Tuesday, March 7 – Hot Air Forum

7:00 am–7:00 pm  Registration  South Foyer

8:00–9:00 am  Breakfast  Great Room IV-VIII

9:00–10:30 am  Welcome and Plenary Session  Great Room IV-VIII

Welcome & Introduction:  **Amber Wood**, American Council for an Energy Efficient Economy

Welcome:  **Karen Meyers**, Vice President, Government Affairs, Rheem Manufacturing

Moderator:  **Christopher Dymond**, Northwest Energy Efficiency Alliance

*When Decarbonizing the Air Side...Five Years from Now, Where Will We Be and Where Should We Be?*

Presenter:  **Kandice Cohen**, Director, Electrification of Heat, Trane Technologies

10:30–11:00 am  Networking Break  West Deck

11:00 am–12:00 pm  Concurrent Sessions

**1A. Decarbonizing Commercial and Industrial**  Great Room I-III

Moderator:  **George Chapman**, Energy Solutions

*The Guidebook for Decarbonizing Healthcare Buildings*

Presenter:  **Austin Barolin**, Mazzetti

*High Temperature Heat Pumps and Implications for Commercial and Industrial Applications*

Presenter:  **Kashif Nawaz**, Oak Ridge National Laboratory

*Hot and Humid: Efficient Dehumidification for a Warming Environment*

Presenter:  **Kevin Bostaph**, Mazzetti

**1B. Cold Climate Heat Pumps**  Shutters East I-II

Moderator:  **Emma Hanson**, Consortium for Energy Efficiency

*Load Shifting with Cold-Climate Ductless Heat Pumps*

Presenter:  **Samuel Rosenberg**, Pacific Northwest National Laboratory


Presenter:  **Alejandro Guada**, GTI Energy

*The Northeast Energy Efficiency Partnership’s Cold Climate Air Source Heat Pump Resources are More Relevant than Ever!*

Presenters:  **Dan Wildenhaus**, Center for Energy and Environment  
**David Lis**, Northeast Energy Efficiency Partnerships
**1C. Design Strategies for Energy Efficiency and Decarbonization**  
*Shutters West I-II*

**Moderator:** Isaac Smith, Center for Energy and Environment

- *Duct Loss Implications of Variable Capacity Heat Pumps*
  **Presenter:** Curtis Harrington, University of California-Davis

- *Strategies for Increased Heat Pump Savings*
  **Presenter:** Christopher Dymond, Northwest Energy Efficiency Alliance

- *A System Approach to Healthy, Efficient, and Resilient Buildings for a Decarbonized World*
  **Presenter:** Jordan Pratt, Energy 350

**12:00–1:00 pm Networking Lunch**  
*Great Room IV-VIII*

**1:00–2:00 pm Concurrent Sessions**  
*Great Room I-III*

**2A. Commercial Boiler Solutions**

**Moderator:** George Chapman, Energy Solutions

- *Dual-fuel (Gas-Electric) Commercial Steam Boiler with Demand Response, Decarbonization and Green House Gas Emission Reductions*
  **Presenter:** Ramanathan Dharmarajan, GTI Energy

- *Space Heating Electrification Strategies for Large Commercial Buildings*
  **Presenters:** Mark Butrico, Guidehouse  
  Ryan Murphy, Guidehouse

- *Heat Pumps are Not Boilers*
  **Presenter:** Shawn Oram, Ecotope

*Shutters East I-II*

**Moderator:** Bing Liu, Pacific Northwest National Laboratory

**Panelists:** Tony Bouza, U.S. Department of Energy  
Vrushali Mendon, Pacific Northwest National Laboratory  
William Goetzler, Guidehouse

**2C. Workforce Tools and Programs**  
*Shutters West I-II*

**Moderator:** Dan Wildenhaus, Center for Energy and Environment

- *Farewell HVAC Manifold, Technicians of the Future Go Wireless*
  **Presenter:** Christian Valoria, Pacific Northwest National Laboratory

- *Training Material for Residential Heat Pump Conversions*
  **Presenter:** Jamie Kono, Pacific Northwest National Laboratory

- *Empowering HVAC Distributors and Contractors: Lessons Learned from an Air-Source Heat Pump Training and Education Pilot*
  **Presenters:** Justin Margolies, Slipstream  
  Pauravi Shah, ComEd
2:15–3:15 pm  Concurrent Sessions

3A. Solutions for Roof-Top Units (RTUs) (small/medium commercial)  
Great Room I-III
Moderator: Curtis Harrington, University of California, Davis

