Regional Emerging Technology Advisory Committee (RETAC)

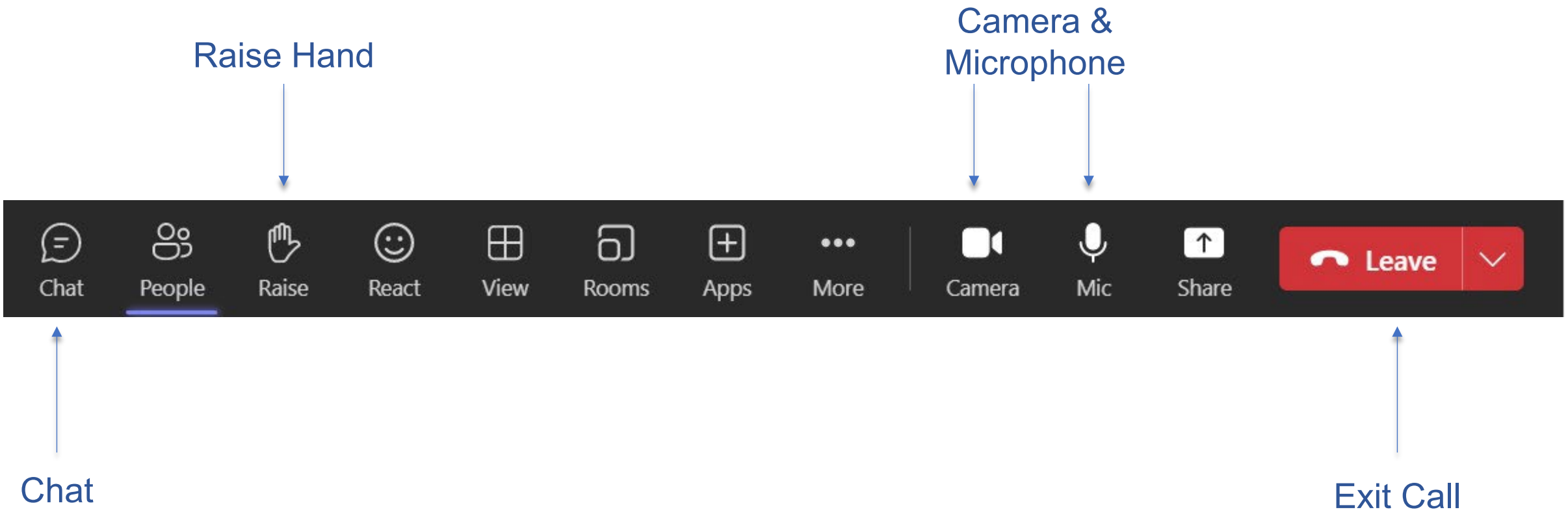
Northwest Energy Efficiency Alliance

Q3 2025 Meeting

September 24, 2025

9:00 a.m. – 12:00 p.m.

Navigating MS Teams Layout



Note: These options may vary, depending on which version you're using.

Name, Title, Organization and…

What is one productivity hack you swear by?

Agenda

9:00 am	Welcome and Announcements
9:30 am	Puget Sound Energy Emerging Tech Update
10:45 am	*Break*
11:00 am	Round Robin
11:50 am	Wrap-Up

Efficiency Exchange 2026

Submit Ideas for Session Topics

September 15 – October 24

neea.org/EFX

Save the Date for EFX26

May 5-6

Boise, Idaho

NEEA Cycle 6 + 2024 Annual Report now available

NEEA's Cycle 6 (2020 – 2024) + 2024 Annual Report spotlights the alliance's collaborative successes across five years, demonstrating the many ways that Market Transformation continues to foster a more affordable, resilient and secure energy future for the Northwest.

View the full report at neea.org/annualreport

Q3 2025 Emerging Technology Newsletter

Newsletter / September 8

Q3 2025: Emerging Technology

Highlights

The Q3 2025 Emerging Technology Newsletter showcases a range of impactful work led by NEEA's emerging technology and product management team. Some key activities include:

- Launching a new project focused on investigating small (less than 120 gallon) heat pump water heaters for commercial applications.
- Completing a number of projects, including studies on residential laundry systems, monitors and commercial displays, commercial heat pump dryers, and variable speed heat pump test methods.
- Wrapping up an incremental cost analysis for variable speed heat pumps, an evaluation of residential dual-fuel HVAC product options, *and* a tri-mode heat pump study covering water heating, space heating, *and* air conditioning.
- Conducting field studies on:
  - A gas-fired absorption heat pump in a multifamily building
  - Energy savings from power drive systems, *and*;
  - Exploring how line voltage thermostats can help with load flexibility.

