

Heather Village Decarbonization Project

September 14, 2023



Viridis
CONSULTING

 **Introba**

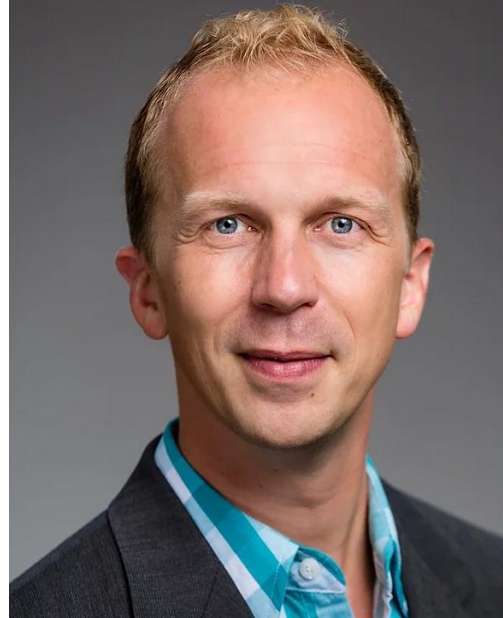


Sustainability Grant Team



Mabell Garcia Paine
Viridis Consulting

Grant Administrator



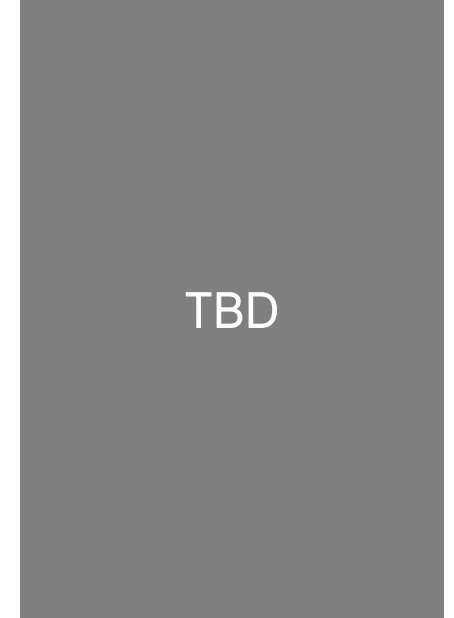
Travis Morgan
Heather Village

HOA Board



Tom Abram
Introba

Engineering Lead



TECH
Contractor

Installation Contractor

Agenda

- 01 About the Project
- 02 Project Feasibility
- 03 Working with the City
- 04 Implications of the Project

TECH Clean California Grant Winner

Scope of Work

- 1 Feasibility study
- 2 Demonstration project
- 3 Homeowner education
- 4 Lessons learned report



TECH CLEAN
CALIFORNIA

Grant Terms

- ✓ \$300,000 grant
- ✓ 16-month period of performance
- ✓ Notice to Proceed = February 1, 2023
- ✓ HOA funding contribution