Commercial Heat Pump Rooftop Units: Current Decarbonization Opportunities and Future Technology Needs
Presenters: Ali Akber Kazmi, Guidehouse
Carolyn Barrera, Guidehouse

Furnace Efficiency Beyond Annual Fuel Utilization Efficiency (AFUE): How the Whole Box Matters and How to Change the Market
Presenter: Jason Jones, Northwest Energy Efficiency Alliance

Advanced Fuel-Fired Heat Pumps with Improved Occupant Comfort, Decarbonization, Green House Gas Reductions
Presenter: Hardik Shah, GTI Energy

3B. Variable Speed Heat Pumps (VSHP) Equipment  
Shutters East I-II
Moderator: Christopher Dymond, Northwest Energy Efficiency Alliance

Rating Representativeness Project - Developing Lab and Field Data for a Better Heat Pump Rating
Presenter: Jennifer McWilliams, DNV

Lab Testing a Mid-Tier Variable Speed Heat Pump
Presenter: Micah Sweeney, EPRI

Finding the “Goldilocks” Heat Pump and the Key Performance Metrics That Define It
Presenter: Isaac Smith, Center for Energy and Environment

Variable Speed Heat Pumps for Central Air Conditioning Replacement in Illinois
Presenter: Ranal Tudawe, Center for Energy and Environment

3C. Market Transformation: Adoption and Customer Focus  
Shutters West I-II
Moderator: Debbie Driscoll, Northwest Energy Efficiency Alliance

Replacing Central ACs with Heat Pumps – the Fastest Route to Widespread Heat Pump Adoption
Presenter: Matt Malinowski, CLASP

Who’s a Good Fit for Electrification? Data-Driven Customer Analysis
Presenter: Meghan O’Connor, Eversource

Achieving High Impacts in Low-Income Multifamily Housing
Presenter: Steve Wiese, Frontier Energy
Austin Pooley, CenterPoint Energy

3:15-3:45 pm  Networking Break  
West Deck
### 3:45–4:45 pm  Concurrent Sessions

#### 4A. Heat Pumps in Single Family Homes (Residential Case Studies)  
**Great Room I-III**

- **Moderator:** Courtney Moriarta, NYSERDA
  - Evaluating the Use of Integrated Controls to Maximize the Effectiveness of Ductless Heat Pumps in Existing Homes  
  **Presenter:** Karen Fenaughty, UCF/FSEC

- Data-driven Insights into Air Source Heat Pump Installation Costs  
  **Presenter:** Dylan Sarkisian, Energy Solutions

- Efficiency Impact of Low Refrigerant Levels in Variable Capacity Heat Pumps  
  **Presenter:** Abram Conant, Proctor Engineering Group, Ltd.

#### 4B. Equipment Sizing  
**Shutters East I-II**

- **Moderator:** David Lis, Northeast Energy Efficiency Partnership
  - Size Up or Size Down? National Analysis of Heat Pump Sizing Factors and Impacts  
  **Presenter:** Prateek Munankarmi, National Renewable Energy Laboratory

- Goldilocks Method: A Heat Pump Decision Tool Helps Choose a System that’s Just Right  
  **Presenter:** Alekzander Parsons, Pacific Northwest National Laboratory

- What Matters Most in Determining Heat Pump Application Types?  
  **Presenter:** Dan Wildenhaus, Center for Energy and Environment

#### 4C. Landscape of Current Collaborations & What's Needed  
**Shutters West I-II**

In this interactive session, attendees will join us in identifying where collaboration is happening and where it is needed to accelerate adoption of decarbonization for residential HVAC and light commercial roof-top units (RTUs)

- **Discussion Moderators:** Abigail Daken, U.S. Environmental Protection Agency
  - Debbie Driscoll, Northwest Energy Efficiency Alliance

### 5:30–7:00 pm  Reception  
**The Gallery**
### Wednesday, March 8 – Hot Air & Hot Water Forum Combo Day

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**Welcome & Introduction:** [Steve Nadel](#), American Council for an Energy Efficient Economy

**Welcome:** [Karen Meyers](#), Vice President, Government Affairs, Rheem Manufacturing

**Moderator:** [George Chapman](#), Energy Solutions

**A Vision of the Policy Future – Policies, Funding, and Approaches for Energy and Emissions from a Federal and State Perspective**

**Presenters:**
- [Ashley Armstrong](#), Senior Policy Advisor and IRA Management Expert, U.S. Department of Energy
- [Andrew McAllister](#), Commissioner, California Energy Commission

