DOCKETED	
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Comment Received From: PeakEE; Frank Sandtner
Submitted On: 6/7/2023
Docket Number: 22-DECARB-03

Efficient decarbonization requires knowledge of the inside of the residence

We are big supporters of both decarbonization initiatives and energy equity. We also understand the costs associated with retrofits and the inefficiencies inherent in dealing with each property individually. It is one thing to identify properties that will benefit from lower energy costs post upgrades, it is another to identify properties that can be efficiently upgraded.

The efficiency challenge is one we face in our primary area of focus which is HPWHs. We have a program called PeakEE that involves capturing data about the existing water heating setup in order to identify candidates for a HPWH and plan how to do the installation without a plumber ever going into the home.

The is accomplished by having the data capture done by people already going into the house or apartment for other purposes. Instead of having a plumber visit the home at a cost of about $150, we are leveraging local businesses already making an in-home delivery to capture data using an app that is commonly used by delivery and installation teams. The cost is significantly lower and the data helps power your Program analytics. The permission-based data includes questions, measurements, and photos.

The PeakEE program, with customization for the needs of the Equitable Building Decarbonization Program, is something we would like you to consider. The software provider is based in Northern California. Our retail partner is based in Fresno. That retailer, Ventura TV and Appliance, currently does home appliance deliveries for PG&E through their ESA program in Central and Northern CA. Those deliveries are into the homes and apartments CEC is targeting to penetrate with the Decarbonization program.

Imagine how much time and resources can be saved with accurate information about which appliances and equipment in the home are fueled by gas and whether the home or apartment can be cost effectively upgraded. We would start with the ESA deliveries done by Ventura TV and Appliance but then quickly expand the program to all the ESA deliveries done in CA.

We would like to speak to someone about the PeakEE program and do a demonstration of the software. We believe a service like PeakEE should be reviewed at the CEC level instead of it being evaluated by each of the administrators selected for the North, Central, and South regions. Our service is better aligned with other data analysis companies like Xero Home (analysis sponsored by SoCal Edison and PG&E). They do rate and usage analysis whereas we do installation feasibility analysis.

I hope to hear from you soon.

Additional submitted attachment is included below.

PeakEE - HPWH market development

FRANK SANDTNER

Addressing 3 Facets of Market Development

- Lead generation
- Marketing analysis
- Installation planning

Agenda

- The HPWH dilemma
- The solution
- PeakEE use cases

Introduction

HPWHs use established technology and commercially available products have existed since 2014. Market share for HPWHs is only about 2.5%. Contractors and retailers are very unlikely to recommend a HPWH for emergency replacements due to installation risk and uncertainty.

The HPWH dilemma

RISK AND UNCERTAINTY

The HPWH Dilemma

Product Recommendation

- In a Feb 2022 NEEA study of emergency replacements at retail through **Mystery Shopping**, only 1 in 16 recommended a HPWH (see slide 6)
- When shoppers asked for other options, only 1 more recommended a HPWH
- When shoppers asked about a HPWH, retail rep had knowledge of HPWHs but would not recommend it

Impact of a Poor Installation

- Contractors generally not willing to provide a firm quote on a HPWH install due to possible install challenges
- Most contractors feel a site visit is needed and that adds both time and cost
- A poorly installed HPWH will result in reduced efficiency gains especially with venting constraints (see slide 8)