Heather Village Decarbonization Project

Existing Infrastructure



404 Residences



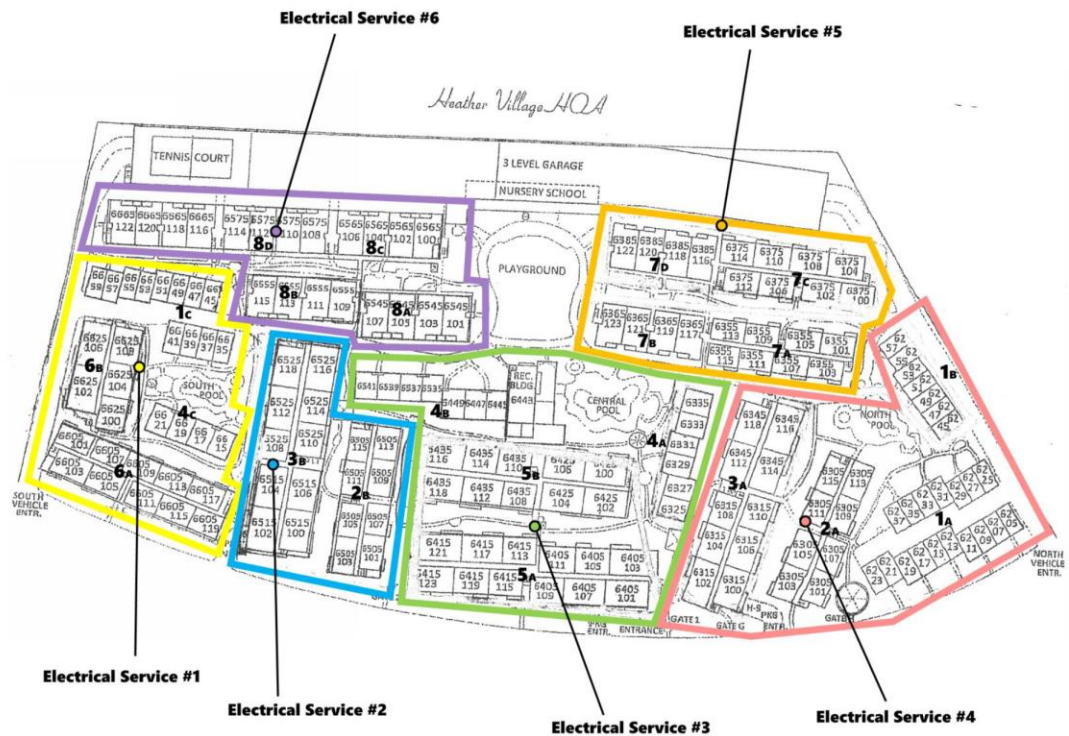
6 Electrical Services



8 Hot Water Systems (gas boilers)



Gas Furnaces in each Residence



6

Our Project:

Electric Heat Pump Water Heating Conversion and Electrical Upgrades

About the Energy Systems

- Domestic hot water systems near/at end of life
- Natural gas distribution system has history of leaks and replacement would be expensive
- Gas utility bill paid by HOA and prorated to homeowners
- Units do not have in-unit laundry or central AC, homeowners strongly interested in these upgrades

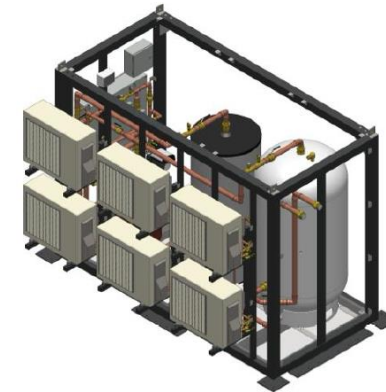
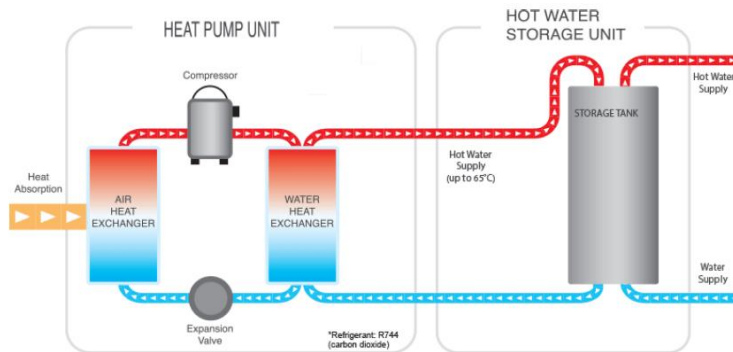
Why Electric Heat Pumps?

- Electrification via heat pumps reduces energy costs and greenhouse gas emissions
- State and local regulations moving towards electrification
- Substantial electrification incentives available now

First Phase: Water Heating Conversion

Water Heating

Centralized Heat Pump Water Heating









- New Heat Pump Water Heaters connect to existing piping
- 5x more efficient than a good working gas water heater
- Can be made in a fully assembled prepackaged skid
- The future is neat!

Second Phase:
Space Cooling and Heating

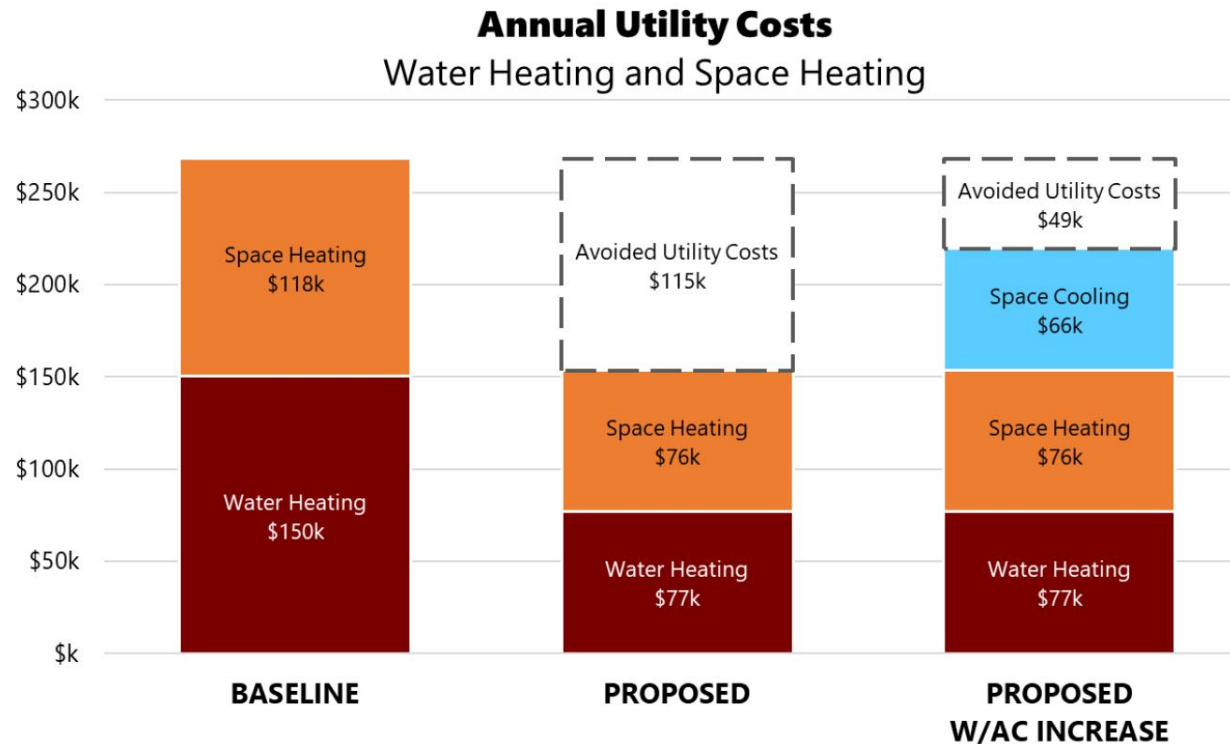
Can Heather Village Do it?

