This meeting will be transcribed

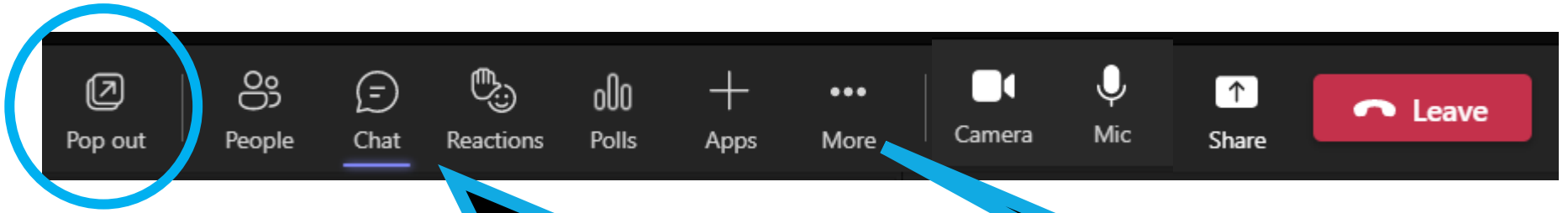
Natural Gas Advisory Committee

Q2 2025: Wednesday, April 16

10:30am – 2:30pm (PDT)

Hybrid @ Cedarbrook Lodge (SeaTac)

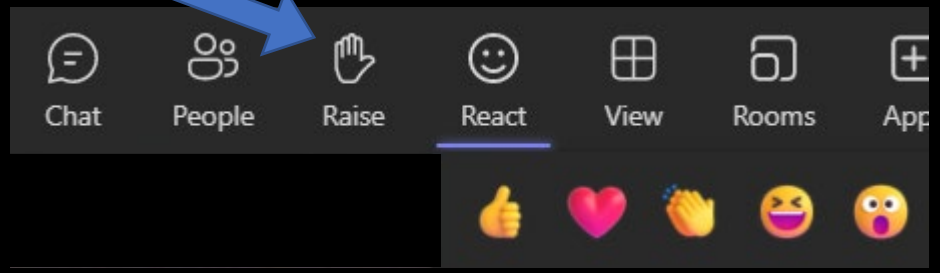
Tools for Today: Engaging on Teams



Comments/Questions?

Please raise your virtual hand or chime in

Chat & reactions also welcome



"…" More includes:

- ✓ Settings: mic & video
- ✓ Background effects

Heads up:

“Spotlighting” Speakers

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Reminder of NGAC Purpose & Role

Purpose

…to support Alliance success by **advising** on the **optimal composition of NEEA's program portfolio**, including a **formal vote for program advancement** at two key points in the Initiative Lifecycle, **consistent with the goals and objectives of NEEA's Business & Operations Plans**.