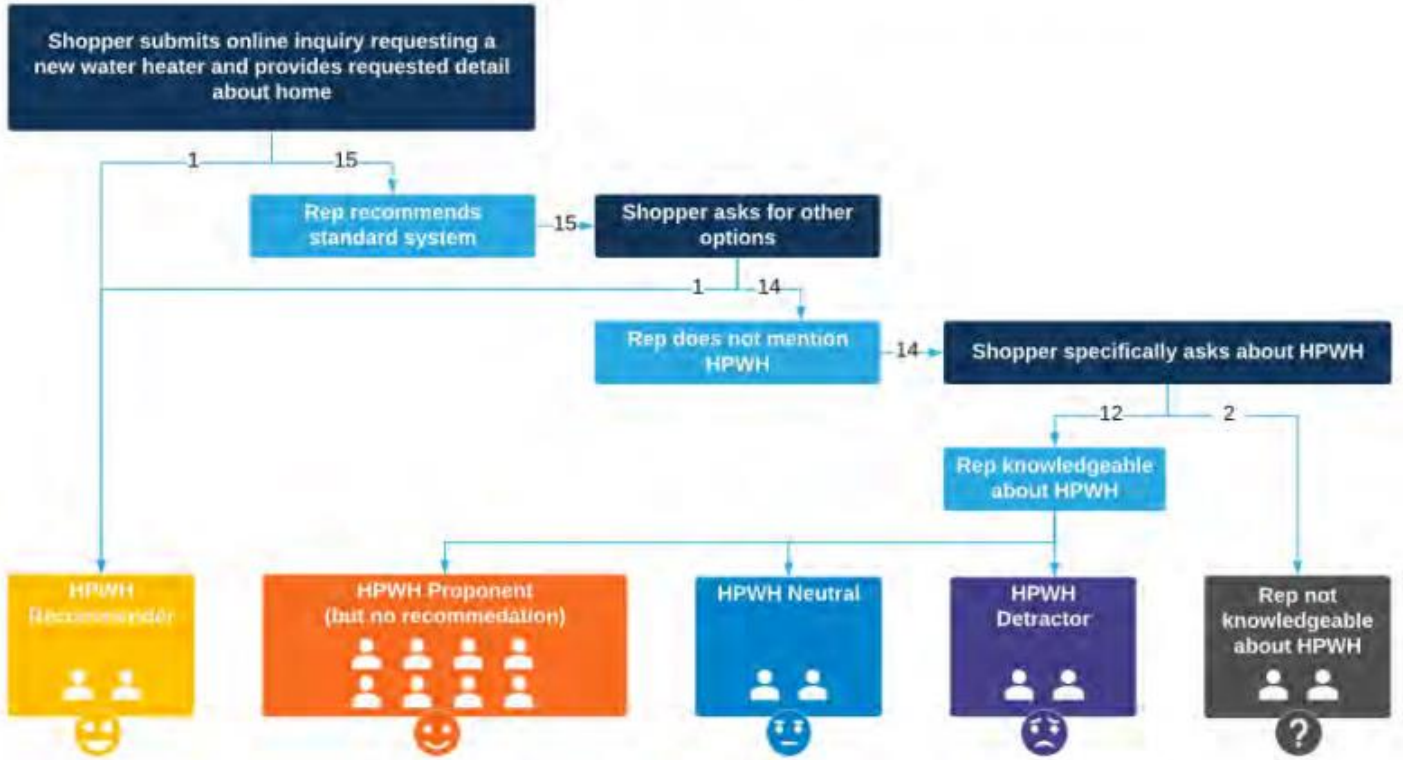
current emergency water heater replacement approach fails for HPWHs due to installation risk and uncertainly

GRAPHIC SUMMARY OF RESULTS

Mystery Shopping

For MPER #6, a *mystery shopper* submitted 16 online water heater installation requests to major retailers. The shopper pretended to be a residential customer whose water heater had completely failed. The shopper described a scenario amenable to a HPWH: they owned a large capacity electric storage tank water heater located in a large basement.

The shopper emailed and talked on the phone with representatives affiliated with Home Depot and Lowe's to better understand what products they recommended, how much prompting it took before they talked about HPWHs, and what they said about HPWHs.