Electrical Implications

Function	Can you Electrify?
Hot Water	 Yes
Heating & Air-Conditioning	 Yes
Laundry	 Yes
EV Charging	 Yes
Pool Heating	 Yes
Cooking	 Yes

What Are The Operating Cost Impacts?

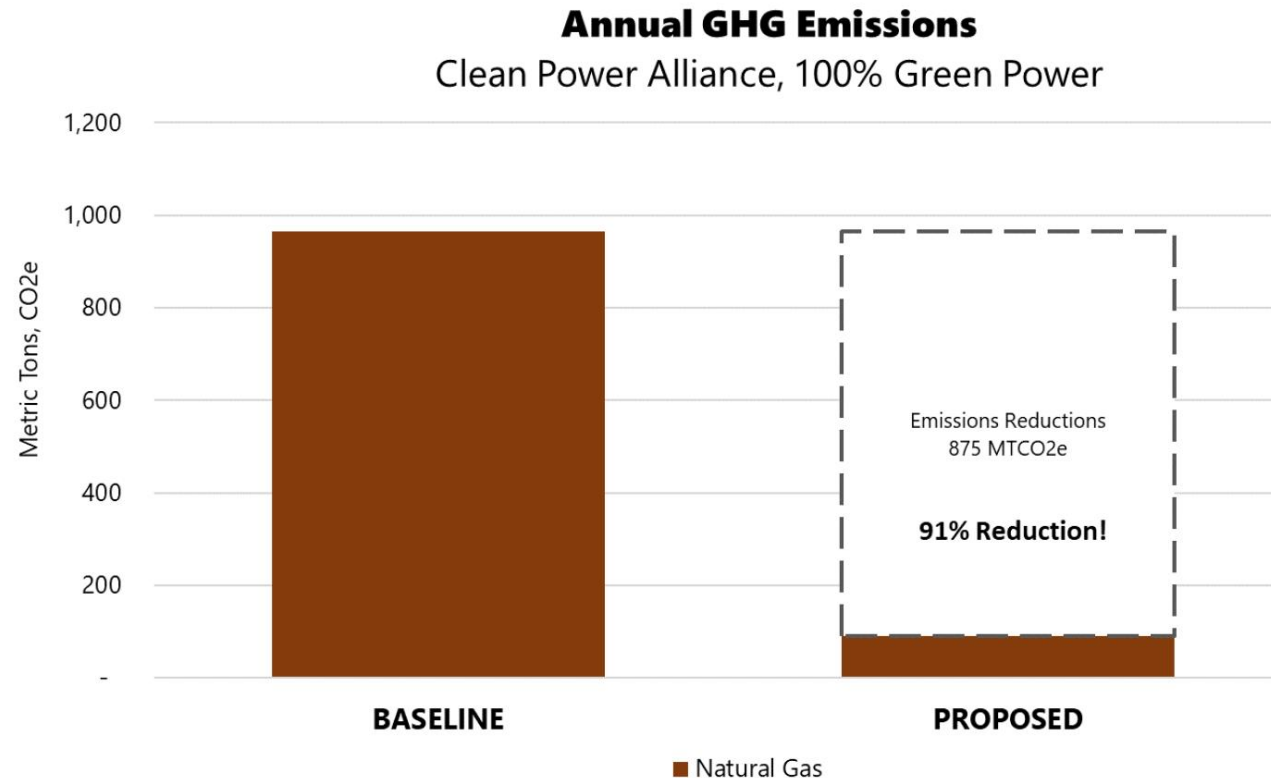
Economic Analysis



- First year utility cost reduction by shifting from natural gas combustion to electric heat pumps for water heating and space heating
- Utility cost savings persist when accounting for increase in air conditioning use

What Are The Carbon Reduction Impacts?