Future newsletters will include links to the reports and activities above as they become available on neea.org.

NEEA staff scan for new emerging technologies for all sectors and end uses. Please let us know if you have a product or research idea. We'd love to hear from you.

NEEA has several interesting Product Councils scheduled and is always open to topic ideas. Information on upcoming Product Councils is always available on the NEEA website. Please reach out to any of NEEA's product managers with questions or suggestions on NEEA's emerging technology work.

RECENT AND UPCOMING PRODUCT COUNCILS

- *March 25, 2025 – Low Load Efficient Heat Pumps*
- *June 24, 2025 – Empowering Meaningful Measurement & Verification with EcoDash: A standardized tool for HPWH M&V*
- *July 1, 2025 – Distributed Pumping Solutions*
- *July 8, 2025 – Advanced Heat Pump Coalition Spring Meeting*
- *August 19, 2025 – Real World Energy Conservation by Controlling Resistive Heating Elements*

For Questions:
Mark Rehley, Director of Codes, Standards + Emerging Technology
mrehley@neea.org

2025 Meeting Dates

Q1	Thursday, March 13
Q2	Wednesday, June 18
Q3	Wednesday, September 24
Q4	Thursday, December 4

Conferences & Product Councils

 |

Recent Conferences

July

- BOMA International Conference
- ACEEE Industrial Summer Study
- Electrical Apparatus Service Association

September

- CEE Industry Partners Meeting
- AIA Montana Fall Conference
- BOMA Pacific Northwest
- WEFTEC (Water Environment Foundation -- large annual municipal wastewater and freshwater expo)

Upcoming Conferences

October

- BOMA Oregon Expo – 10/2
- National Association of Energy Service Companies – R3 Conference and Expo – 10/3-5
- International Energy Program Evaluation Conference (IEPEC) – 10/6-108
- ACEEE Energy Efficiency as a Resource – 10/7-10/9
- Pacific Northwest Building Expo – 10/8
- Hydraulic Institute Fall Conference – 10/13 – 10/16
- Northwest SEM Fall Workshop – 10/15
- BCxA (Building Commissioning) Annual Conference – 10/22-10/24

November

- PLMA Fall Conference – 11/3-11/5
- Smart Building Exchange – 11/5
- JEC – Joint Engineers Conference – 11/5/ - 11/7

Recent & Upcoming Product Council Presentations

Presenter	Topic	Date Scheduled	Webinar Recording
Jeff Aiello, Bostic Motors, Inc.	Real World Energy Conservation by Controlling Resistive Heating Elements	August 19, 2025	Bostic Motors Power Badger - Northwest Energy Efficiency Alliance (NEEA)
Advanced Heat Pump Coalition	2025 Fall AHPC Webinar	November 4, 2025	Registration Link

Puget Sound Energy

Emerging Technology Update for NEEA RETAC

September 24, 2025

PUGET SOUND ENERGY

Agenda

- Quick tariff summary – new additions
- Regulatory changes
- Electrification
- What's New in Energy Efficiency
  - Energy Mgmt: DR and more
  - Clean Buildings Accelerator
  - Thermal Energy Networks

PUGET SOUND ENERGY

Energy Efficiency Emerging Tech Tariff Summary

Governing Tariffs for Energy Efficiency

- Schedule 83/183 – Electric Conservation Service
- Schedule 120 – Conservation Service Rider

Emerging Tech, DR, and Other Tariffs

- Schedule 219 - Targeted Energy Efficiency
- Schedule 249 – Pilot efficiency programs w/ uncertain savings
- Schedule 249a – Targeted Demand Response for natural gas
- Schedule 254 – Northwest Energy Efficiency Alliance (NEEA)
- Schedule 261 – Energy efficiency technology evaluation
- Schedule 271 – Targeted C&I Demand Response
- Schedule 272 – Targeted Residential Demand Response
- Schedule 292 – Generation, Transmission, & Distribution

PSE PUGET SOUND ENERGY

DER and Emerging Tech Tariff Summary

Electric DER and Other Emerging Tech Tariffs

- Schedule 611 – Residential Batteries (BESS)
- Schedule 640 – DER Technology Demonstration
- Schedule 683 – DER Products and Services