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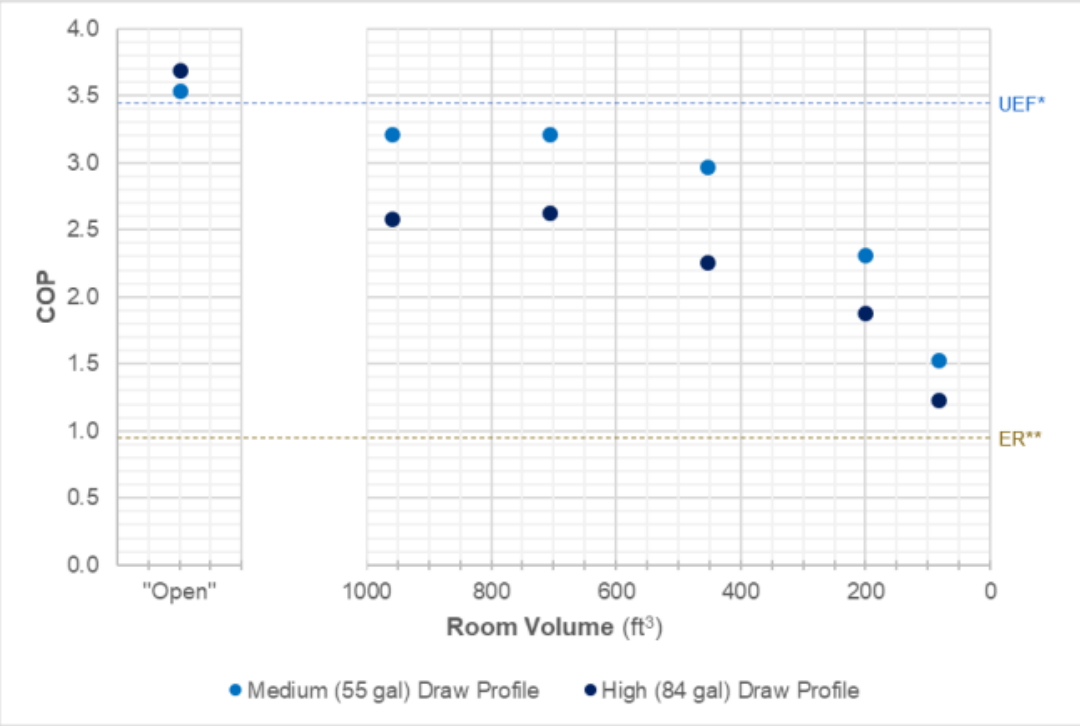
Volumetric Tests – The Amazing Shrinking Room

Tested at various volumes with room sealed



**UEF test procedure includes an additional 6 hours of standby time, which produces slightly lower COP.*
***Typical UEF for a high-performing electric-resistance storage water heater is 0.95.*

- "Open" condition represents best case: effectively unlimited supply of room-temperature air.
- Tested with both medium- and high-demand draw patterns. 18 hour test duration.
- 700 ft^3 is the typical manufacturer-recommended minimum volume. Efficiency is lower than "open," but can be considered acceptable – efficiency is still factors higher than other technologies.
- Below 700 ft^3 efficiency drops more steeply, but remains above 1.0 in even the most challenging condition.

The solution

PEAKEE DATABASE

PeakEE

A low-cost process to capture, store and analyze the information critical to making a quality HPWH installation. Considers fuel source, age, location, space, sound, height, condensation and ventilation needs.

PeakEE Timeline

Retailer participation	Train Delivery Team	Start data collection	Recommenda-tions	Drive market development
Onboard appliance retailers into PeakEE for data collection during appliance delivery and installation	Train delivery and installation staff on basics of HPWHs, how to get resident participation, data privacy, and use of software	Kickoff program with possible adjustments to data capture based on local housing stock	Convert collected information into recommen-dations for HPWH installations	Work with retailers and plumbers on converting PeakEE leads into HPWH sales leveraging IRA and utility incentives

PeakEE Data Capture Includes Observations, Images and Measurements

Service Units Reports Admin

Where is the water heater located? (check all that apply)

- [ ] Garage
- [ ] Attic
- [ ] utility closet
- [x] Mechanical Room
- [ ] Crawl space
- [ ] Hallway
- [ ] Bedroom Closet
- [ ] Upstairs
- [ ] HVAC closet
- [ ] Outdoor closet
- [x] Basement

Is area around water heater heated / cooled?

