TRI-COUNTY
REGIONAL ENERGY NETWORK
SAN LUIS OBISPO • SANTA BARBARA • VENTURA

Retaining Profit – Minimizing Call Backs on Heat Pump Projects

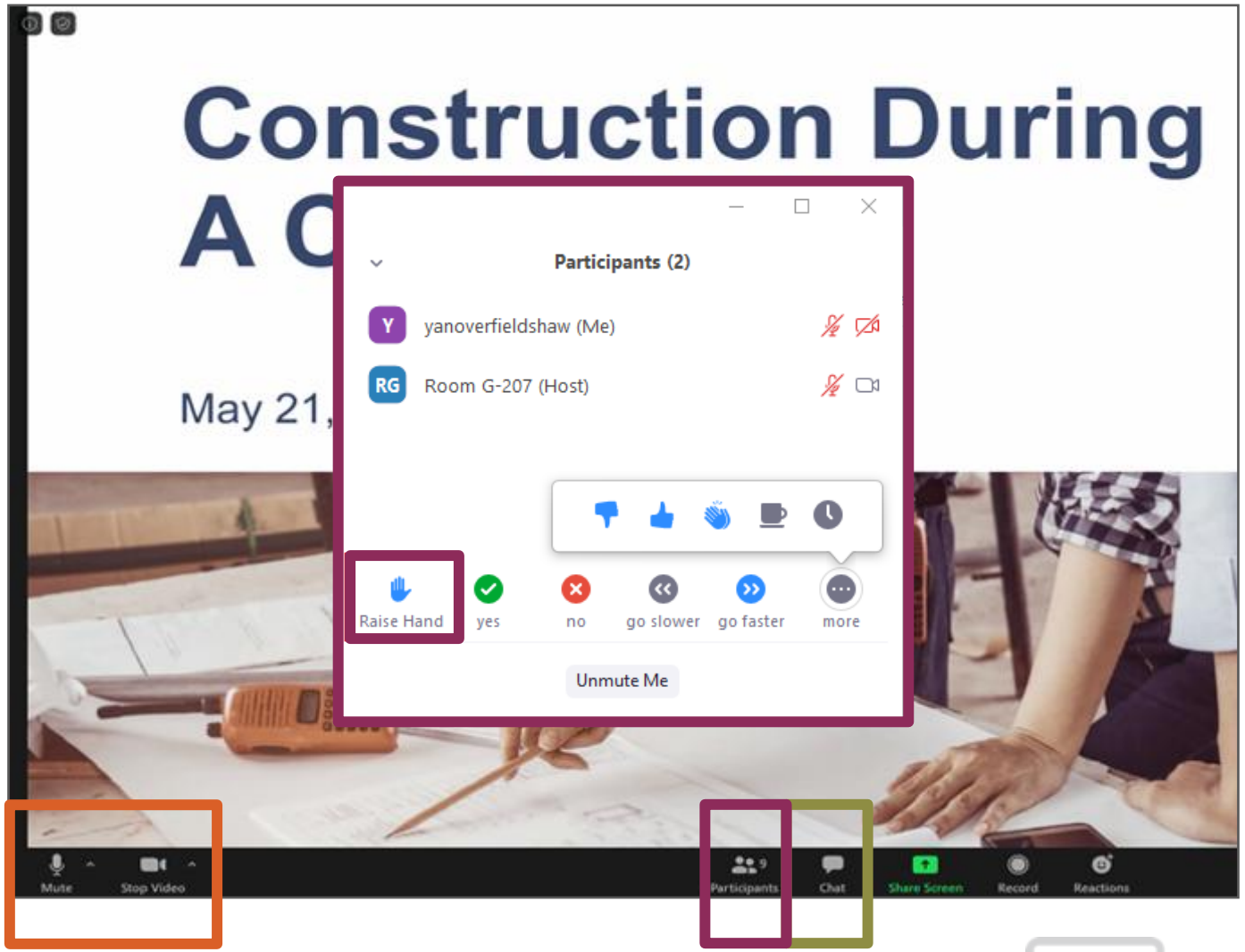
Larry Waters – Electrify My Home

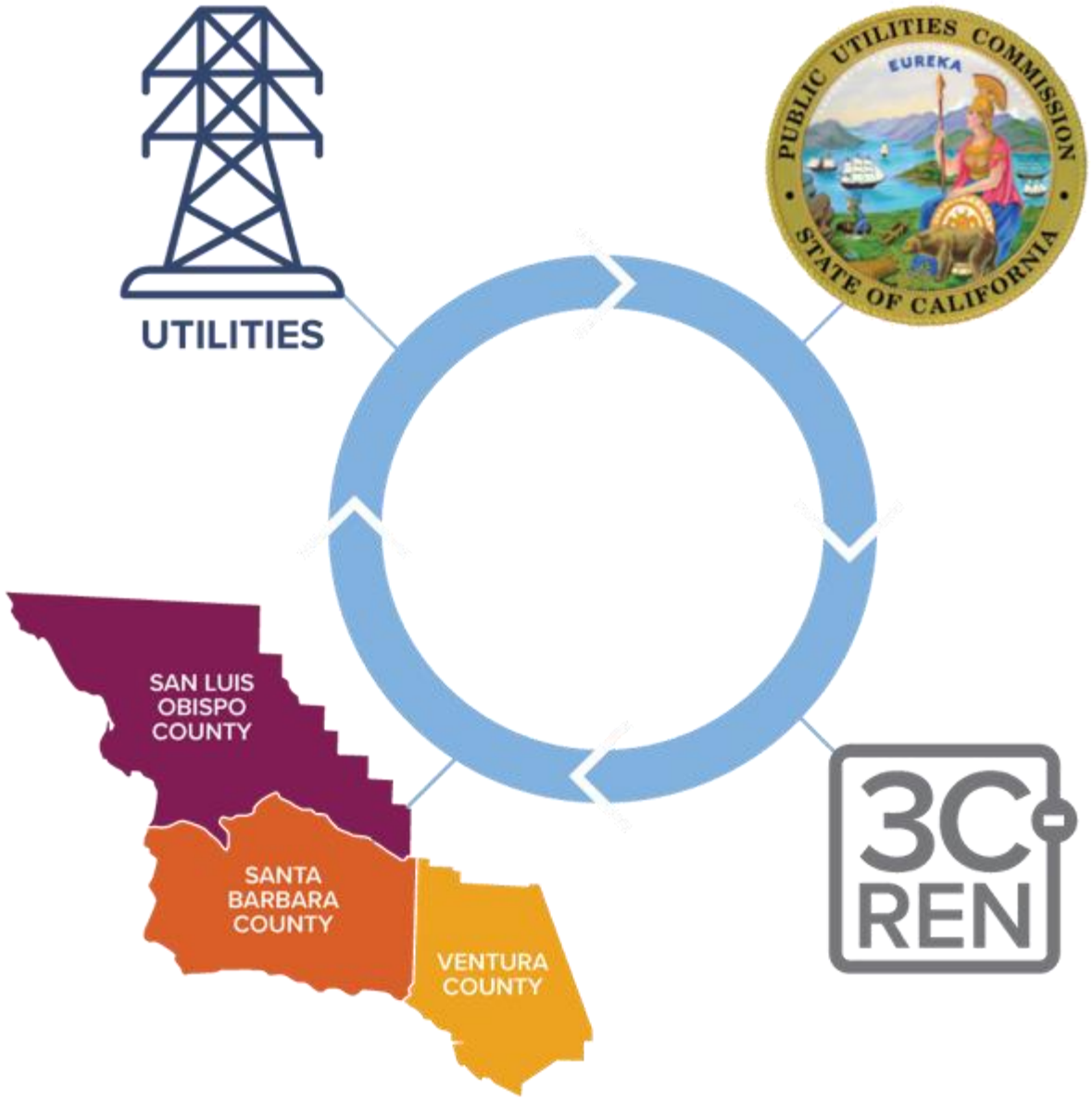
August 28, 2025

Before We Begin

Here are some quick reminders:

- Did you call in? Please **share** full name to confirm attendance
- To receive AIA LUs, you **must attend** at least 80% of the training. Attendance will be verified
- Use the "**Chat**“ to share questions or comments.
- Session may be **recorded** and posted to 3C-REN's on-demand page
- 3C-REN does **not** allow **AI notetakers**, unless used to accommodate a disability





Tri-County Regional Energy Network

3C-REN is a collaboration between the tri-counties

Our programs reduce energy use for a more sustainable, equitable and economically vibrant Central Coast

Our free services are funded via the CPUC, bringing ratepayer dollars back to the region

Our Services

Incentives

HOME ENERGY SAVINGS

3c-ren.org/for-residents
3c-ren.org/multifamily

COMMERCIAL ENERGY SAVINGS

3c-ren.org/commercial

Contractors can enroll at
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Training

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ENERGY CODE CONNECT

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View past trainings at
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Technical Assistance

AGRICULTURE ENERGY SOLUTIONS

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3C REN

3C-REN Achievements

4,000+

Individuals Attended Training

1,374

Energy-Saving Projects Completed

334

Title 24/CalGreen Questions Answered

$155M

Secured for investment in the tri-county region through 2028