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**5A. Flexibility and Demand Response: State Water Heating Perspective**

**Moderator:** [Geoff Wickes](#), Northwest Energy Efficiency Alliance

- **EcoPortTM is LIVE! A Standard for Grid Connected Hot Water Heaters**
  - **Presenter:** [Don Dulchinos](#), OpenADR Alliance
  - [Ray Troy](#), Rheem

- **Findings and Updates from WatterSaver, PG&E’s Electric Water Heater Daily Load Shifting Program**
  - **Presenter:** [Nick Dirr](#), Association for Energy Affordability

- **Hot Water in Hot Arizona**
  - **Presenter:** [Grace Sauter](#), Guidehouse

**5B. Utility Programs in the Midwest**

**Moderator:** [Joe Ricchiuto](#), Midwest Energy Efficiency Alliance

- **Heat Pump Adoption - Regional Collaboration**
  - **Presenter:** [Emily McPherson](#), Center for Energy and Environment

- **Residential Space Heating Electrification: Laying the Groundwork for a New Generation of Programs**
  - **Presenters:** [Kevin Gries](#), Slipstream  
  - [Pauravi Shah](#), ComEd
5C. Energy Equity & Environmental Justice in Decarbonization
Moderator: Amber Wood, ACEEE
U.S. Department of Energy’s Field Validation Partnership Network and Strategy
Presenter: Kieren McCord, Pacific Northwest Energy Laboratory
Weatherization and Electrification Together
Presenters: Keith Dennis, The Beneficial Electrification League
Long Lam, Brattle Group

5D. Program - Decarbonization Considerations
Moderator: Peter Turnbull, Turnbull Energy
Modeling the World: Where Does Building Decarbonization Make the Most Sense?
Presenter: Ian Hammon-Hogan, BIRA Energy
Residential Electrical Panels: How Many Need to be Upgraded?
Presenter: Doug Lindsey, EPRI

12:00–1:00 pm Networking Lunch

1:00–2:00 pm Concurrent Sessions

6A. Reducing Emissions through Policy
Moderator: Jim Lutz, Hot Water Research
Emission Standards to Reduce Appliance Pollution
Presenter: Leah Louis-Prescott, RMI (formerly Rocky Mountain Institute)
Delivering Results through Innovation: Results from a Heat Pump Water Heater Loaner Pilot
Presenter: Chris Badger, VEIC
Making Lower-Emissions Water Heating Affordable and Accessible
Presenters: Damali Harding, Regulatory Assistance Project
Emily Levin, NESCAUM

6B. State Utility Programs
Moderator: Jerine Ahmed, Southern California Edison
How a Channel Strategy Can Meet Decarbonization Goals
Presenter: Erin Engelkemeyer, Eversource
Navigating the 3 Cs of Hybrid Heating: Cost, Carbon, and Comfort
Presenter: Morgan Hood, Vermont Gas Systems
Don’t Cool the Heat Pump Momentum
Presenter: Courtney Dale, Cadeo
6C. Legislation and Funding Implications  
**Shutters West I-II**

Moderator: **Emma Hanson**, Consortium for Energy Efficiency

*Tax Rebates and Grants: What the IRA Means for Consumers’ Wallets*
Presenter: **Kim Katz**, Consortium for Energy Efficiency

*Heat Pump Water Heaters: Preparing for the Tsunami*
Presenters: **Paul Campbell**, ICF  
**Nate Jutras**, U.S. EPA ENERGY STAR

*Balancing Efficiency vs Market Adoption: The Risk of Setting the Bar Too Low*
Presenter: **Christopher Dymond**, Northwest Energy Efficiency Alliance

6D. Residential: Heat and Water Heating Multi-Use Heat Pumps  
**Brickstones**

Moderator: **Harvey Sachs**, ACEEE

*Smart Integrated Near Zero GWP Space Heat and Hot Water*
Presenter: **Abram Conant**, Proctor Engineering Group, Ltd.

