

Advanced Heat Pump Coalition

Manufacturer Engagement 2021

What is this Deck about?

This PPT is summary of Key Observations and Take-aways gained from meeting meetings between the AHPC WG#2 (roadmap & manufacturer engagement) and nine manufacturers Oct-Nov 2021.

Members of WG2 meet with each company individually via video call to share details of the roadmap document and gain feedback.

Detail on what we heard from manufactures are available in a 3-page summary document “Q4 2021 Heat Pump Manufacturer Engagement Calls” on the [AHPC website](#).

WG2 will use this information to revise the roadmap document based on what we learned and identify how we can prepare utilities to leverage new features and capabilities.

A “Coalition of the Willing”

Goal

To increase research collaboration among energy efficiency organizations that are working to accelerate market adoption of advanced heat pumps

Membership

- ACTIVE = Fund and Guide collaborative activities
- PASSIVE = attend webinars, provide feedback

Workgroups

- Steering Committee
(NEEA, NEEP, MEEA, CEC, NRCAN, EPA, NYSEERDA, DOE)
- WG #1 – Improved Test Procedure and QPL
- WG #2 – Roadmap Specification and Mfr Engagement
- WG #3 – Best Practices
(Design, Adaptation, Installation and Operation)

[Advanced Heat Pump Coalition \(AHPC\)](#)

Brightest heat pump minds
from organizations such as these:



Roadmap

Vision

- Heat pump capabilities that enhance in-field performance are well supported by utility programs and provide additional value to the HVAC industry

What is it

- NOT program specification
- A tool to identify utility needs and gaps
- A tool for alignment with industry direction

Desired Outcomes

- Manufacturers have clear understanding of what Utilities need
- Widespread utility program support exists for the features specified



The Roadmap Areas

- Performance Rating and Capacity
- Grid Response & Grid Value
- Automatic Integration
- Refrigerants
- Monitoring and Feedback
- User Amenities

CRITERIA	TODAY	SOON	FUTURE
PERFORMANCE RATING & CAPACITY (link)	<ul style="list-style-type: none">ENERGY STAR Certification (based on HSPF and SEER)Variable speed compressors and fansMinimizes energy use during recovery (peak management)NEEP Cold Climate ASHP Specification (for cold climates)	<ul style="list-style-type: none">Climate specific minimum SCOP ratings¹; ~ 10% more efficient than ENERGY STAR v6Published minimum and maximum capacity across range of operationThe matched control is ENERGY STAR certified	<ul style="list-style-type: none">Climate specific minimum SCOP ratings ~ TBD % more efficient than ENERGY STAR v6Improved turndown ratio where minimum capacity values are not greater than 1/4th maximum capacity values
GRID RESPONSE & GRID VALUE (link)	<ul style="list-style-type: none">AHRI 1380 capability	<ul style="list-style-type: none">CTA 2045 compliantAbility to access 24hr ahead weather data to DR responseAbility to access external internet data feeds for utility DR information	<ul style="list-style-type: none">DR hardware automatically connects to utility DR systemIntegrated energy storage
AUTOMATED INTEGRATION (link)	<ul style="list-style-type: none">Controls integration capabilityInternet connection capability	<ul style="list-style-type: none">Controls integration capability of older analog systems	<ul style="list-style-type: none">Automatic controls integrationAutomatic internet connection
REFRIGERANTS (link)	<ul style="list-style-type: none">For small units, refrigerant GWP not greater than 750For outdoor units (with refrigerant charge outside building shell), refrigerant GWP not greater than 150	<ul style="list-style-type: none">Refrigerant GWP not greater than 750Automatic refrigerant leak / charge detection	<ul style="list-style-type: none">Refrigerant GWP not greater than 150
MONITORING & FEEDBACK (link)	<ul style="list-style-type: none">Compatible with third-party monitoring tools	<ul style="list-style-type: none">Commissioning & baseline dataUtility confirmation dataRemote fault detection and diagnostics data	<ul style="list-style-type: none">Realtime performance dataIntegration of design and operation tools
USER AMENITIES (link)	<ul style="list-style-type: none">Remote operation and monitoringGeofencing capability	<ul style="list-style-type: none">System provides user with energy efficiency and demand response prioritization optionsAutomatic ASHRAE 62.2 verification of system	<ul style="list-style-type: none">CO and VOC sensors used to reduce ventilation energy use when possible, and ensure human safety

This is just a screen grab of main items
more detail presented during October
meeting

WG2 Observations and Take-Aways

- AHPC should change the name from "Roadmap Specification" to "Roadmap" as the word specification implies a requirement, which is not the intent of the document. The intent is collaboration, not compliance.
- AHPC interests seem to be seen by the manufacturers as custom feature/capability requests for only the parties in the AHPC. AHPC would like for manufacturers to see the collaboration between our interests and the manufacturer's goals.

WG2 Observations and Take-Aways

- Some of the features and capabilities are not supported by utilities until they are available, but manufactures may not add them until utilities provide incentives. AHPC needs to find a way to convey meaningful market need.
- AHPC needs to start with trust building – taking baby steps to collaborate and show that if we say there is something we need it will be supported when it becomes available.

WG2 Observations and Take-Aways

- The manufacturers, if they are showing their cards, see their equipment in most cases as a comfort tool for homeowners but not yet energy management tools for newer emerging market forces/interests.
- More than one manufacturer felt they added product features because utility claims they were needed but were not sufficiently supported. This is a big gap and risk to future collaboration if not addressed.

WG2 Observations and Take-Aways

- We need to find a better way to inform technical utility folks about new features and capabilities. Utility program staff likely have a lagging understanding of the products they are incentivizing.
- Utility and EE org market research on contractors and consumers would be valuable to manufacturers as they may provide a new “voice of the customer” for manufacturers that they normally don't hear.

WG2 Observations and Take-Aways

- Aggregating regional goals and expected unit sales needs would be powerful. While DSIRE database has information, it is not organized in a “heat pump” focused fashion nor does it have priorities or indications of interest. Refinement of DSIRE database may be helpful to manufacturers.
- AHPC could work on regarding installation and commissioning verification is to help define a “test mode” or how what a test mode tells a contractor.
- AHPC can help broaden manufacturer understanding of who the customer is beyond federal standards, contractors, and customers for new features and capabilities.

Next Steps

1. **Meetings in February at the 2022 AHR Expo in Las Vegas**
2. **Update Roadmap doc based on feedback**
3. **Provide manufacturers with a list of utilities and EE orgs that have specific interest and funding to support a desired feature or capability.** (To make it easy for manufacturers to reach out and help build readiness to support desired features and capabilities when they arrive.)

End

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Visit AHPC website ([Advanced HP Coalition](#))