Data from 2019-2023 for three programs

Electrify My Home – Electrification Pioneers

Our Mission:

*To provide the **most efficient** cost-effective electrification solutions to California homeowners, to practice **good stewardship** of the electrical panel, and to **train and influence** other contractors to do the same.*

ELECTRIFY MY HOME

Agenda

- Introductions and Welcome
- Section 1 – Introduction
- Section 2 – Customer Education
- Section 3 – Avoiding call backs on HVAC heat pump installs
- Section 4 – Avoiding call backs on heat pump water heater installs

Introduction

Setting the stage

- **Best way to avoid Call Backs!**

Planning Ahead Saves Money, Time, & Aggravation

Source: (Based on Stephen Covey's 7 Habits of Highly Effective People) https://www.linkedin.com/pulse/readwithme-7-habits-highly-effective-people-summary-elena-kostoska

The Achillies Heel to Profitability: Callbacks

- **What is a callback?**
  - A return service call to correct work on a job that's already been completed
  - Usually, a perceived urgent issue requiring schedule scrambling
  - Upset and disappointed customer
- **What is a go-back?**
  - Additional time required to complete a job properly
- **What is a complaint call?**
  - Call or email from customer whose system does not meet their expectations

Cost of a Callback

How much does a callback cost?

- **Example:** 2 hours to troubleshoot a thermostat/system operatic question
- $35: Mileage 25 miles, both ways at IRS rate
- $126: Labor* 45 minutes each way in traffic for 2 techs
- $168: Labor 2 hours for 2 techs @ avg $30/hr plus benefits
  - More if on Overtime!
- $74: Overhead @25%
- **$403: TOTAL!**

* Example assumes benefits equate to 40% of wage

“Ok, I’m losing money on callbacks, what can I do about it?”