*Initial Winter Results from a 4-ton Combi Heat Pump and Heat Pump Water Heater in the PNNL Lab Homes*
Presenter: **Edward Louie**, Pacific Northwest National Laboratory

*Three Loads, One Heat Pump: Examining Three Function Air-to-Water Heat Pumps for Retrofits*
Presenter: **James Haile**, Frontier Energy

2:15–3:15 pm  Concurrent Sessions

7A. High Efficiency Gas Water Heating  
**Great Room I-III**

Moderator: **Aaron Winer**, Northwest Energy Efficiency Alliance

*Commercializing a Cost-Effective Residential Retrofit Gas Heat Pump Water Heater*
Presenter: **Magnus Ekblad**, HeatAmp

*Gas Absorption Heat Pump for Commercial Applications*
Presenter: **Alejandro Guada**, GTI Energy

*Direct and Indirect Fired Tankless Condensing Water Heater Demonstration*
Presenter: **Abinesh Ravi**, GTI Energy

7B. Air-to-Water Heat Pumps (AWHP) and Water-Source Heat Pumps (WSHP)  
**Shutters East I-II**

Moderator: **Abigail Daken**, U.S. Environmental Protection Agency

*Advancing Air-to-Water Heat Pumps in California’s Energy Code*
Presenter: **John Arent**, NORESCO

*Air-to-Water Heat Pumps in Minnesota*
Presenter: **Ranal Tudawe**, Center for Energy and Environment

*Making Closed Loop Water Source Heat Pump Retrofits Attainable*
Presenter: **Jason Strano**, Eversource
7C. Policies: Codes, Standards, and Testing

Moderator: Harvey Sachs, ACEEE

Leader or Laggard: How Do U.S. Efficiency Standards for Domestic Water and Space Heating Equipment Stack Up?
Presenter: Matt Malinowski, CLASP

Just do it! What Happens When Everyone has to Change Technology Together
Presenter: Duane Jonlin, City of Seattle

JIS C-9220, Learning from the Japanese Household Use Heat Pump Water Heater Standard (家庭用ヒートポンプ給湯機)
Presenter: Jim Lutz, Hot Water Research

7D. Decarbonizing Residential Water Heating

Moderator: Kim Katz, Consortium for Energy Efficiency

ENERGY STAR® Home Upgrade: A DIY Roadmap to Electrifying/Decarbonizing
Presenter: Dan Lawlor, U.S. EPA ENERGY STAR

ENERGY STAR® Home Upgrade: Water Heating
Presenter: Paul Campbell, ICF

Electrical Upgrade Challenges for Building Electrification Goals
Presenter: William Goetzler, Guidehouse

3:15–3:45 pm Networking Break

3:45–4:45 pm Concurrent Sessions

8A. Low Global Warming Potential Refrigerants & Green House Gas Reductions

Moderator: Kyle Gluesenkamp, Oak Ridge National Laboratory

Propane as Refrigerant for Heat Pump Water Heaters
Presenter: Kashif Nawaz, Oak Ridge National Laboratory

Two-stage Hydronic Heat Pump Using Propane
Presenter: Zhenning Li, Oak Ridge National Laboratory

Refrigerant-free Thermoelectric Heat Pump Water Heaters
Presenter: Kyle Gluesenkamp, Oak Ridge National Laboratory

8B. Landscape of Current Collaborations and What’s Needed – Part II

In this interactive session, attendees will join us in creating an action plan to address gaps in collaboration and accelerate progress in residential HVAC and light commercial roof-top units (RTFs).

Discussion Moderators: Abigail Daken, U.S. Environmental Protection Agency  
Debbie Driscoll, Northwest Energy Efficiency Alliance
8C. Workforce

Moderator: Amber Wood, ACEEE

Key Lessons for Workforce Development in Urban Disadvantaged Communities
Presenter: Ebony Mayhorn, Pacific Northwest National Laboratory

Retooling Workforce Development and Career Pathways to Achieve Green House Gas Reductions
Presenter: Katey Beaton, VEIC

BIPOC Focused Workforce and Contractor Training Opportunities for Heat Pumps and Heat Pump Water Heaters
Presenter: Joseph Wachunas, New Buildings Institute
  Steven Brotton, Great Northwest Installations

Heat Pump Water Heaters: You Need to Feel It to Believe It
Presenter: Sandy Laube, Energy Solutions

8D. Equipment – Thermal Heat Pumps

Moderator: Aaron Winer, Northwest Energy Efficiency Alliance

Pairing Managed Thermal Storage with a Heat Pump Combi
Presenter: Evan Green, Harvest Thermal

Laboratory Evaluation of a Packaged Thermal Heat Pump and Electrical Air Conditioning Unit for Space Conditioning and Hot Water
Presenter: Navin Kumar, GTI Energy

Control Scheme for Load Shifting with PCM Integrated Heat Pump Water Heaters
Presenter: Joseph Rendall, Oak Ridge National Laboratory

