

Panel 1: Residential Buildings: Technologies, Design, Operations, and Industry Trends

Panel Leaders: Carter Dedolph, CenterPoint Energy and Bo Shen, Oak Ridge National Laboratory

Date	Session	TITLE	LEAD AUTHOR, ORGANIZATION	
Mon 8/5	Session 1 8:30 am - 10:00 am	<i>How to Apply 120V HPWHs for Residential and Light Commercial Applications</i>	Douglas Lindsey, EPRI	
	120 V Direct Plug-n Heat Pump Water Heaters	<i>“Max-tech FHR”: What is the maximum technically achievable water delivery capacity from a single 120 V plug?</i>	Kyle Gluesenkamp, Oak Ridge National Laboratory	
		<i>Best Practices for Hot Water Distribution Systems in Multifamily Buildings: A Comparative Evaluation of Balancing Methods</i>	Mehdi Zeyghami, Pacific Gas & Electric Company	
	Session 2 10:30 am - 12:00 pm	Low GWP Refrigerants	<i>Cool Refrigerant Developments for a Warming World: Low GWP HVAC Refrigerant Regulations and Technologies in US and Global Markets</i>	Jim Young, Guidehouse
			<i>Energy Modeling and Analysis of Dual Fuel Heating Systems in Single Family Homes</i>	Saurabh Shekhar, ICF
			<i>Field Evaluation of Affordable Low GWP Residential Heat Pumps</i>	Curtis Harrington, UC Davis Western Cooling Efficiency Center
Tues 8/6	Session 1 8:30 am - 10:00 am	<i>Rising up to the Challenge: Cold Climate Heat Pumps in the Field</i>	Julia Rotondo, Pacific Northwest National Laboratory	
		<i>Load Shifting with Ductless Heat Pumps in Rural Cold Climates</i>	Samuel Rosenberg, Pacific Northwest National Laboratory	
		<i>Low-Load Efficient Heat pumps - A Field Data and Product Teardown exploration of why do some heat pumps excel under part-load conditions</i>	Christopher Dymond, Northwest Energy Efficiency Alliance	
	Session 2 10:30 am - 12:00 pm	Panel on the Panel (limits and opportunities of electric panels)	<i>A Comprehensive Survey of Electrical Panel Capacities in U.S. Single-Family Homes and Implications for Nationwide Electrification</i>	Sadia Gul, Lawrence Berkeley National Laboratory
			<i>Let Me Upgrade You</i>	Courtney Golino, Guidehouse
			<i>Electrical Service Panel Capacity in California Households with Insights for Disadvantaged Communities</i>	Brennan Less, Lawrence Berkeley National Laboratory

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Date	Session	TITLE	LEAD AUTHOR, ORGANIZATION
Wed 8/7	Session 1 8:30 am - 10:00 am Heat Pumps Swing Both Ways: Replacing ACs, Furnaces, and Water Heaters	<i>Better than a Dupe: How to Use Heat Pumps for AC Replacement</i>	Samantha Hill, Center for Energy and Environment
		<i>Better Together? Exploring the Compatibility of Heat Pumps with Backup Gas Furnaces in LMI homes</i>	Adam Shick, CLEAResult
		<i>Retrofit Market Decarbonization with Plug-In HPWHs: California-wide Field Study Results and Market Commercialization Recommendations</i>	Amruta Khanolkar, TRC
	Session 2 10:30 am - 12:00 pm Thermal Storage and Grid Resilience	<i>Retrofittable Thermal Switches for Dynamic Building Envelopes Integrated with Thermal Energy Storage</i>	Ravi Kishore, National Renewable Energy Laboratory
		<i>Development and Testing of an Advanced Cascaded Thermoelectric Residential Heat Pump</i>	Sreenidhi Krishnamoorthy, EPRI
		<i>Variable-speed heat pumps improve grid resilience</i>	Don Shirey, EPRI
Thurs 8/8	Session 1 8:30 am - 10:00 am Heat Pump Technologies for Low Income Families	<i>Resident Energy Experiences in a Low-Income Multifamily Community (Detroit, MI): A Study of Energy Consumption, Health, and Quality of Life</i>	Madeline Miller, University of Michigan
		<i>Braiding utility, state, and federal funding with comprehensive energy efficiency projects to drive carbon reduction goals in low-income multifamily housing.</i>	Natalia Sudyka, Eversource
		<i>Dual Climate Case Study on HVAC Energy Efficiency and Comfort in Manufactured Housing</i>	Karthik Panchabikesan, Florida Solar Energy Center
	Session 2 10:30 am - 12:00 pm Heat Pump Water Heaters for Load Shifting	<i>Maximizing the Impacts of Electric Resistance and Heat Pump Water Heater Daily Load Shifting – Lessons Learned from the WatterSaver Program</i>	Amelie Besson, Association for Energy Affordability
		<i>Advancing Large Capacity CO2 Heat Pump Water Heating and Load Shifting</i>	Andrew Brooks, Association for Energy Affordability
		<i>Field Study of 120-volt Heat Pump Water Heaters in the Big Easy</i>	Joshua Butzbaugh, Pacific Northwest National Laboratory

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Date	Session	TITLE	LEAD AUTHOR, ORGANIZATION
Fri 8/9	Session 1 8:30 am - 10:00 am	<i>Leveraging NREL's ResStock & ComStock Dataset to Evaluate Building Stock Electrification</i>	Jared Landsman, Energy & Environmental Economics
	Electrification at Scale	<i>Honda Smart Home US: Multi-function heat pumps before they were cool.</i>	James Haile, Frontier Energy
		<i>An Affordable, Minimum-carbon Hybrid Heat Pump with a Grid-Responsive Retrofittable Controller</i>	Zhenning Li, Oak Ridge National Laboratory
	Session 2 10:30 am - 12:00 pm	<i>Can multi-function heat pumps with low-GWP refrigerant effectively decarbonize heating for low-income homes?</i>	Subhrajit Chakraborty, University of California, Davis
	Multi-functional Heat Pumps	<i>Residential Integrated Heat Pump to Meet All the Home Comfort Needs</i>	Bo Shen, Oak Ridge National Laboratory
		<i>Residential Heat Pump with 3-Pipe Heat Recovery for DHW and Space Conditioning - Energy and Performance Results and Findings</i>	Edward Louie, Pacific Northwest National Laboratory