- **#1 Avoid them to begin with (topic of today)**
- **#2 Learn from them**
  - Keep a running list of all callback issues, categorized
  - Write down how each could have been avoided
  - Pick out themes – most common issues
  - Circulate feedback to all members of your team in a constructive way

Customer Education

Avoiding callbacks starts at the first call

Customer Discovery

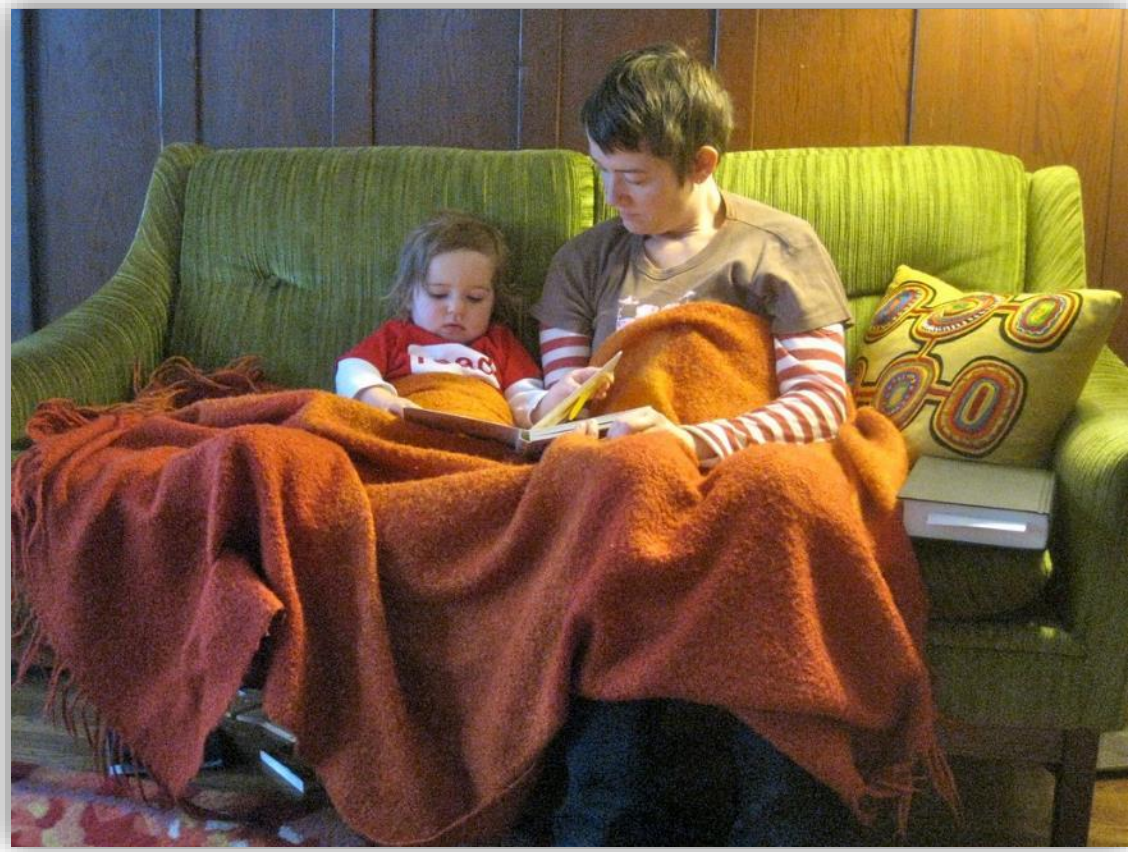
- You can anticipate issues ahead of time by UNDERSTANDING YOUR CUSTOMER
- Always ask “How do you use your system currently?”
- “What interested you in a heat pump?”
- “Do you have a place in mind for the outdoor unit?”

Your Customer's Starting Point (typically)

- Always had a GAS furnace
- Always had a GAS water heater
- Never lived with a heat pump

Comparing Furnaces & Heat Pumps

- DON’T BE AFRAID to explain differences in operation
  - **Furnaces** = lots of capacity to **create** heat, so on/off is ok. On site pollution/safety risks.
  - **Heat pumps** = longer cycles **moving** heat, so consistency is important. No onsite pollution.
- Reframe negatives to positives
- Emphasize comfort
- Use analogies
  - EV versus gas car, incandescent vs LED, paper map vs GPS



Explaining Different Heat Pump Options

- Use takeaways from **discovery** to inform this step
- **Don’t waste time** on options that don’t fit home or customer needs
- Use **pictures** of real, installed systems
- Many customers **think** it’s best to have 1 system per room
  - Zoning must be done very carefully, subject of next webinar

EVERYONE Is Responsible!

All members of your company should be responsible for setting expectations with customers. All should have intro training on basics of heat pumps (at a minimum).

- **CSRs** – Ability to field most basic questions about operation.
- **Dispatch** – What customer should expect from the visit. Who to contact if technical questions arise.
- **Accounting** – ID'ing callback rates/calls.
- **Sales** – Explanations during first visit and again during happy call.
- **Technicians** – Detailed walkthrough and thermostat training.
- **Owners/GMs** – Empowering teams to head off issues. Training and feedback loops.

Sometimes The “Customer” Isn’t One Person

- Spouse and other family
- Rentals/AirBnB
- Architects, General Contractors, Designers

- Create a basic user guide for system operation. Must be as simple as possible.

Avoiding Call Backs on HVAC Installs

5 Things to Tell Your Customer About Their Heat Pump

A Question For You

Remember the $400 Call Back cost from earlier?

- If you could avoid a call-back or go-back by covering **5 topics** in **10 minutes**, would you?

#1 – Thermostat Operation

Relevant Heat Pumps – Ducted, Ductless, Multizone

- **Fan Speeds** – Don't keep in low during cold/hot snaps
- **Operational time** – Time running vs energy expenditure
- **Frequency of adjustment** – Ok to "set it and forget it"
  - Especially on coldest winter weeks!
- **Setbacks** – Avoid setbacks more than a couple degrees
  - TOU optimization: pre-cooling or pre-heating OK, but avoid system having to bring temperature up or down by more than a few degrees
- **Temp Setting** – Set thermostat for comfort, not based on the number. Their "number" might be different with a HP
- **Multi-Zone** – Depending on configuration, run multiple zones at one time

#2 – Winter Operation

Relevant Heat Pumps – Ducted, Ductless, Multizone

- **Defrost** – Outdoor unit develops frost from time to time. You'll hear a different noise, may see steam, and may notice fan stops circulating or temporarily blows cooler air (depending on system type)
- **Noise** – You will be able to hear your outdoor unit on the coldest days of the year. More for unitary. Keep in mind location of the outdoor unit, especially if next to bedrooms.