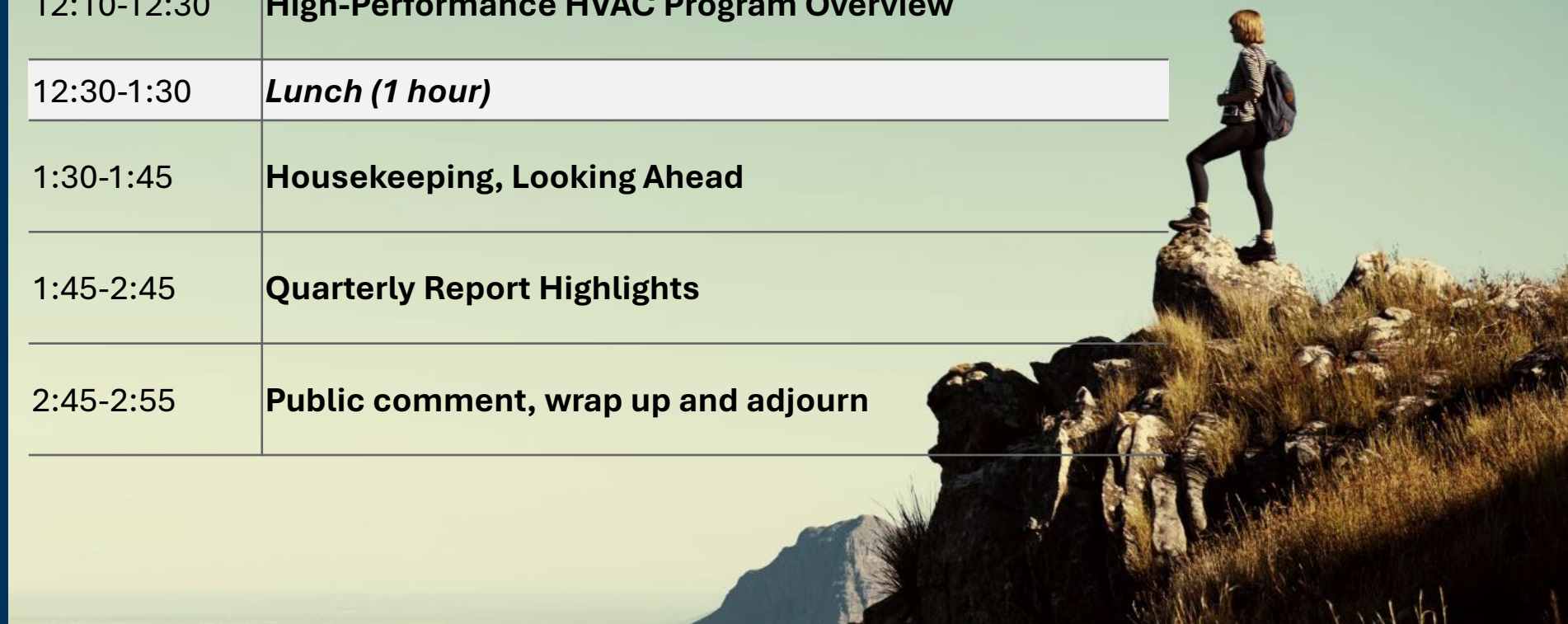
Responsibilities

- Portfolio optimization & program advancement (milestone votes)
- Coordinate downstream marketing
- Monitor outcomes of relevant workgroups & Cost-Effectiveness Committee (CEAC) meetings
- Advises NEEA's Executive Director on portfolio decisions

Agenda

All Times Pacific

10:30-10:40	**Welcome, Agenda Packet Review**
10:40-11:05	**Introductions + Committee Round Robin**
11:05-11:30	**Portfolio Update**
11:30-11:40	***Break (10 minutes)***
11:40- 12:10	**Dual Fuel Res HVAC Concept Development Update**
12:10-12:30	**High-Performance HVAC Program Overview**
12:30-1:30	***Lunch (1 hour)***
1:30-1:45	**Housekeeping, Looking Ahead**
1:45-2:45	**Quarterly Report Highlights**
2:45-2:55	**Public comment, wrap up and adjourn**



Packet Review & Informational Updates

- Tier 1: Agenda Items
  - ✓ *Portfolio Update (pg. 3)*
  - ✓ *Dual Fuel Res HVAC Concept Development Update (pg. 4-5)*
  - ✓ *High-Performance HVAC Program Overview (pg. 6)*
  - ✓ *Q1 Quarterly Progress Report (pg. 7-15)*
- Tier 2: Informational Updates
  - ✓ *None*
- Tier 3: Additional Resources *(links on pg. 2)*
  - ✓ *Committee materials (charters & recent meeting resources)*
  - ✓ *Functional newsletters (Market Research & Evaluation, Emerging Tech, Codes, Standards, & New Construction)*

Introductions + Committee Roundtable

- **Name**
- **Organization**
- ***And…***

xxx

NEEA Staff & Guests

- Introduction

Committee Members

- Introduction
- Roundtable Share-outs

- Big changes (programs/personnel)
- Current challenges, lessons learned
- How utility activities relate to NEEA's
- Sharable tools/materials
- Equity, hard-to-reach markets
- Findings, filings, IRPs

Please aim for 3-5 min max, thanks!