- (•) Yes
- ( ) No

Photo of water heater showing its location

Service Units Reports Admin

Photo of water heater serial number plate

Download

Photo of water connections of water heater

Download

Service Units Reports Admin

Composition of interior walls next to water heater for venting

Dry wall

Measure ceiling height (in inches)

85

Measure height of water heater from the floor (in inches)

76

Measure area of room where water heater is located - length (in inches)

102

Measure area of room where water heater is located - width (in inches)

150

Proximity to an electrical outlet in the same room (in inches)

30

Proximity to home thermostat if in the same room

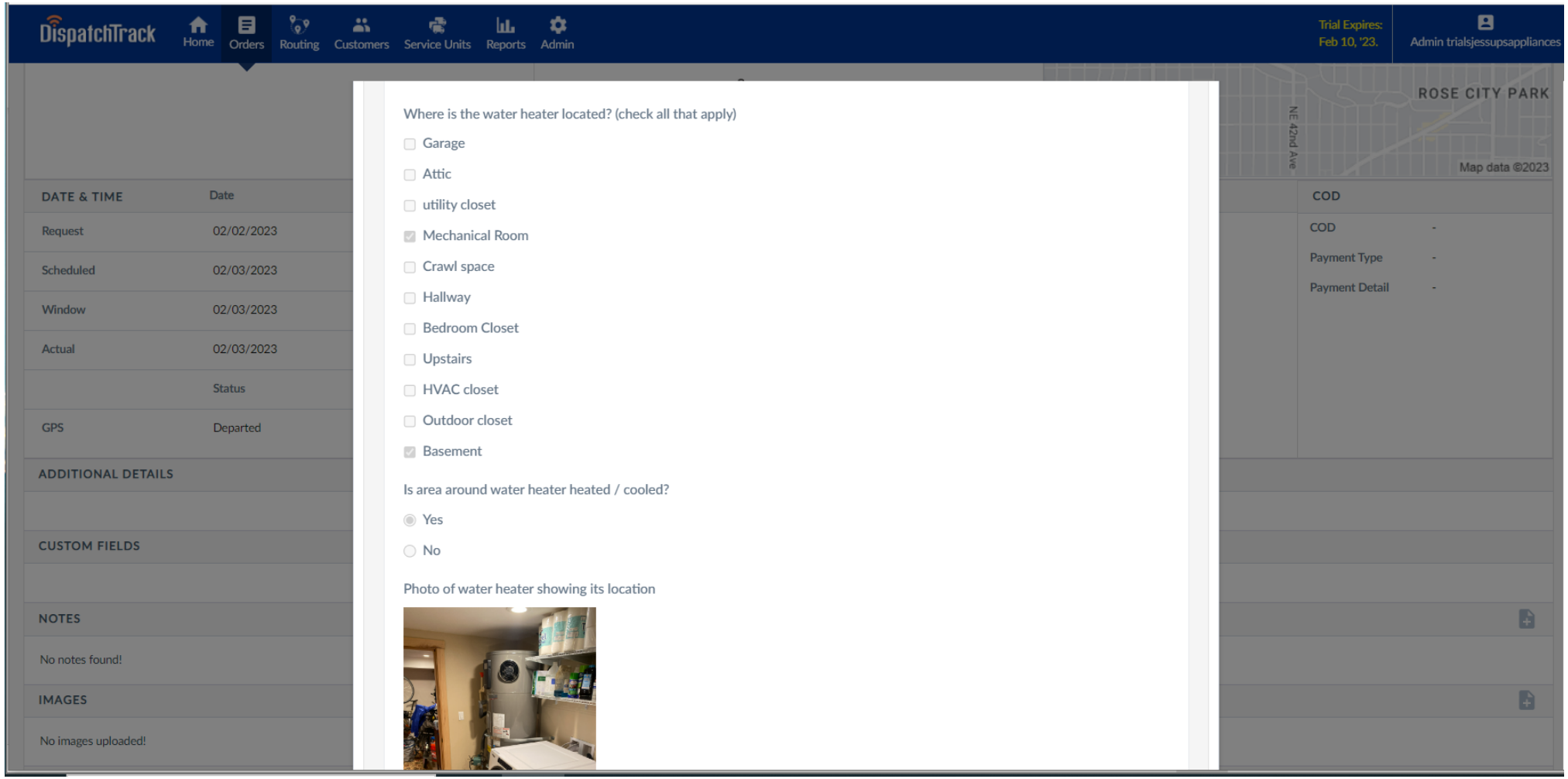
Thermostat in another room

Proximity to exterior wall for condensate drain (in inches)