5:00–6:00 pm  Shameless Commerce  Great Room IV-VIII

6:15–7:30 pm  Reception  The Gallery
Thursday, March 9 – Hot Water Forum

7:00 am–4:00 pm  Registration  
**South Foyer**

8:00–9:00 am  Breakfast  
**Great Room IV-VIII**

9:00–10:30 am  Plenary Panel  
**Great Room IV-VIII**

Welcome & Introduction: **Amber Wood**, American Council for an Energy Efficient Economy

Welcome: **Joshua Greene**, Corporate Vice President – Government, Regulatory, and Industry Affairs, A.O. Smith Corporation

Moderator: **Christoph Lohr**, The International Association of Plumbing & Mechanical Officials

**Workforce & Equity – The Crossover of Workforce and Equity Within States and Utilities Within Programs and Policies**

Panelists: **Jill Marver**, Program Manager, Principal, Pacific Gas & Electric Company  
**Jenna Tatum**, Executive Director, Building Electrification Institute  
**Nick Dirr**, Senior Director Programs, Association for Energy Affordability

10:30–11:00 am  Networking Break  
**West Deck**

11:00 am–12:00 pm  Concurrent Sessions  
**Great Room I-III**

**9A. Market Transformation: Heat Pump Water Heater Decarbonization**

Moderator: **Emily Rosenbloom**, Northwest Energy Efficiency Alliance

*Insightful Market Research to Guide Regional Heat Pump Water Heater Deployment*

Presenter: **Josh Butzbaugh**, Pacific Northwest National Laboratory

*Heat Pump Water Heaters Failure to Launch and How We Change That*

Presenter: **Joseph Wachunas**, New Buildings Institute

*Developing the Market for Heat Pump Water Heaters in the Bay Area through a Regional Incentive*

Presenter: **Helen Mejia**, East Bay Community Energy

**9B. Piping Design**  
**Shutters East I-II**

Moderator: **Amin Delagah**, TRC Companies

*Laboratory Testing of a Full-Scale Domestic Hot Water Distribution System for a Three-Story Multifamily Building*

Presenter: **Mehdi Zeyghami**, Pacific Gas and Electric

*Why Your Shower Feels Wimpy and What You Can Do About it*


*Diving Deep into the Water Demand Calculator - Will You See the Benefits on Your Next Project?*

Presenter: **Elise Wall**, 2050 Partners
9C. 120 Volt Heat Pump Water Heaters: A Game Changing Technology Gets to Market

Moderator: Jim Lutz, Hot Water Research

2023: A Heat Pump Water Heater Odyssey
Presenter: Colleen Collins, Cadeo Group

Plug-in Heat Pump Water Headers: An Early Look at 120-Volt Products in the Lab
Presenter: Ben Larson Larson Energy Research

Plug-in Heat Pump Water Heaters: National Field Validation Efforts and Market
Presenter: Amruta Khanolkar, New Buildings Institute

9D. Commercial and Public Building Innovations

Moderator: George Chapman, Energy Solutions

Heat Pump Water Heaters MOOving into the Dairy Farm
Presenters: Keshmira McVey, Bonneville Power Administration
            Helen Townsend, D&R International

Why Tankless?
Presenter: Perry Bobrow, Intellihot Inc.

12:00–1:00 pm Networking Lunch

1:00–2:00 pm Concurrent Sessions

10A. Program Design – Heat Pump Water Heaters

Moderator: Kim Katz, Consortium for Energy Efficiency

Enhancing Heat Pump Water Heating Programs in the Northeast
Presenter: Deepthi Dutt, Northeast Energy Efficiency Partnerships

Residential Heat Pump Water Heater Program Design: Meeting the Needs of Customer, Contractors, and Utilities
Presenter: Jordan Losiak, ComEd

Southeast Heat Pump Water Heater Implementation Project
Presenter: Chris Granda, Energy Solutions

10B. Innovative Hot Water Research

Moderator: Tim Bartrand, ESPRI

Presenters: TBA
10C. Causes of (and Solutions to) Poor Heat Pump Water Heater Performance in Small Enclosures

Moderator: Michael Waite, ACEEE

The Amazing Shrinking Room
Presenter: Ben Larson, Larson Energy Research

Unitary Heat Pump Water Heater Ventilation Testing to Support New Title 24 Requirements
Presenter: Garth Torvestad, 2050 Partners