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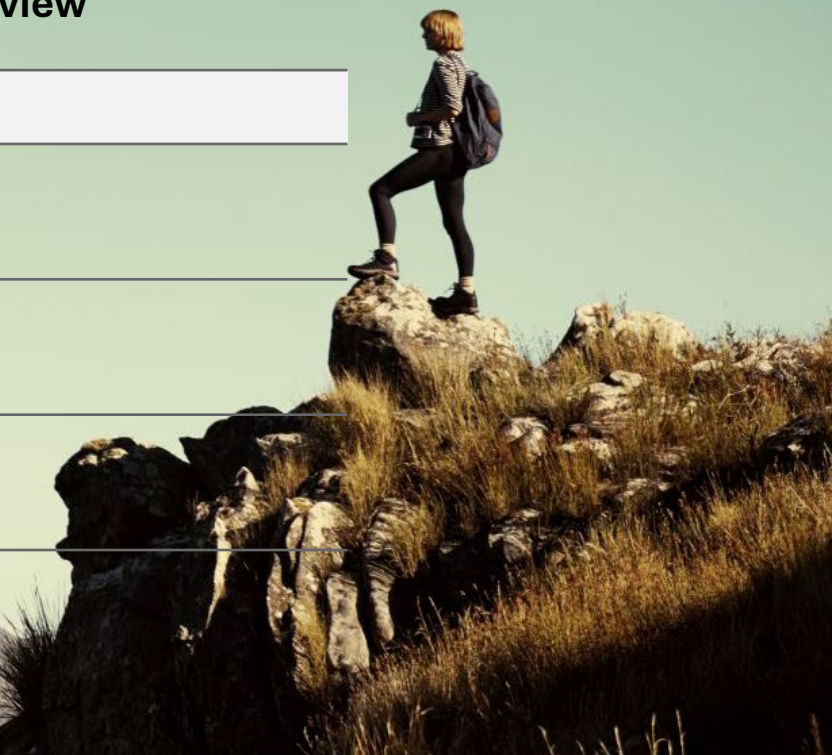