#3 – Outdoor Unit Water

Relevant Heat Pumps: Ducted, Ductless, Multizone

- **What's That Water?** – You may see water around your outdoor unit. This is normal and attributed to different situations:
  - Defrost
  - Condensation from operation
  - Humidity levels
- Consider installing a **drain kit** to divert

#4 – Warm (not not) Air

Relevant Heat Pumps – Ducted, Ductless, Multizone

- **Heat Pumps produce warm air, but that's not a bad thing!**
- **If operated correctly, it's optimal to have lower temperature air**
  - Saves energy
  - Dries the house out less
  - Leads to better run cycles, yielding good room air mixing (with the proper registers we'll install)

Image source: https://purifilabs.com/how-it-works/

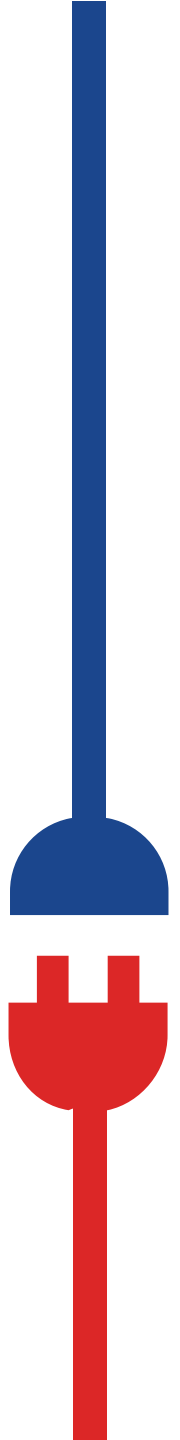
#5 – Filters That Last

Relevant Heat Pumps – Ducted

- **We install good filters for a number of reasons**
  - Better air quality
  - Keeps coil and ducts clean
  - Has less strain on the system
- **A good filter doesn't need to be replaced as often as a regular one, but it's still important to replace them at the recommended interval**
- **Recommend a maintenance offering to replace filters for the customer so they don't have to remember**

Avoiding Call Backs on HVAC Heat Pumps

5 Things You Don't Need to Tell Your Customer But Should Do Every Time



#1 – Outdoor Unit Location

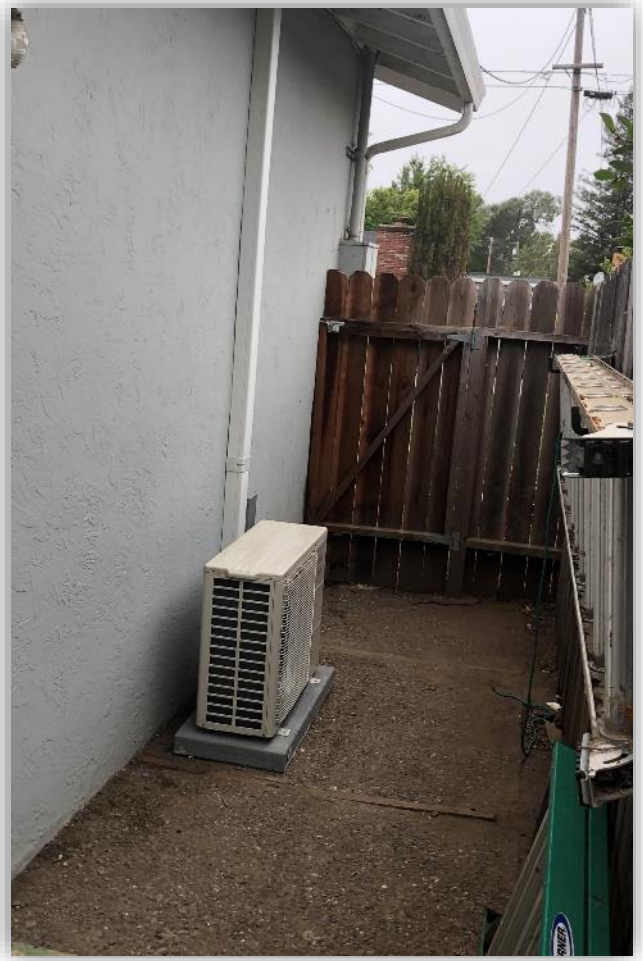
Relevant Heat Pumps – Ducted, Ductless, Multizone

- **Location is key – especially if no existing AC**
- **Avoid placing next to bedroom**
- **Don’t block walkways**
- **Save on lineset by locating near air handler**
- **Consider hanging on wall in some circumstances**