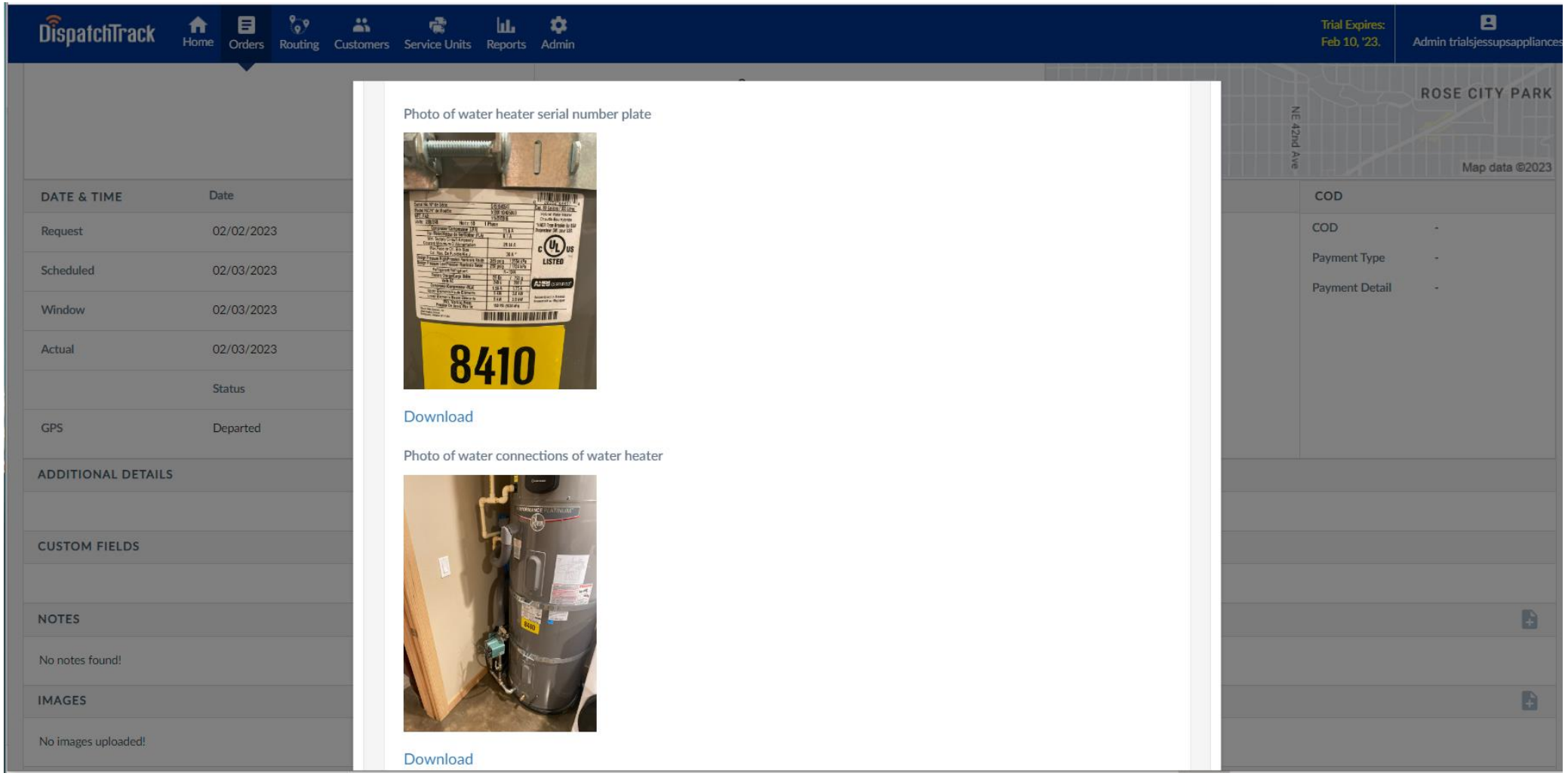
30

Within 60 inches of sump pump or sink for condensate