PUGET SOUND ENERGY

Regulatory

- New ISP framework (replaces IRP)

- HB 1589 passed Mar 2024
- I-2066 also passed Nov 2024, later declared unconstitutional
- Result: HB 1589 in effect
  - Residential gas equipment rebates largely removed in mid-2025
  - Residential electric heat pump with gas furnace backup rebate until Jan 2031
  - Commercial/industrial gas equipment rebates available until Jan 2031

- HB 2131 directs utilities to consider thermal energy networks

PUGET SOUND ENERGY

Electrification

Targeted Electrification Program

- Completed Phase 1 (customer engagement, billing impact study) with current follow up study for cooling season impacts
- Phase 2: Sustain heat pumps market momentum and expand customer participation from Phase 1, evaluate effectiveness as a non-pipeline alternative
  - Targeted electrification pilot in gas-constrained area
  - Commercial and industrial electrification grants
  - Small business, multifamily and low-income direct install programs
  - Multifamily and income-qualified heat pump rebate programs

PUGET SOUND ENERGY

Emerging Tech – Demand Response

- Current DR offerings
  - Residential: thermostats, EVs, behavioral, batteries
  - Commercial: Business DR program
  - Targeted DSM
- Newer/expanded offerings:
  - Residential: water heaters (SF)
  - Small business: thermostats, behavioral

PUGET SOUND ENERGY

Emerging Tech – Demand Response

- Small-scale Emerging Tech DR Pilot
  - Currently in work, results in late 2026
- Rapid EM&V tool (in RFP)

PUGET SOUND ENERGY

Emerging Tech – More Energy Mgmt & Resources

- Recent:
  - Pilot program with Time Varying Rates
  - BESS (batteries)
  - Transportation electrification Up & Go
- Current:
  - Technology demonstration: V2X– Vehicle to Everything

PUGET SOUND ENERGY

Clean Buildings Accelerator

- **What's new for PSE's work on Tier 2?**
  - **Adding more self-serve options for customers**
  - **Piloting a multifamily cohort**
- **What else is new for PSE?**
  - **Expanding beyond the state-level Clean Buildings Performance Standard, looking at the Seattle BEPS impact on gas customers**

PUGET SOUND ENERGY

Thermal Energy Networks – PSE Dual Fuel Context

- **Residential Customers:**
  - ~1.2M electric
  - ~900K gas
- **Natural Gas Delivery:**
  - ~1B therms annually
- **Washington HB2131** encourages natural gas utilities to consider TENs
- **Gas System Constraints:** Reduced gas loads can offset infrastructure needs
- **Electric System Peak:** Full electrification puts tremendous pressure electric system peak loads

PUGET SOUND ENERGY

Thermal Energy Networks – What Are They?

- **TENs are district-scale energy systems that connect multiple buildings via a shared underground piping network.**
- **Rather than generating energy, they transfer it from sources such as waste heat from facilities, geothermal wells, water sources, or ambient air.**
- **This shared approach increases efficiency, reduces energy waste, and lowers emissions by supplying space and water heating or cooling where it is needed.**
- **HB 2131 directs utility efforts in developing, designing, building, commissioning, and operating TENs.**

PSE PUGET SOUND ENERGY

Thermal Energy Networks - Diagram

PUGET SOUND ENERGY

Thermal Energy Networks – Pilot Objectives

- **Why**
  - **Carbon reduction and reduced operating costs for existing natural gas customers**
  - **Peak electricity demand reduction especially when paired with energy storage**
  - **Potential to offset utility infrastructure reinforcements by load reduction**

- **Objectives**
  - **Understand the technologies available**
  - **Learn about construction costs and barriers**
  - **Learn about customer energy savings and utility cost of service impacts**
  - **Leverage system knowledge to identify candidate locations**