#2 – Proper Lineset Run

Relevant Heat Pumps – Ducted, Ductless, Multizone

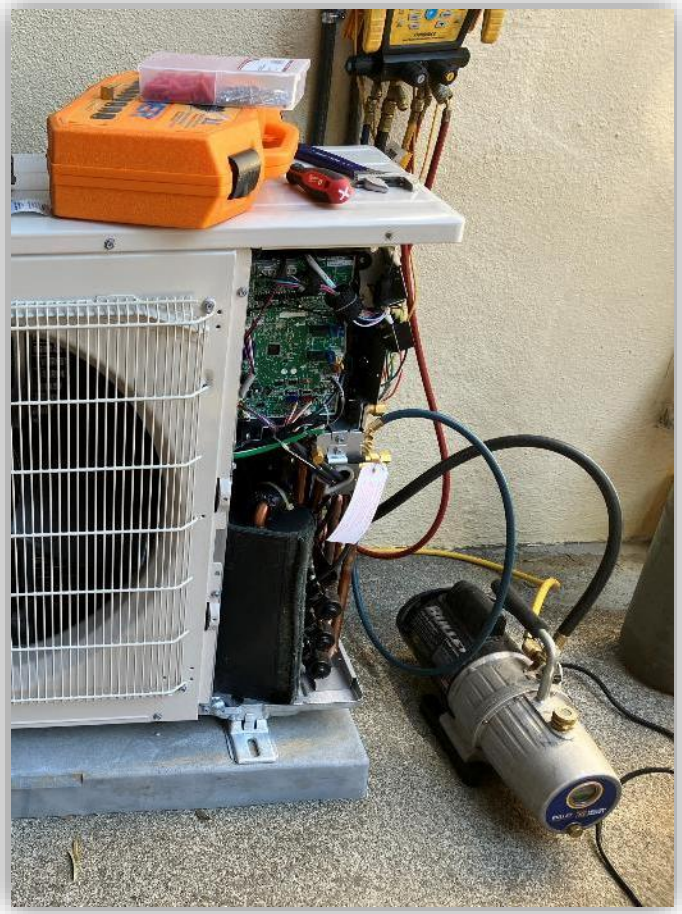
- Always tell customer about lineset run if going up the wall
- Foam areas of rodent accessibility
- Install UV protective material upfront
- Seal wall penetrations
- Support in attic or crawlspace tightly



#3 – Evacuation and Charge

Relevant Heat Pumps – Ducted, Ductless, Multizone

- **When servicing avoid hooking up gauges if not necessary**
  - Check pressures/temperatures first and diagnose
- **Evacuation**
  - Use proper core removal tool
  - Perform decay test
  - Purge with Nitrogen mid charge to remove moisture/oxygen
  - Don’t evacuate through your gauges, use oversized vacuum hose. Change vacuum pump oil frequently.
  - Ensure vacuum holds low pressure for 20 mins after stabilizing
- **Charging**
  - Follow your charging chart and lineset lengths
  - Weigh in charge under vacuum, never charge by pressure alone
  - Never charge when running, in heat, never
  - Pressures will vary with pressure and operating range



#4 – Thermostat Setup

Relevant Heat Pumps – Ducted

- **Airflows**
  - **Adjust airflow output static pressure settings**
  - **Higher for high ceilings and to add additional airflow**
  - **Ensure settings for off fan cycles are set properly**
- **Manufacturer-specific settings may be required**
- **Keep installation manuals in your truck**

#5 – Check Static Pressure

Relevant Heat Pumps – Ducted

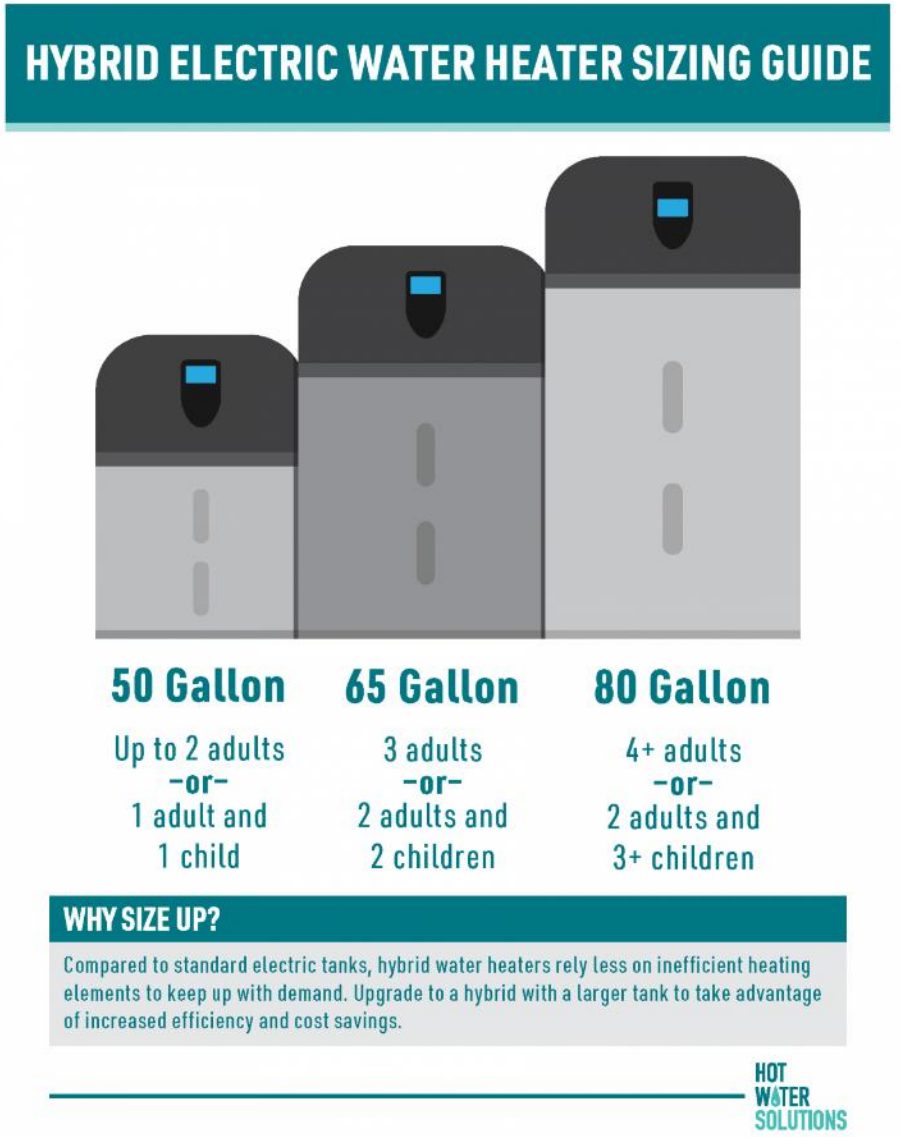
- High static kills performance
- More energy loss
- Less delivered capacity
  - Every bit counts on a heat pump