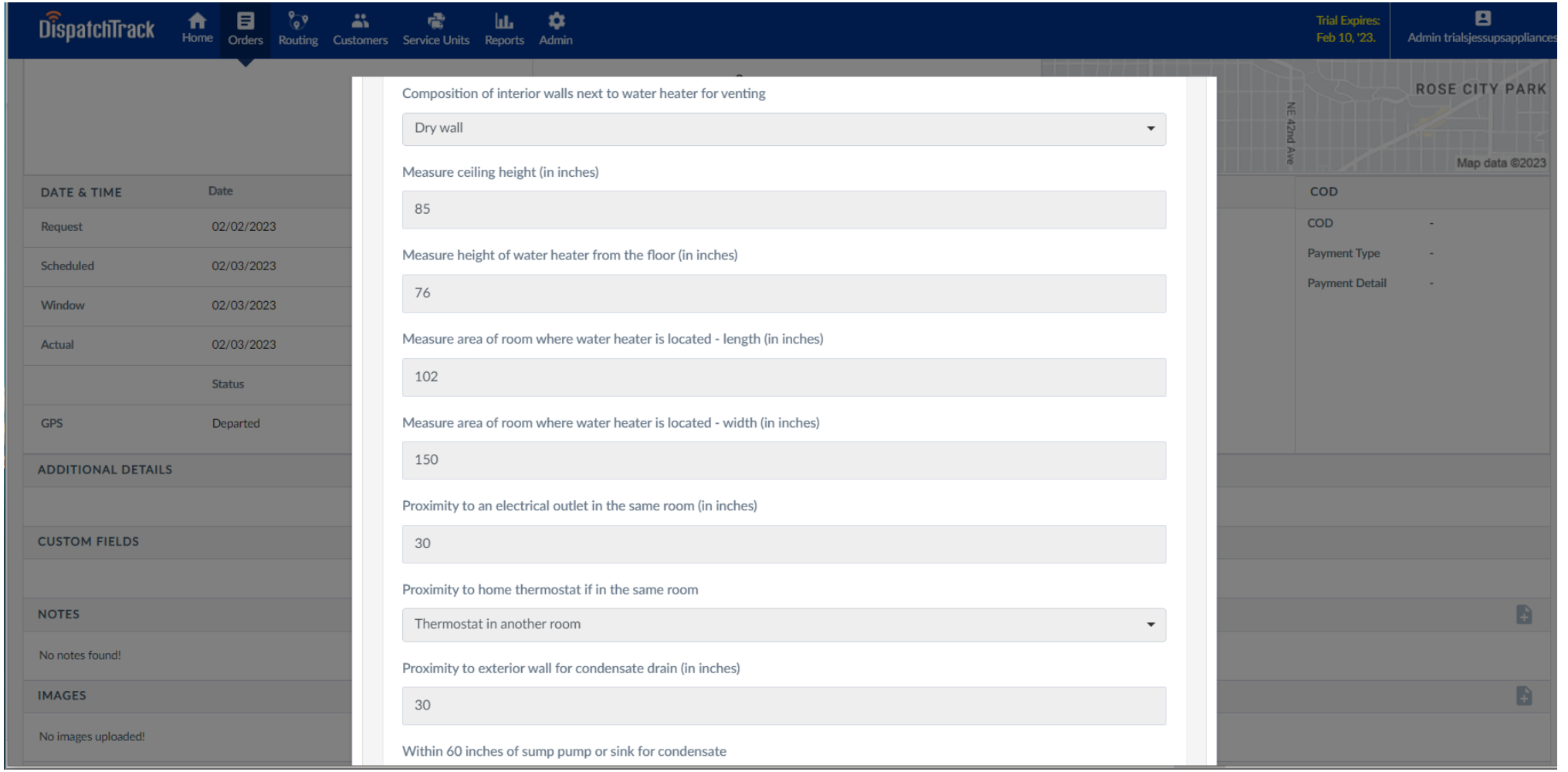
PeakEE Data Capture Includes Observations