Memo
pg. 3

Gas Savings Portfolio Update & Dual Fuel Measurement Guidelines

Ryan Brown, Manager, Planning & Analysis

Gas Savings Portfolio Update

Natural Gas Portfolio

Efficient Commercial Laundry

Dual-fuel Residential HVAC

Program expansion: High Performance HVAC to include gas HE DOAS

Program expansion: Efficient RTU dual fuel system

Advanced Commercial Water Heating

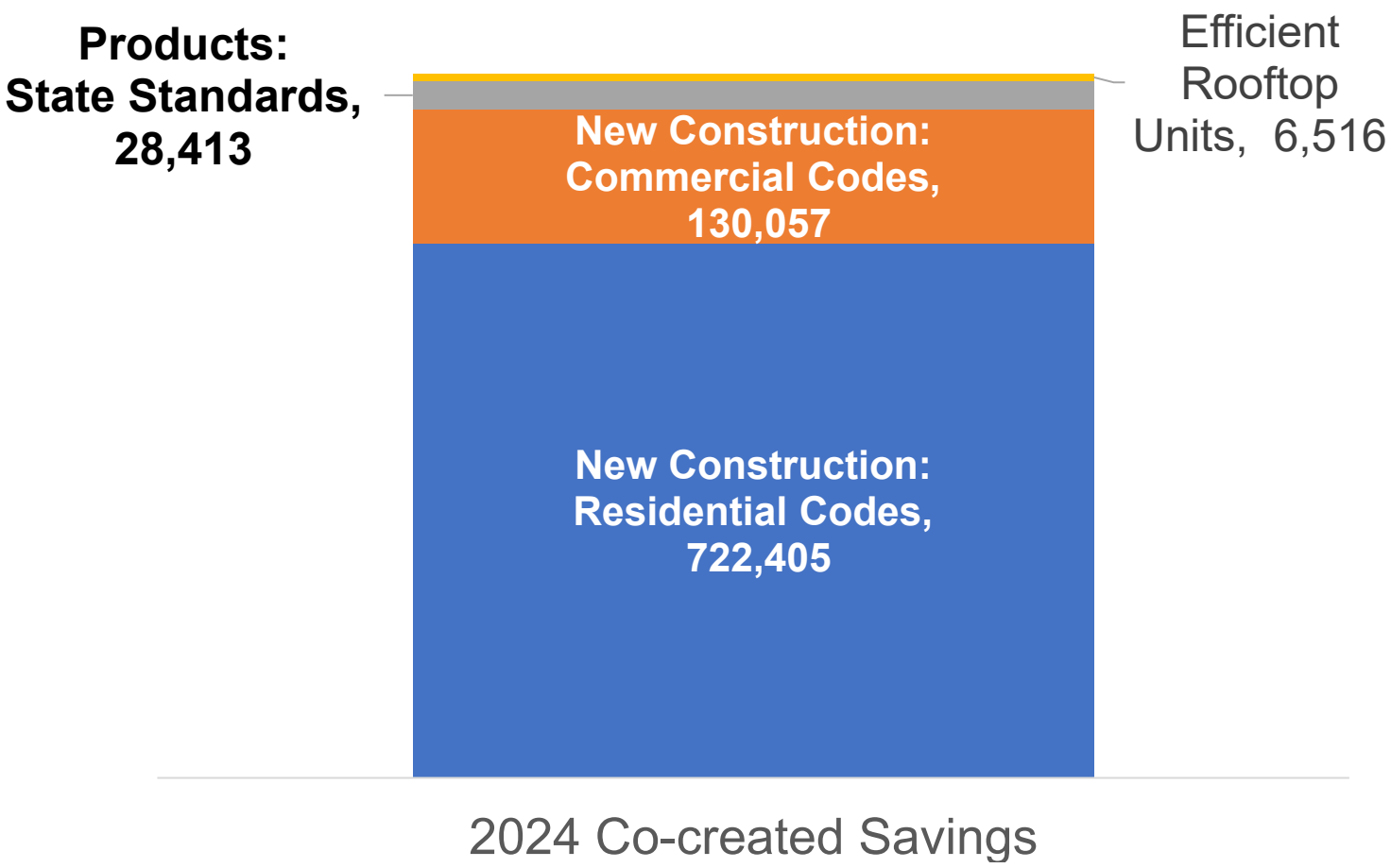
Efficient Rooftop Units (ERTU)

Building Code Advancements

Product Standards

New Building Codes and Product Standards

Gas 2024 Co-Created Therm Savings



Work in Building Codes and Product Standards are generating the majority of near term energy savings

Gas Cycle 6 Accomplishments

Avoided Annual Carbon Emissions:

23,800 tons

Gas Cycle 7 Forecast

Avoided Annual Carbon Emissions:

39,900 - 113,000 tons

Natural Gas Portfolio

Efficient Commercial Laundry

Dual-fuel Residential HVAC

Program expansion: **High Performance HVAC to include gas HE DOAS**

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Efficient Rooftop Units (ERTU)

Building Code Advancements

Product Standards

New Building Codes and Product Standards

Dual-Fuel Measurement Guidelines

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New Natural Gas Guiding Principles

NEEA's Board of Directors approved in December 2024

Natural Gas Guiding Principles for Decision-Making

1. NEEA's natural gas portfolio will increase market adoption of affordable energy efficiency solutions that result in reportable gas energy savings.
2. All activities and programs will be designed to align with state policies and/or other decarbonization efforts as applicable.
3. The focus of the natural gas portfolio will shift towards commercial, dual-fuel, and fuel-neutral products, systems, and practices.
4. **Dual-fuel equipment programs will be managed as part of the natural gas portfolio due to the increased end-use efficiency and reduction in natural gas usage.**

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Overview of Current Draft

Revision History

Key Terminology and Definitions

Operational Guidelines

- Purpose and Background
- Guiding Statements
- Foundational Criteria for Dual-fuel Market Transformation Programs
- Inputs Needed and Outputs Generated for Measure Impact Assessment
- Reporting to Stakeholders

Appendix A: Additional Calculation Guidance

- Measure Application and Baseline Condition
- Site Energy and Source Energy
- Avoided Emissions
- Peak load impacts and load flexibility benefits
- Cost effectiveness
- Naturally-Occurring Market Transformation Baseline

Appendix B: Work Group Participation

Thank You Work Group Participants !!