Avoiding Call Backs on HP Water Heaters

5 Things to Tell Your Customer About Their Heat Pump Water Heater

#1 – Sizing is Critical

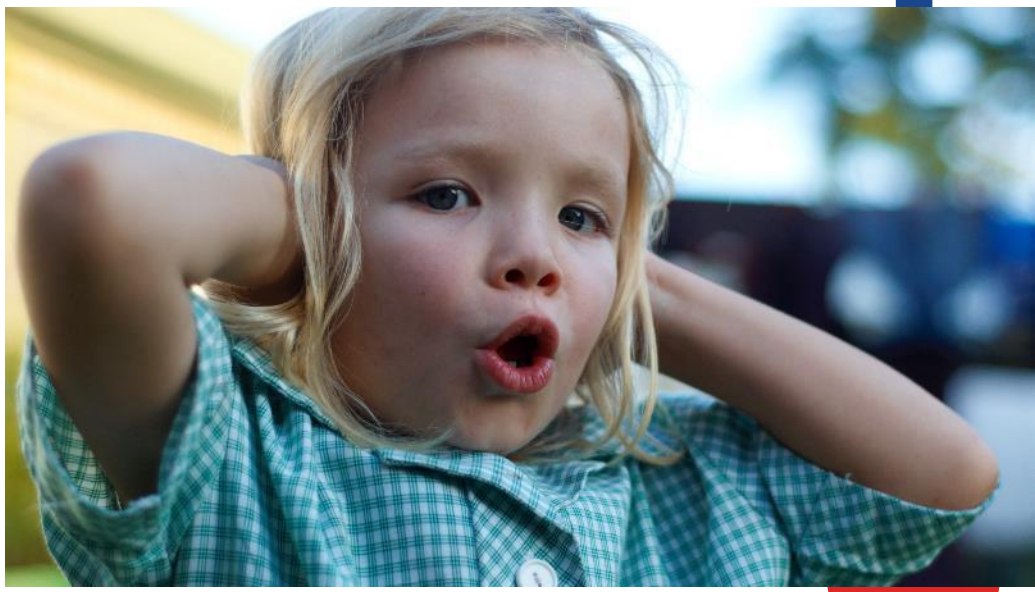
- **Your new system will be larger than your current one. For example:**
  - 50G Gas = 40,000 BTUs/hr
  - 65G HPWH = 4,200 BTUs/hr
- **Recovery times longer. For example:**
  - 50G Gas = FHR of 86
  - 50G HPWH = FHR of 67



*1st Hr Rating: # of gallons of hot water a fully heated tank can deliver in one hour.

#2 – Noise

- Set expectations from the start!
- These units make a noise. Homeowners are not used to their water heaters making much noise.
- Noise can be subjective. Be careful with comparisons.
- Newer models much better than older ones.
- There are possible adjustments to lessen (will discuss in next section).

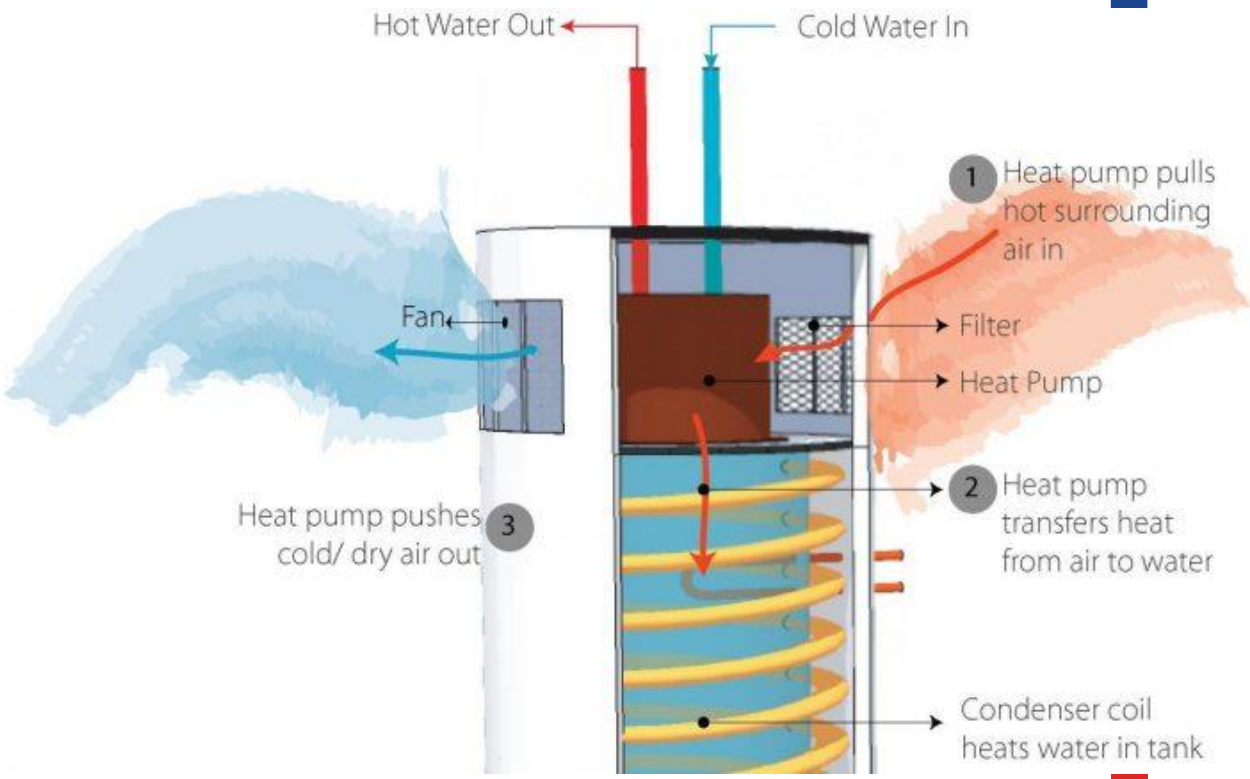


#3 – Mixing Valve

- The mixing valve is a key component
- HPWHs recover at a slower rate, but this element helps prevent likelihood of running out of hot water.
- We will set your tank temperature higher than you might be used to and mix in some cold water so it's delivered just right.