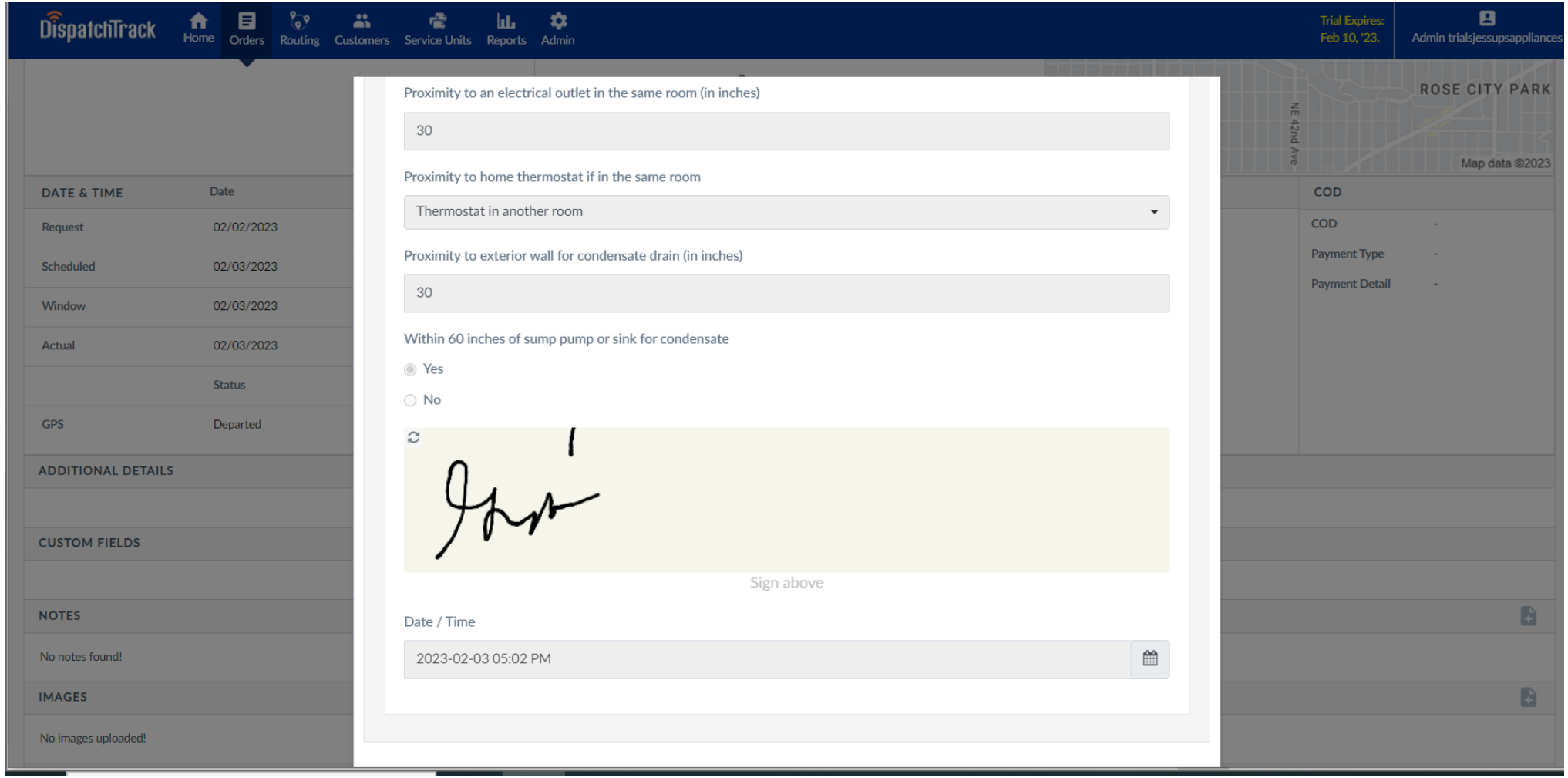
PeakEE Data Capture Includes Images



PeakEE Data Capture Includes Measurements



PeakEE Data Capture Includes Signature and Time Stamp



PeakEE Data Capture Includes Third-Party Data and Tools

1. Year built? (from tax records)
2. What is the climate zone?
3. Solar panels on exterior? (from Google Maps)
4. Name of builder? (from property records)
5. Water heater sizing tool
6. Water heater age translation from serial number (NEEA tool)

Leadership Team

Frank has spent the last 15 years developing and growing business and financial services programs as the EVP for the largest business platform company serving independent retailers in appliances, mattresses, furniture and electronics. This includes 6 years in energy efficiency programs with the designation of ENERGY STAR partner of the year for Sustained Excellence

Frank Sandtner
President, PeakEE

Geoff Wickes
Advisor, NEEA

Geoff is Senior Project Manager, NEEA. He works closely with utilities and trade allies to help identify and prove out innovative energy-efficient technologies to transform the water heating market and other emerging markets. Geoff's background in energy efficiency and conservation has included management in the fields of instrumentation, manufacturing, construction, IT and utility market transformation.

