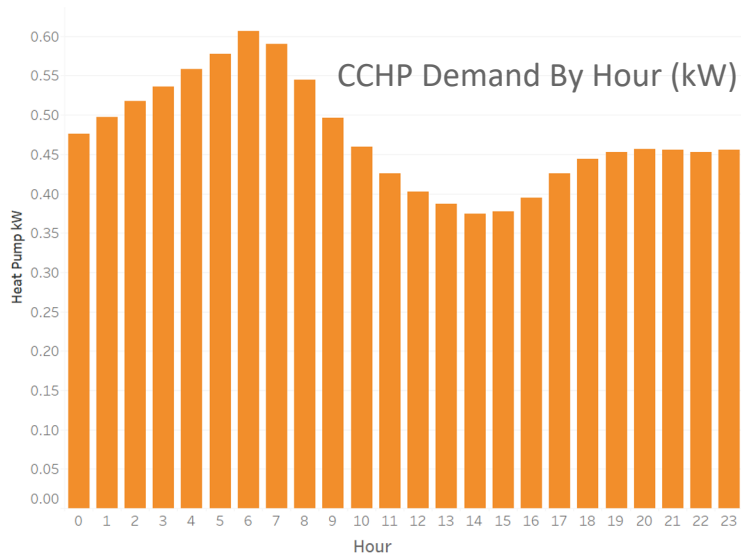
- In the past three years, over 12,000 customers have installed eligible devices
 - Many installing more than one device.
 - 2020 saw a large number of installations with 6,500 installed over the months of July-September that year alone, and progress continued in 2021
- Continuing to support CCHP adoption is a key strategy for meeting our Tier III goals, cutting carbon emissions and costs for customers
- Important for continued progress, overall carbon reduction and affordability that Tier III not conflict with or create greater costs/burdens for customers if CHS is adopted



Source: [GMP's 2021 Integrated Resource Plan](#)

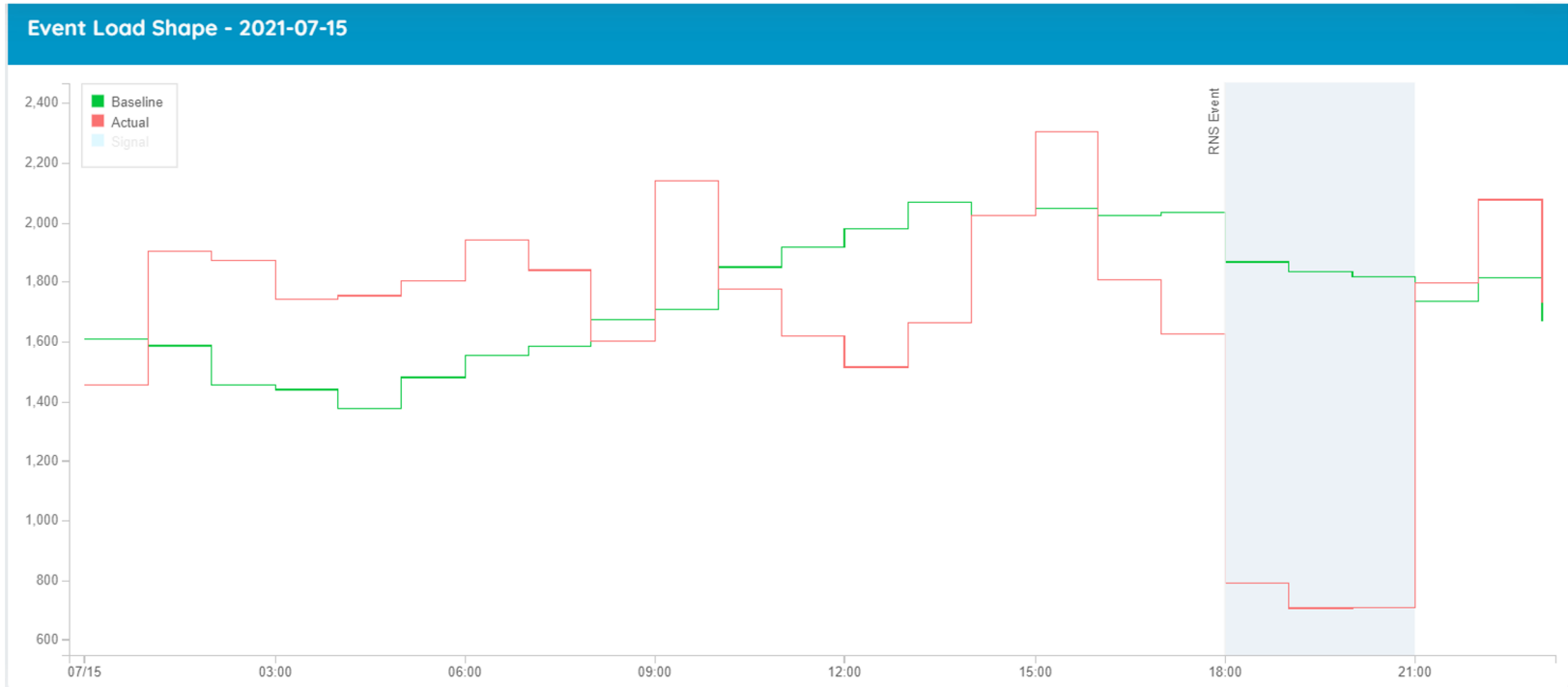
CCHP Into the Future

- Even in high adoption scenario (over 200,000 systems by 2040), CCHP additional electric demand is modest
- Winter heating demand for CCHP is significantly higher (2X-3X) than summer cooling
- Key to continue to lead and work on ways to meet and manage high demand periods
 - For context, GMP has ~30MW storage already online



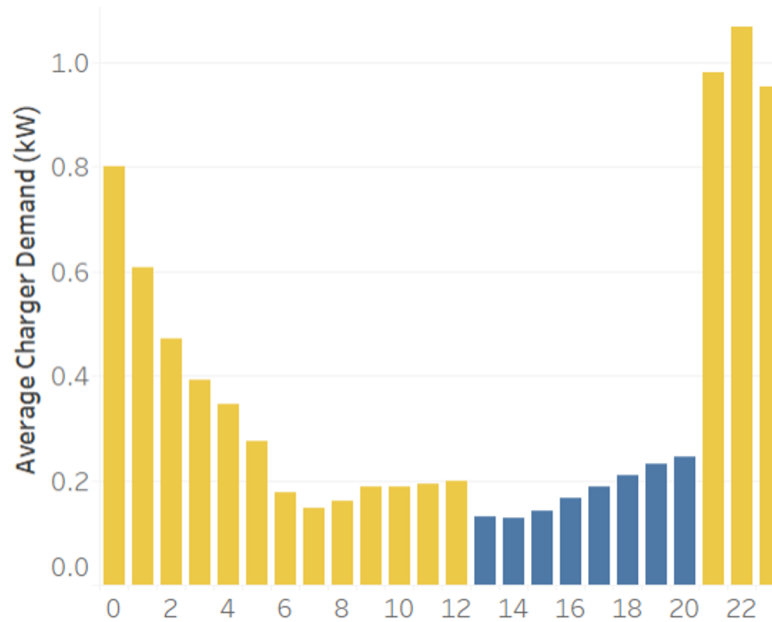
Source: [GMP's 2021 Integrated resource plan](#)

Flexibility In Action



Example of Flexible Load Management Through Onsite Controls

Flexibility In Action



Example of EV Charging - Customer Participation in Management