Name	Organization
Laura Thomas	Regional Technical Forum
Peter Kernan	Oregon PUC
Jean-Pierre Batmale	Oregon PUC
Jennifer Snyder	WA Utilities and Transportation Commission
Jake Kennedy	Energy Trust of Oregon
Adam Schick	Energy Trust of Oregon
Jackie Goss	Energy Trust of Oregon
Michelle Wilde	Puget Sound Energy
Jesse Durst	Puget Sound Energy
Haixiao Huang	Northwest Natural Gas
Caleb Reimer	Cascade Natural Gas
Danie Williams	Northwestern Energy
Whitney Jurenic	Northwestern Energy
Bryan Russo	Tacoma Power
Jonathan Belmont	Bonneville Power Administration
Tina Jayaweera	Northwest Power and Conservation Council
Austin Oglesby	Avista Corp
Michelle Kelley	Bonneville Power Administration
Natasha Jackson	Northwest Gas Association

Next Steps

Residential Dual Fuel HVAC Concept Advancement in 2025

Estimates of value and cost effectiveness in alignment with guidelines

Further revisions as needed with work group

Thank You!

Ryan Brown

Manager, Planning & Analysis

rbrown@neea.org

Break

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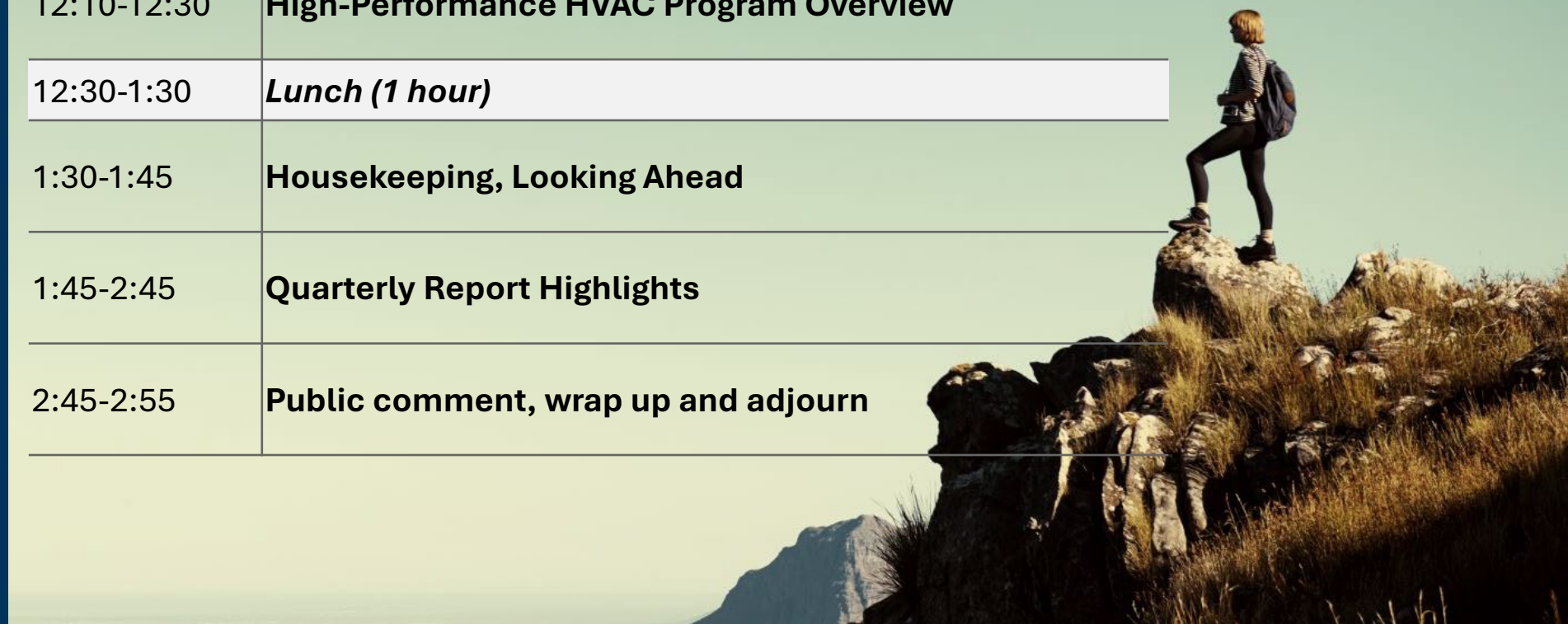