Carbon Analysis

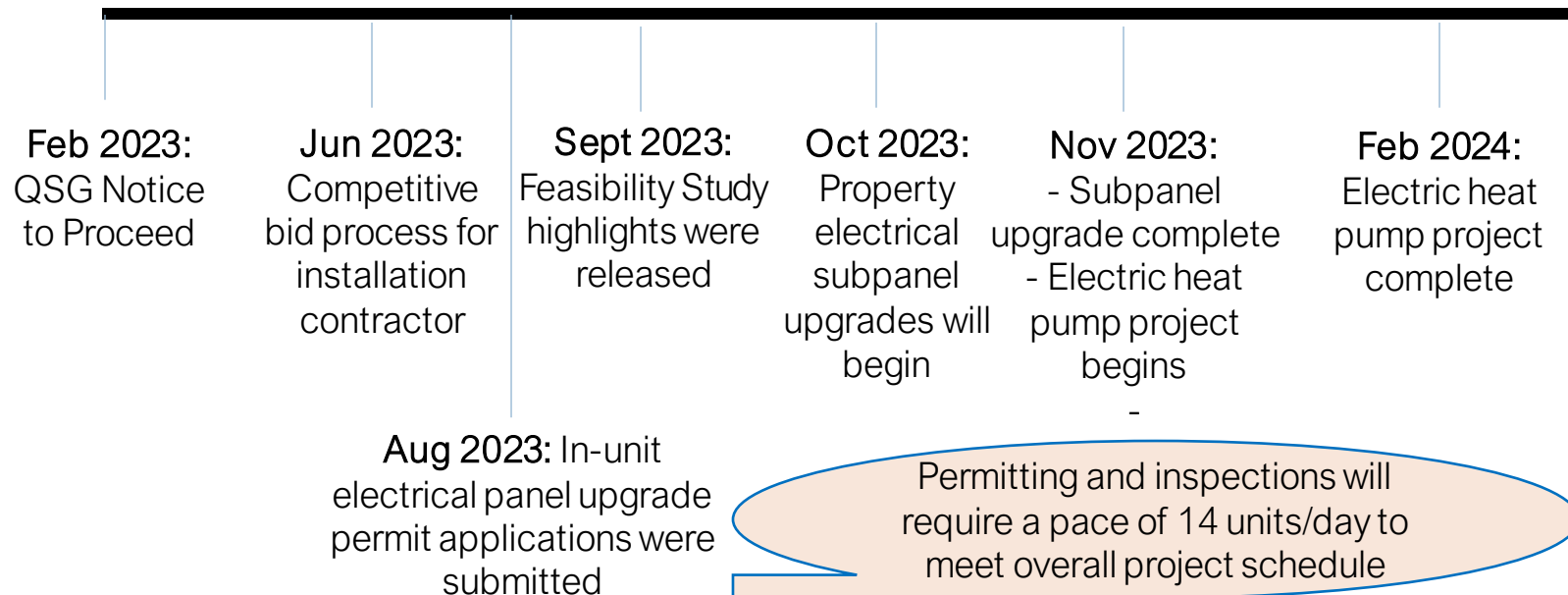


- Heather Village currently purchases Clean Power Alliance's 100% Green Power offering, leaving natural gas use as contributor to GHG emissions
- Electrification of water heating and space heating through heat pumps reduces emissions by over 90%
- Electrification of pool heating, laundry, and cooking would eliminate the remaining emissions

Project Timeline and Constraints

City Permitting and Inspections are critical to the success of this project

1. Quick Start Grant projects must be completed by April 2024
2. Installation of electric heat pumps for water heating is dependent on electric panel upgrades happening first
3. Complying with grant terms and the dependencies of the electrical and heat pump projects are highly dependent on the City's B&S Department



DECARBONIZING MF PROPERTIES WILL BE CHALLENGING

Other HOAs looking at replacing aging gas infrastructure will have a better solution that overcomes the tendency to replace “like-for-like.”

SCALABLE SOLUTION

Heather Village addresses the CAN and HOW. The project serves as a roadmap for others to follow, providing the important quantitative benefits of doing so.

HOW WE CAN GET OTHER MF PROPERTIES TO ELECTRIFY

Significant incentives are available for early adopters and for the foreseeable future, even more funding will be available at the federal, state and local levels.

HOAs in California

- 49,520
- 14M residents (36% of the population)
- 286 residents (avg) per community
- 25% of all homeowners



Thank You!