Overcrowding Unitary Heat Pump Water Heaters: Lessons Learned in Installation from the Field
Presenter: Meghan Duff, Association for Energy Affordability

10D. Commercial and Industrial Hot Water

Moderator: George Chapman, Energy Solutions

Steam to Hot Water Conversions and Their Impact on Decarbonization
Presenter: Jason Strano, Eversource

Distributed Carbon Capture Technology for Fuel-fired Water and Space Heating in Residential and Commercial Buildings
Presenter: Abbas Ahsan, GTI Energy

Industrial Heat Pumps Potential and Market Transformation
Presenter: Andrew Hoffmeister, ACEEE

2:15–3:15 pm Concurrent Sessions

11A. Flexibility and Demand Response: Heat Pump Water Heater Controls and Costs

Moderator: Geoff Wickes, Northwest Energy Efficiency Alliance

Emission Reduction Potential of Controlled Water Heaters in the United States
Presenter: Imran Sheikh, Western Washington University

Price- and Load-Responsive CTA-2045 Controls for HPWHs
Presenter: Peter Grant, Lawrence Berkeley National Laboratory

Retrofitting Central Heat Pump Heater Systems to Achieve Load Flexibility
Presenter: Yanda Zhang, ZYD Energy
Emily Higbee, Redwood Energy
11B. Hot Water Design: Water Quality, Design, and Innovations

Moderator: Gary Klein, Gary Klein and Associates, Inc.

Priority Research and Innovation in Hot Water Systems: Innovations and Ideas
Presenter: Tim Bartrand, ESPRI

Priority Research and Innovation in Hot Water Systems: Hot Water System Areas of Intersecting Innovation in Codes and Standards
Presenter: Katherine Alfredo, ESPRI

11C. Solar Water Heating Strategies

Moderator: Amber Wood, ACEEE

Energy Security and Efficient Electrification
Presenter: Adam Chrisman, SunEarth

The Role of Heat Pump Water Heaters with Off-Grid Hybrid Solar
Presenter: Carlos Colon, Florida Solar Energy Center (FSEC)

Experimental Results for Combined Solar Thermal and Heat Pump Systems
Presenter: Joshua Plaisted, Flagstaff Research

11D. Multifamily – Equitable and Affordable Water Heating

Moderator: Navin Kumar, GTI

Equitable and Efficient Solutions to Electrify Domestic Water Heating
Presenter: Rebecca Rothman, VEIC

Cost Reduction of Heat Pump Water Heaters for Multifamily Units
Presenter: Joseph Rendall, Oak Ridge National Laboratory

3:15–3:30 pm Networking Break

3:30–4:30 pm Concurrent Sessions

12A. Multifamily – Hot Water Design Strategies

Moderator: Gary Klein, Gary Klein and Associates, Inc.

Upcoming Codes & Guidelines for Central Heat Pump Water Heater Systems
Presenter: Carmen Cejudo, Pacific Northwest National Laboratory

Sizing Challenges Based on Climate for Packaged Multifamily Systems
Presenter: Brent Kovash, Steffes, LLC

Commercial and Industry Heat Pump Water Heater System Design
Presenter: Walker Larsen, Consortium for Energy Efficiency
12B. Hot Water System Design

Moderator: Mike Waite, ACEEE

Overcoming Barriers: A Heat Pump Water Heater Decision Tool
Presenter: Alekzander Parsons, Pacific Northwest National Laboratory

System Design Strategies, Water Heating Technologies
Presenter: Perry Bobrow, Intellihot Inc.

Methods for Rightsizing of Replacement Heat Pump Domestic Hot Water Systems
Presenters: Charles Simek, New Ecology
John Beaumont, New Ecology

12C. Innovative Strategies

Moderator: Dave Vernon, University of California, Davis

Presenter: Caton Mande, UC Davis Western Cooling Efficiency Center

Three-function Heat Pumps: Jack of All Trades, but Master of None?
Presenter: Stephen Chally, Frontier Energy

12D. Multifamily – Design and Installation Heat Pump Water Heaters

Moderator: Amin Delagh, TRC Companies

Presenters: Mischa Egolf, New Buildings Institute
Nick Young, Association for Energy Affordability

Demonstrating Successful Heat Pump Water Heater Load Shift in Multifamily Buildings
Presenter: Scott Spielman, Ecotope Inc.

When DHW Electrification Goes Wrong
Presenter: Nicole Ceci, Steven Winter Associates

Multifamily Design Charrette for 1 to 1 Installs
Presenter: Ben Larson, Larson Energy Research