2025 Program Advancements

Emily Moore, Director, Market Strategy & Execution

Natural Gas Portfolio

Efficient Commercial Laundry

Dual-fuel Residential HVAC

Program expansion:
High Performance HVAC to include gas HE DOAS

Program expansion:
Efficient RTU dual fuel system

Advanced Commercial Water Heating

Efficient Rooftop Units (ERTU)

Building Code Advancements

Product Standards

New Building Codes and Product Standards

Look Ahead

Potential 2025 Program Advancements

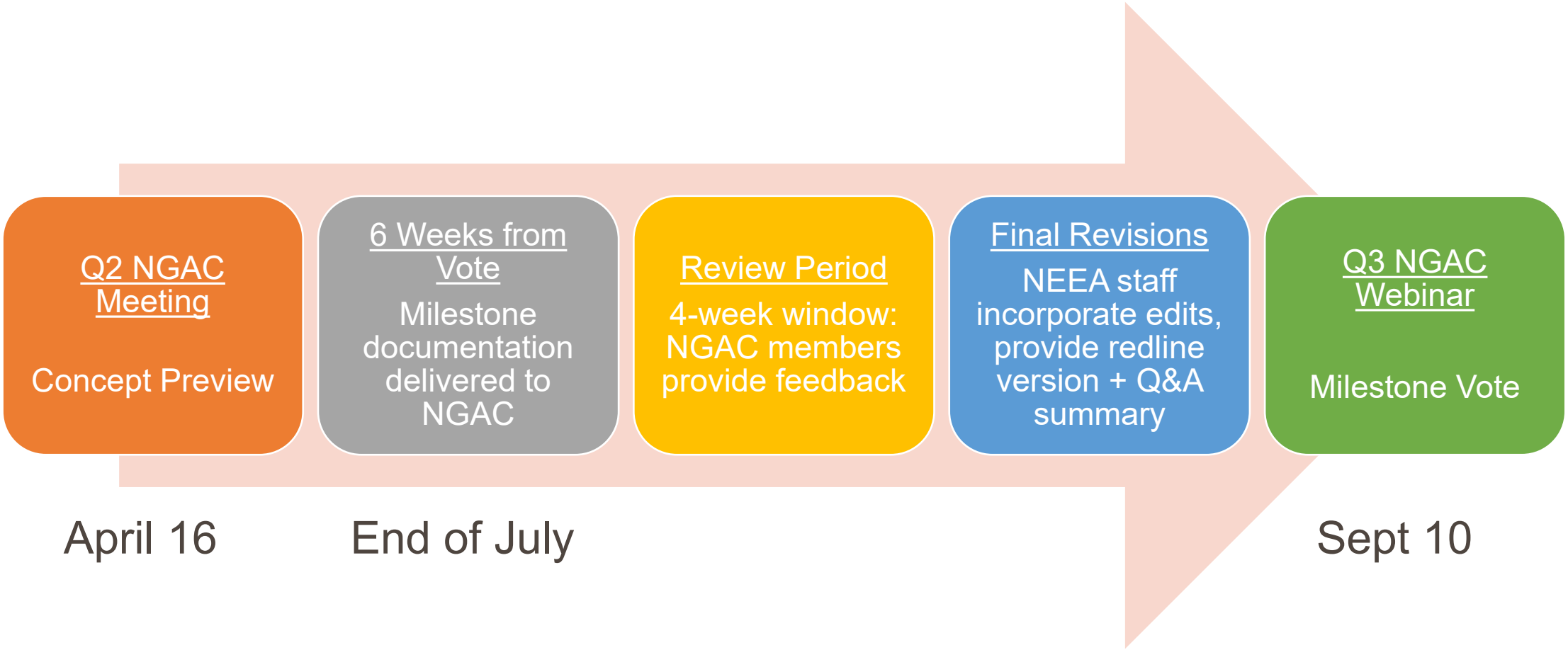
- Dual-fuel Residential HVAC Concept Advancement (~Q3 2025)
- Advancing a gas high-efficiency DOAS system program addition to existing electric High-Performance HVAC program (Q4 2025/Q1 2026)