#4 – Cool Air Output

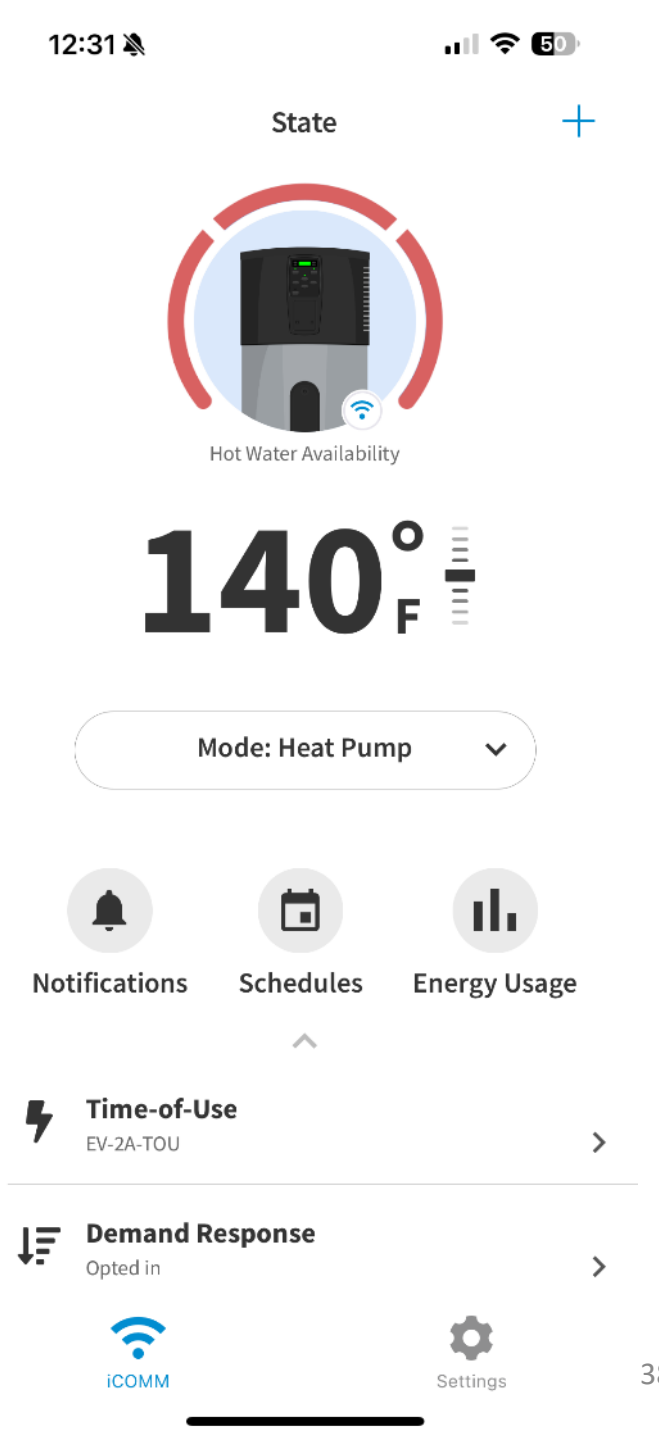
- **Set expectation that some cooler air will be exiting the water heater**
- **Warning – may trigger some to want to capture the cool air**
  - Small BTU amount, likely causes more issues than it's worth
  - If in envelope, venting just one side can cause pressure issues



#5 – Operation

- The goal is to always have the unit run in heat pump mode
- This will lead to longer runtimes – this is normal
- Best to leave the settings in most efficient mode unless you experience delivery issues

- Installer Communication – hot water will not be instantaneously available. It can take 4-8 hours to fully heat a tank in heat pump mode.



#6 – Condensate

- Just like an air conditioner, these units have water that gets drained out
- Be prepared to see water depending on the termination point

Avoiding Call Backs on HP Water Heaters

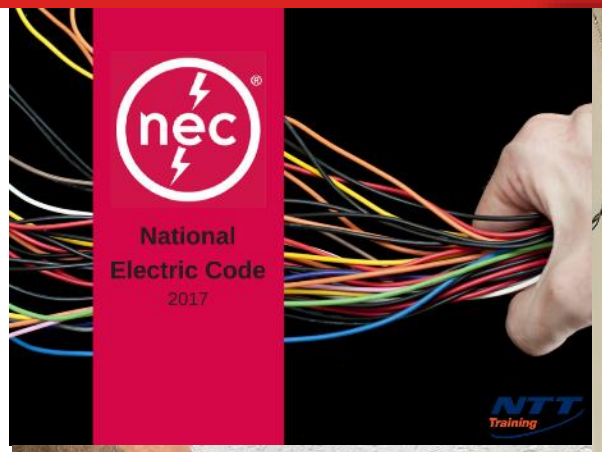
5 Things You Don't Need to Tell Your Customer But Should Do Every Time