PSE PUGET SOUND ENERGY

PUGET SOUND ENERGY

BREAK

 |

Round Robin

 |

Commercial Central HPWHs

NEEA

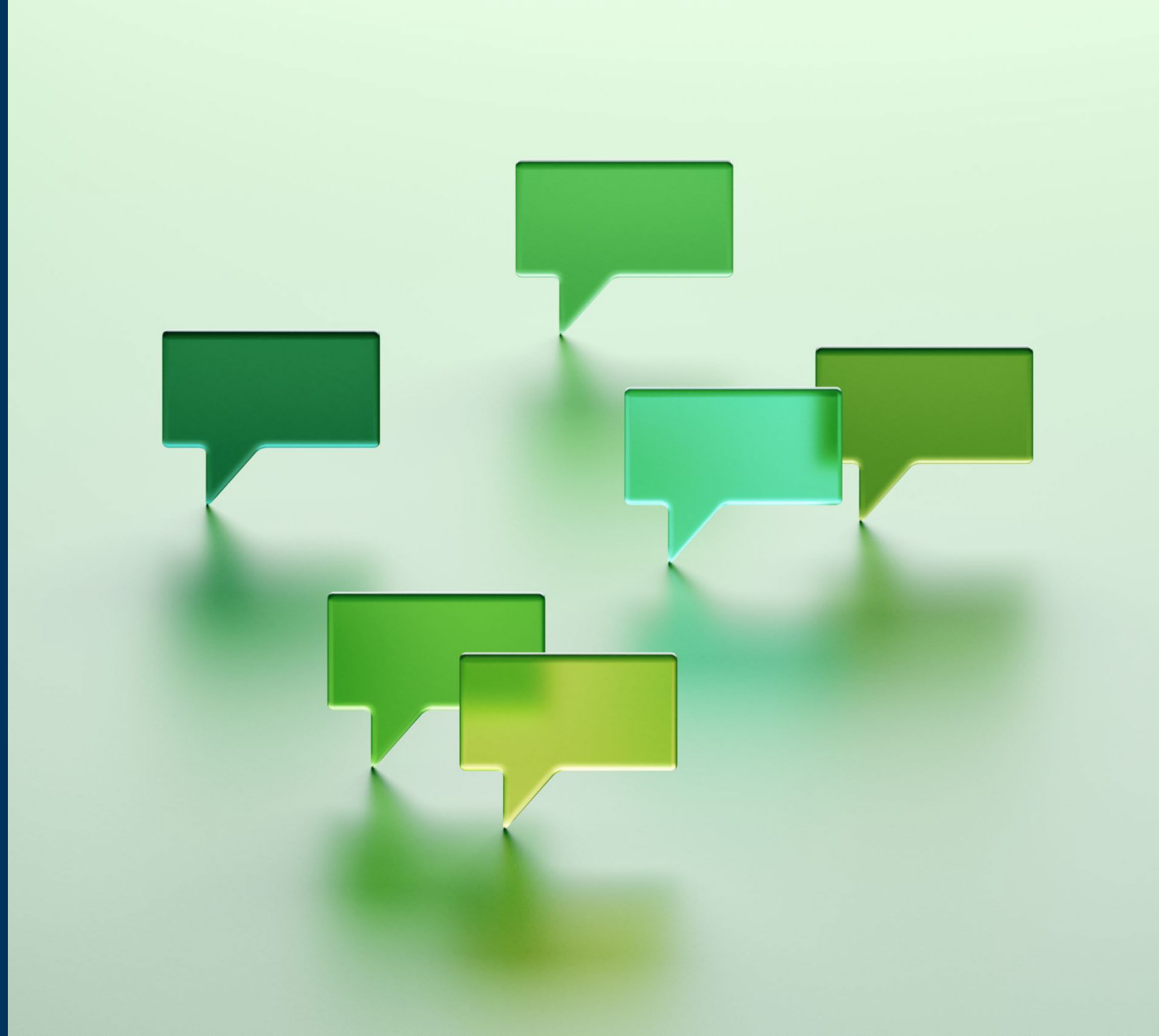
- AWHS, QPL, P&IDs
- Alignment of heat pump testing requirements
  - 6 COP points aligned with ENERGY STAR and AHRI 1300*
  - Supported by CEE

Primary HPWH Performance Data							
	DB, °F	WB, °F	Inlet Water Temperature	Outlet Water Temperature	Input Power, kW	Output Heat, kW	COP
Lowest Temperature*	0	-1	#N/A	0			1.0
A	5	4	#N/A	0			1.0
B	17	15	#N/A	0			1.0
C	35	33	#N/A	0			1.0
D	47	43	#N/A	0			1.0
E	68	57	#N/A	0			1.0
F	95	75	#N/A	0			1.0

- AWHS revision in 2026

Closing

Open Discussion & Comments



Thank You!