Concept Advancement

Initiative Lifecycle

- Enter with many unknowns
- Research to understand & inform product opportunity, market conditions and MT approach
- Develop more certainty, define MT logic and intervention strategy

What to Expect



Memo
pg. 4

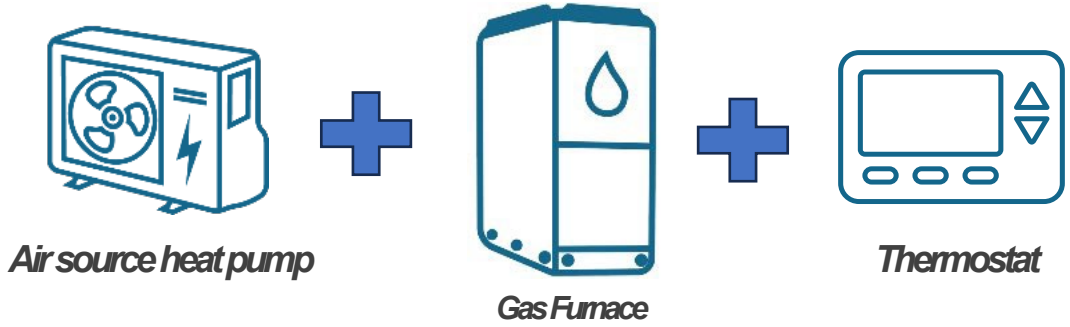
Dual Fuel Residential HVAC Update

Deborah Sunada, Senior Program Manager

Agenda

- Dual Fuel Residential HVAC Overview
- Why Dual Fuel Now?
- Barriers and Opportunities
- Concept Overview
- Questions to Consider

Dual Fuel Residential HVAC Overview



Target Market

- Gas consumers choosing to add or update cooling in a home

MT Vision

- Dual fuel systems with grid-enabled controls will be the dominant choice for gas customers
- Energy savings, cost savings, and year-round comfort

Why Dual Fuel Now?

- 43% of single-family homes using gas furnace as primary heating source
- Consumers increasingly seeking cooling
- Grid is experiencing more peak capacity constraints
- Dual Fuel systems offer customers affordable cooling options while increasing heating efficiency (95% → >200%)
- Opportunities for load flexibility and peak management

Barriers & Opportunities

Value Proposition

- Customers not consistently choosing heat pumps for cooling needs
- Unaware of value proposition

Differentiation

- Lack of clarify on equipment & specification selection for optimal operation & savings

Availability

- Few low-cost equipment options
- Opportunity for controls that optimize fuel choice;

NEEA'S Role

- Partner with suppliers, utilities to build market awareness of the value proposition
- Improve availability of cost competitive equipment
- Develop rating and specification to enable confident selection and design of dual fuel systems
- Encourage development and adoption of grid-enabled controls that can switch between fuels
- Leverage codes and standards as well as utility rate and incentive design

Dual Fuel Program Concept Overview

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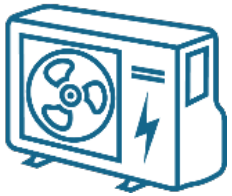
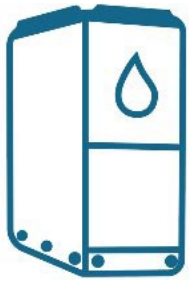
Product Vision

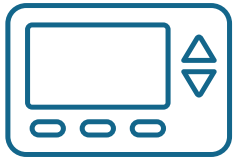
Near Term



Air source heat pump



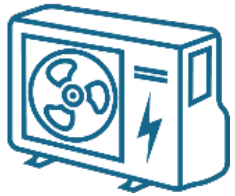
Gas Furnace



Thermostat

- HP sized for cooling with optimal balance point
- Switchover temperature set to 35°F
- Demand response signals accepted

Mid/Long Term



Advanced Solutions

- Low Load Efficient
- Connected commissioning
- Tankless Water Heater + Hydronic Air Handler

