

“Coalition of the Willing”*



*We are not a formalized organization

The goal is to share knowledge, and align effort to have biggest impact on HVAC industry efforts that help utilities

Context

- 2018
 - Advanced HP Workshop
- 2019
 - Lab Testing with EXP07
 - Meetings with 5 manufacturers
 - Advanced HP White Paper
- 2020
 - AHR Expo Collaboration Meeting
 - Test Procedure recommendations
 - Proof of Concept Project(s)

Advanced Heat Pump White Paper

Opportunity for real world performance data to accelerate market adoption of heat pumps
Version 1.12 – October 2, 2019

Authors

Christopher Dymond – Senior Product Manager – Northwest Energy Efficiency Alliance
David Lis – Director of Technology, Northeast Energy Efficiency Partnerships
Muvala Suami – Senior Standards Engineer, Natural Resources Canada
Bruce Harley – Principal, Bruce Harley Energy Consulting
Robert Weber – Senior Project Engineer, Bonneville Power Administration
Matt Christie – Associate Director, TRC
Gary Hamer – Senior Engineer, BC Hydro
Randall Higa – Codes and Standards, Southern California Edison

Abstract

This white paper explores how improved metrics and post installation equipment data could increase the market adoption of advanced air source heat pumps. Utility and government support for market is limited by uncertainty of metrics, and inability to verify benefits to the utility grid and HVAC professional. This paper describes how more accurate metrics and total system performance focus would roughly double utility energy efficiency program support; plus provide opportunities for demand response value and decarbonization value to be added. In addition, the data from installed systems could be leveraged by manufacturers, distributors and dealers as training and HVAC services thus providing increased revenue streams and improved product differentiation resulting in enhanced profit and benefit for all parties.

Our vision is a future where accurate, consumer understandable performance differentiation information is readily available and post installation data that is used both by manufacturers to support their distributor/dealer networks and by utilities to ensure energy savings, grid stability and meet policy driven decarbonization objectives. If realized, this can enable heat pumps to be full valued as a clean energy resource and reasonably achieve a tenfold increase in market share by 2030, with a combined US and Canada technical potential source energy savings of 10 quadrillion Btus per year by the middle of the century.¹

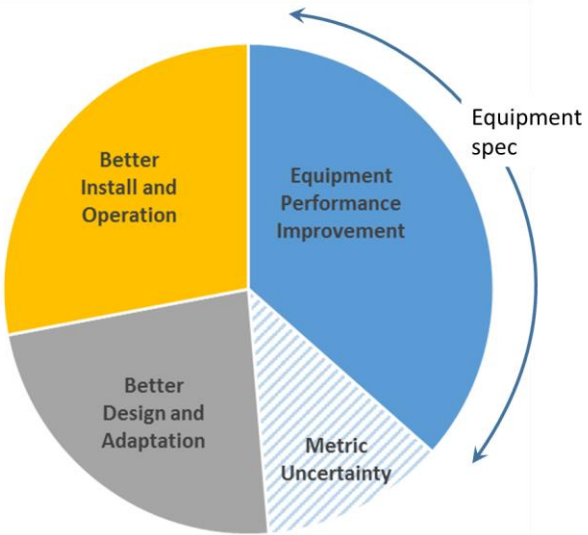
Strong Opportunity

- Variable Capacity and Extended Range Heat Pumps
- Advanced Controls
- Connected Systems
- HVAC Dealer/Installer Professional Development
- Policy driven demand for low-carbon solutions
- Utility need for “alonetic”^{*} solutions

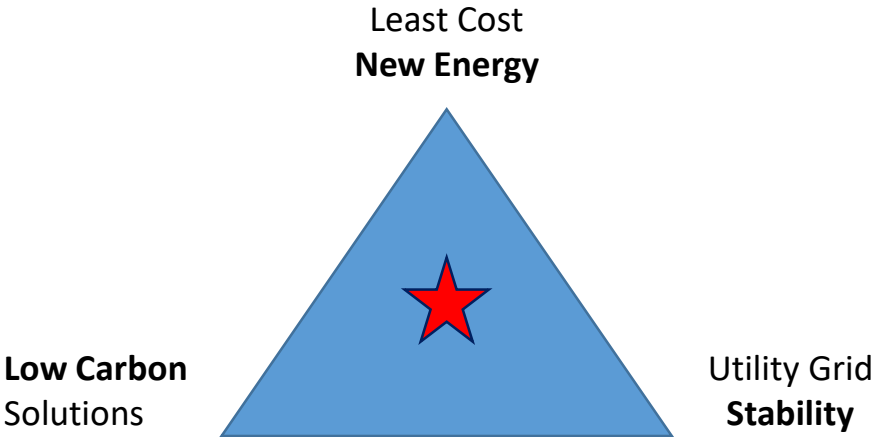
^{*} *Utility grid friendly to help manage renewable energy integration – e.g. demand response, reduced peak demand, etc.*