#1 – Location

- Avoid inside of house
- Never next to HVAC thermostat
- Use ducting if needed
- Install as close to hot water loads as possible
- Consider insulating if in a closet
- Be mindful of existing plumbing location
- Identify electrical pathway – not always clear

#2 – Electrical

- **Surge protection** – always a good idea
- **Disconnect –** install for easy accessibility
- **Bonding wire** – bond per code
- **Elec load calcs** – make sure you're not overloading panel per code



#3 – TPR and Condensate

- **TPR = temperature pressure relief**
- **Has to drain with gravity**
- **Requires 1/4" per foot drop.**
  - Can be problematic in basements
  - Possible solution: Cold water shutoff valve and water sensor
- **Condensate line - 1/4" per foot drop. Consider a pump.**
  - Never tee condensate into TPR
  - Terminate into an acceptable permeable surface (e.g., flower bed)

#4 –Noise Prevention

- **Pick a quiet unit**
  - Published decibel levels may not be consistent
- **Install tips**
  - Flexible pipe connectors, rubber grommets behind earthquake straps, rubber mat or rated foam pad
  - Acoustic panels & ducting can help a bit
- **For super sensitivity, use a split unit**

#5 – Double Check Incentive Requirements

- Understand Time of Use Billing
- Be able to explain programming of unit
- Look out for minimum Uniform Energy Factor (UEF)
- Look out for 120v sizing to allowable first hour rating

Number of bathrooms	1 to 1.5	1 to 1.5	1 to 1.5	2 to 2.5	2 to 2.5	2 to 2.5	2 to 2.5	3 to 3.5	3 to 3.5	3 to 3.5	3 to 3.5
Number of bedrooms	1	2	3	2	3	4	5	3	4	5	6
First Hour Rating (gallons)	38	49	49	49	62	62	74	62	74	74	74

Chapter 5, Table 501.1(2) in 2022 California Plumbing Code

Questions? Stay in Touch!

ELECTRIFY
MY HOME

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Closing

Continuing Education Units Available

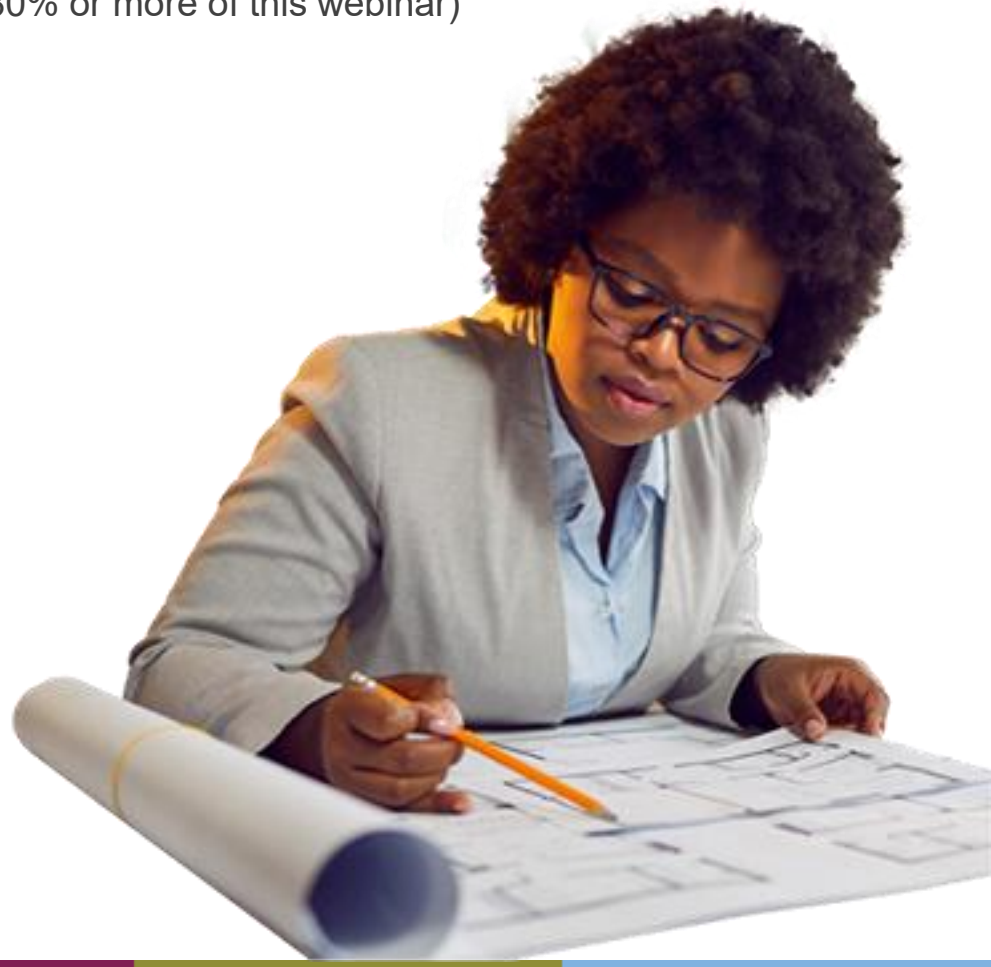
- Contact julianna@3c-ren.org for AIA or ICC Lus (only eligible if you attended 80% or more of this webinar)

Coming to Your Inbox Soon!

- Slides and Recording

Upcoming Courses:

- Save the date for a two-part Electrify My Home extravaganza!
- Psychology of The Electrification Sale: Part 1 – October 9, 2025, 8-9:30 am
- Psychology of the Electrification Sale: Part 2 – October 16, 2025, 8-9:30 am



Any phone numbers who joined? Please share your name!

Thank you!

More info: **3c-ren.org**

Questions: **info@3c-ren.org**

Email updates: **3c-ren.org/newsletter**

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