PeakEE use cases

FOR UTILITIES, RETAILERS, CONTRACTORS

PeakEE use cases

Retailer Leads

- Retailer selling water heaters uses PeakEE data (older units with easy installation) for HPWH leads
- Retailer partners with plumbing contractor; uses PeakEE data to market, sell and install HPWHs prior to product failure

Utility Leads

- Utility targets consumers for energy efficiency upgrades; uses PeakEE to identify best prospects
- Utility has a program for low income and will leverage PeakEE data and IRA funds from CA to deploy HPWHs

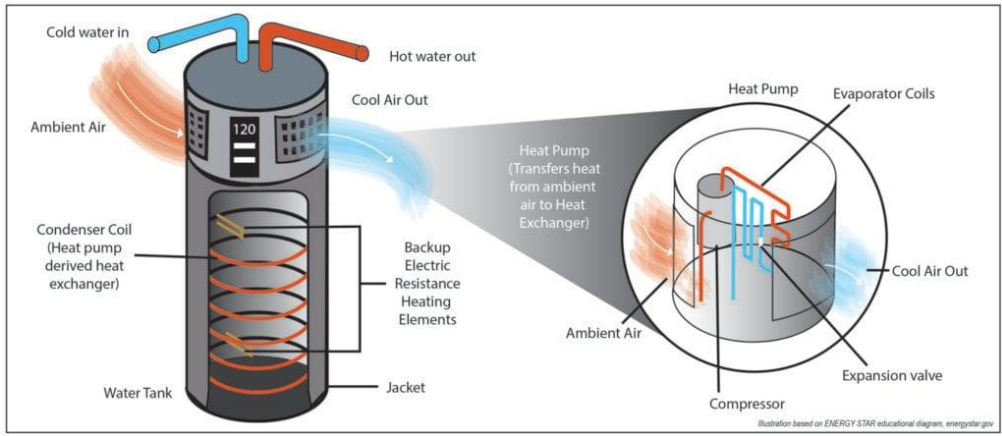
Contractor Use

- Plumbers using PeakEE working with a retailer extends use of database to other replacements
- Plumbers join the data capture for PeakEE and leverage that information for water heater replacements

Summary

HPWHs offer tremendous energy savings potential to utilities and consumers. This pilot is designed to remove the risk and uncertainty that has slowed adoption. Arming retailers, contractors, and utilities with data about the household environment and installation recommendations will change the trajectory of HPWH adoption. PeakEE will be that data source.

PeakEE = Peak Energy Efficiency



Energy Savings

High Efficiency

Long Lasting

Thank you

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