Whitepaper Key Ideas

Total System Savings



Untapped Value

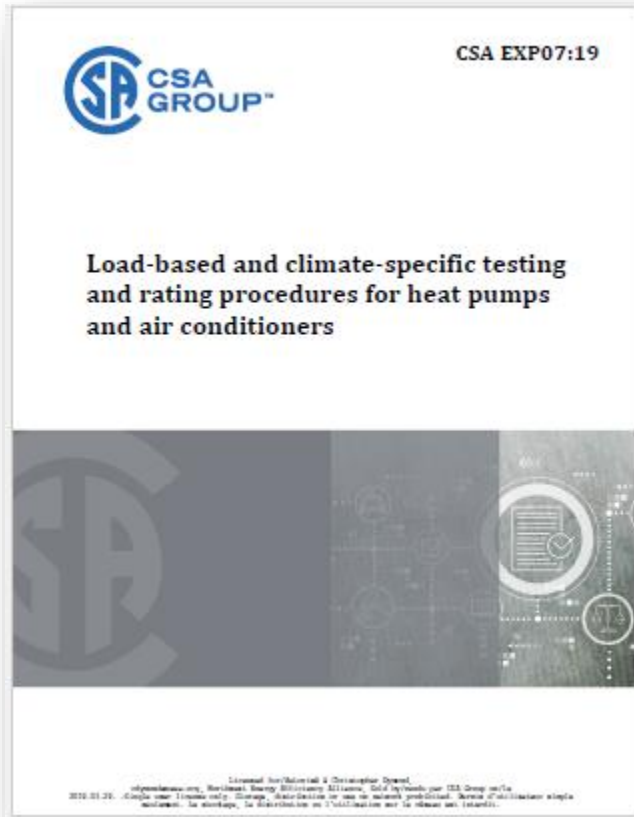


Roadmap Specification

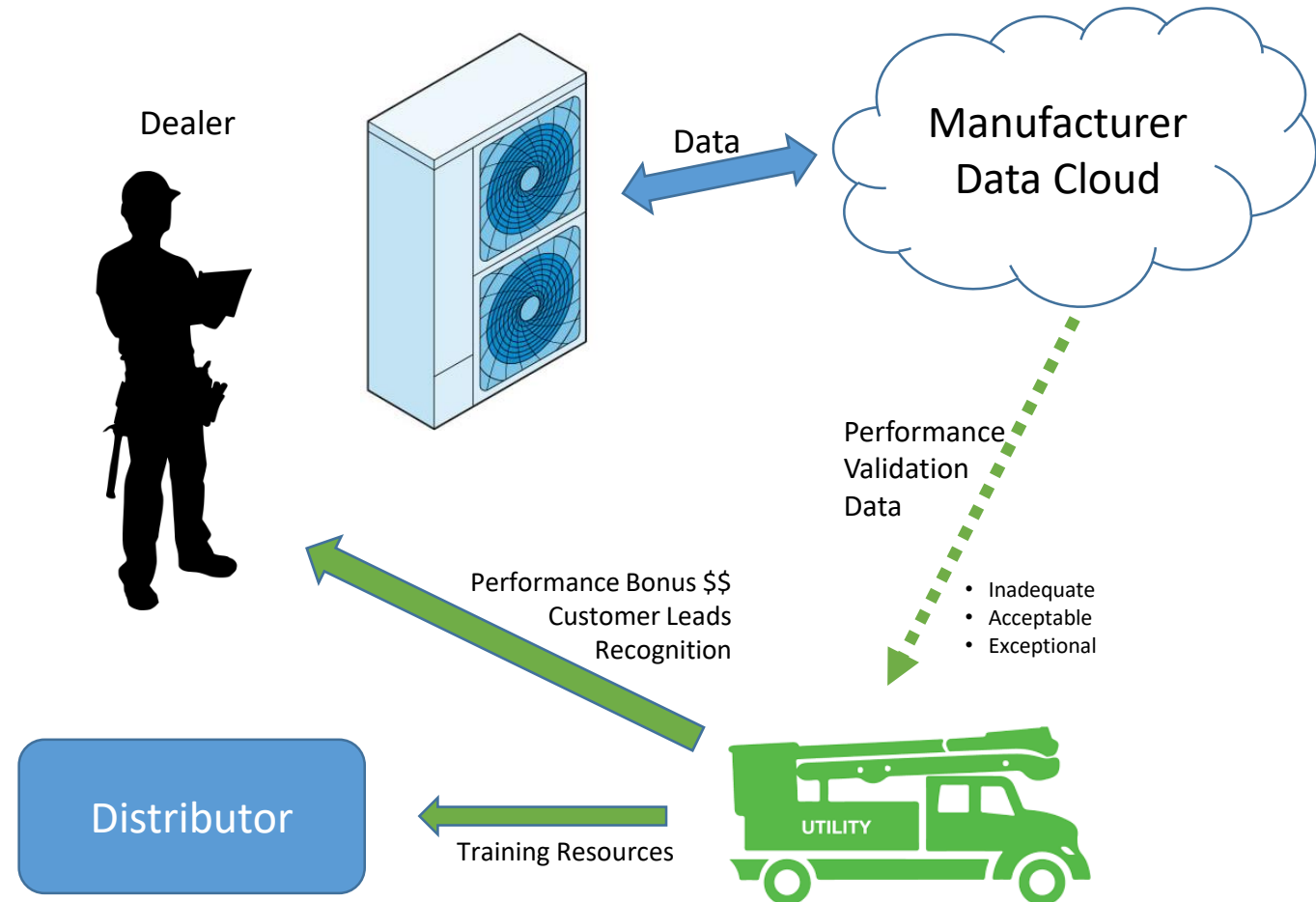
	Base	Aspire
Performance Capabilities		
Design & Installation		
Post Install Data		
Customer Benefits		

Areas of Interest

Load Based Test Procedure & Rating



Post-Installation Performance Data



Questions & Discussion

- Feedback
 - What is off-target?
 - What is on-target?
- How would you like to collaborate?
- Are you interested in . . .
 - Test drive CSA EXP07?
 - Proof of concept projects?

Thank You