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<b>Filer:</b>	Stephanie Bailey
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## ***#3 Barriers and Solution to Realize Highly Efficient Water Heaters –HPWHs***

Geoff Wickes

Sr. Product Manager Emerging Technology

[gwickes@neea.org](mailto:gwickes@neea.org)



# NEEA's Work

- Working on HPWH for more than 20 years
- Roughly 7% of electric water heater are HPWH
- Over 35K units installed in PNW
- Have worked (upstream, midstream and downstream)
- Advanced Water Heater Specification and Qualified Products List – Referenced
- Lots of research – Savings, interaction, assessment...
- Resources to share –Training, methods, collateral and lessons learned
- Good connections to the OEMs
- Currently working on DR for water heaters

# #3 *Barriers and Solutions*

## Barriers

- Consumers are unfamiliar with HPWHs
- 85% of all WH replacement is emergency
- Plumbers don't promote HPWHs especially if un-familiar
- Products not sufficiently stocked by supply chain
- Challenging installation locations
- Code officials and inspectors

## Opportunities:

- Great Products exist
- California has an ideal building stock and climate
- Great solution for electrification
- Great solution for DR – CTA 2045
- New Construction markets

## Solutions

- Work with the market channel to get this in play (Retail and Distribution)
- Utilities should go upstream or midstream and make the pricing issue go away
- ProDeal for plumbers
- Stock and flow incentives
- Development of pro-active replacement solutions
- Make it easy – Consumers want to save money



# AeroTherm vs. Standard Electric



# ***Installation Considerations***

## **Space**

- 700 cubic ft. of space or ducting
- Clearance requirements
  - Piping
  - Anode rod service
  - Air filter replacement

## **Condensate**

- Remove condensate
  - Pump or sloped system
  - Terminate into an existing drain or outside
    - Condensate is non-toxic

## **Ducting**

- Confined spaces or to remove cold air
- Mounting – vibration isolation recommended

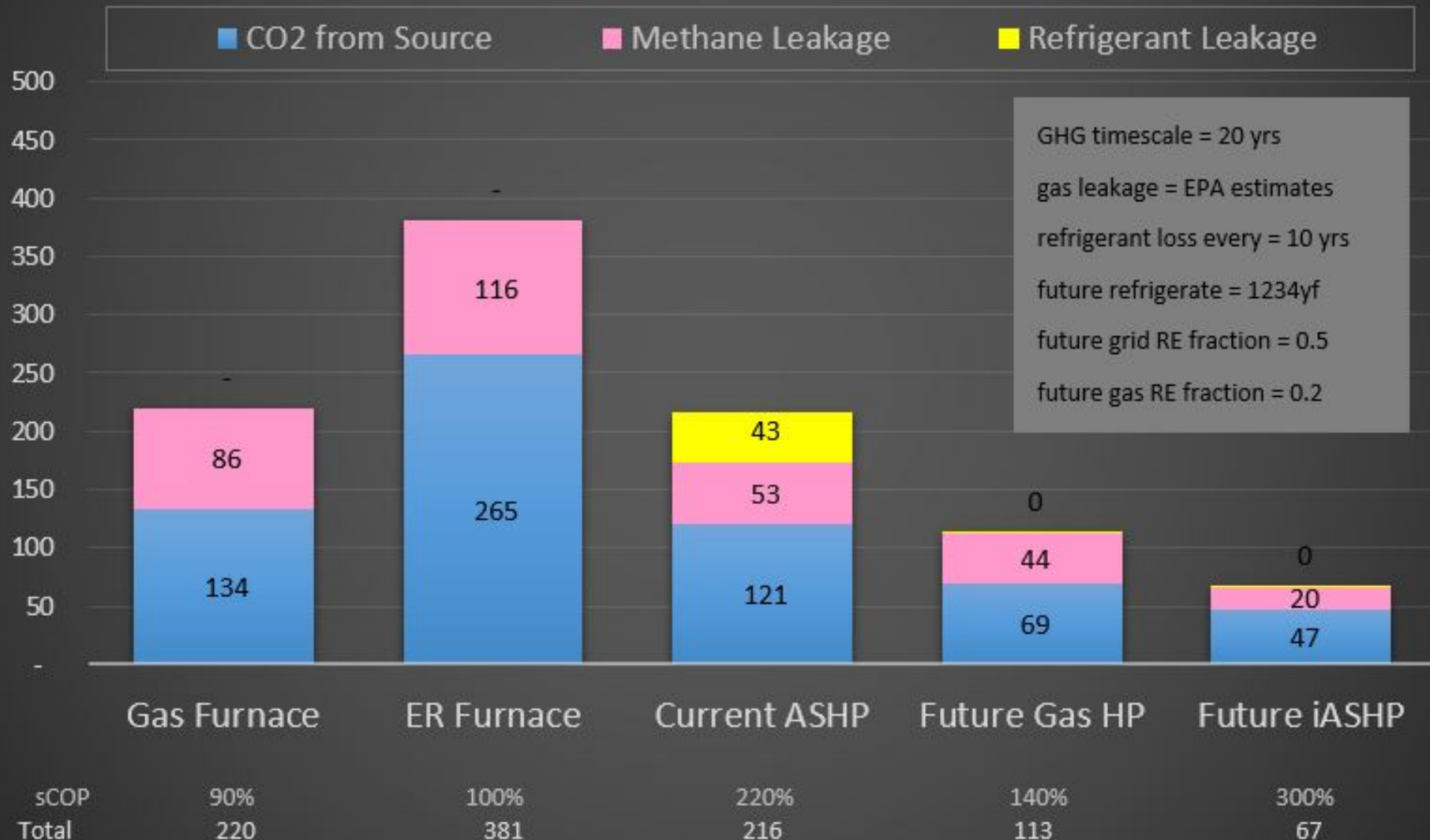


## ***# 5 Needed to minimize Refrigerant Leakage***

- Time is running out.
- Refrigerant leakage is a serious issue in the field.
- Leading edge work is occurring in the natural refrigerant
- While HFCs are being phased out we need to increase efficiencies.
- Reduce the charge, improve factory quality and reduce field charging.
- California and the NE are leaders so is Europe and Japan- look for solutions with the leaders

# Space Heat GWP of 1MMBtu of Delivered Heat

## Lbs CO2 Equivilant



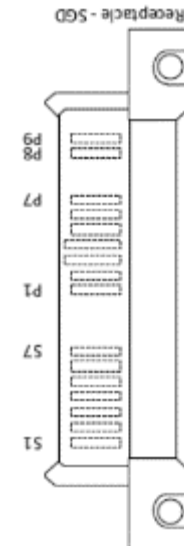


# CTA 2045 Two Physical Form Factors

- Line Voltage



- DC Voltage



# CTA 2045

- Open Source Standard for demand management
- 3 Defined Layers