Expanded DR capabilities (Load Flex)

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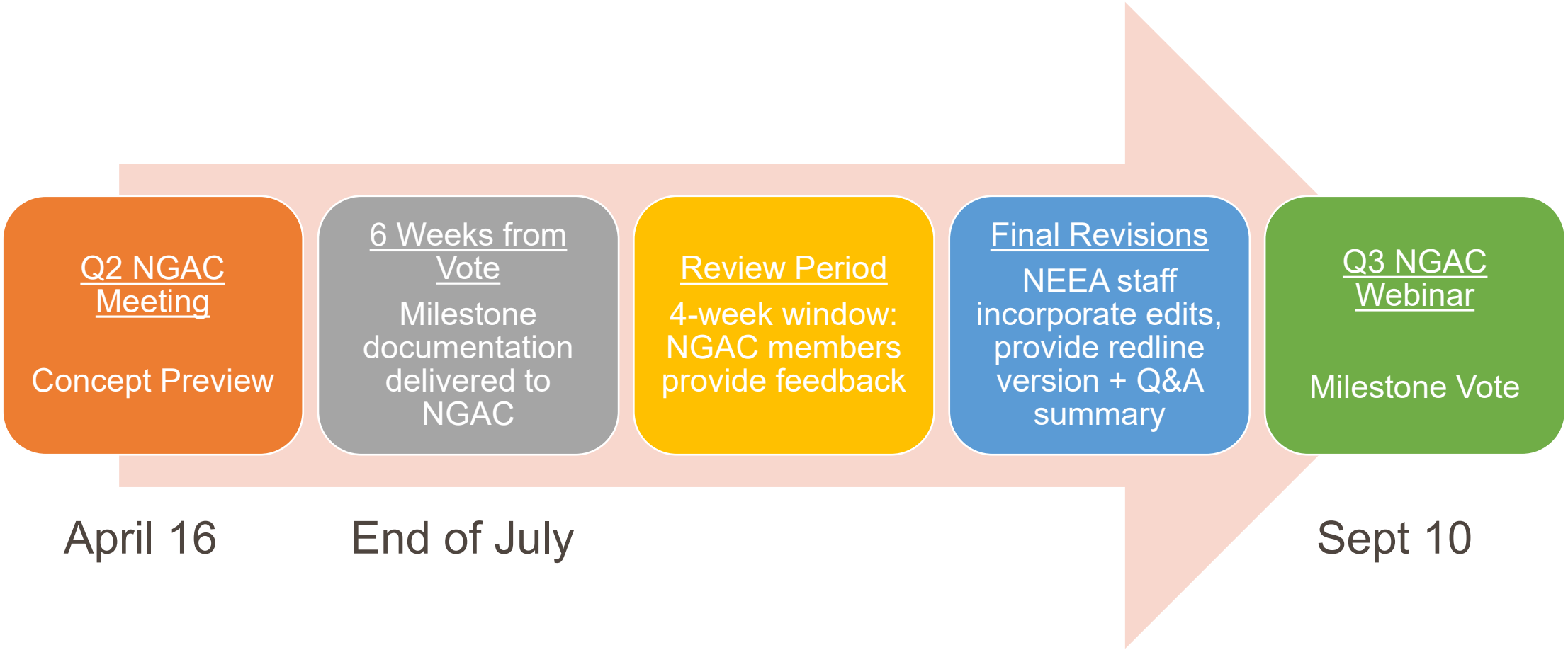
What to Expect



Questions for Committee

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NGAC Feedback

- What questions do you have about the proposed Dual Fuel program concept?
- Any concerns that we should be aware of as we develop the milestone documentation?

Thank You!

Deborah Sunada

Sr. Program Manager, NEEA

dsunada@neea.org

Memo
pg. 6

High-Performance HVAC Overview

Dave Hammond, Senior Program Manager

Program Overview

High Performance HVAC

Very High Efficiency Dedicated Outdoor Air System (DOAS) (electric)

- Currently in the market development stage
- Primarily focused on small/medium commercial buildings
- Commonly involves VRF heat pump systems
- Future growth anticipated into hydronic air-to-water

Currently Active

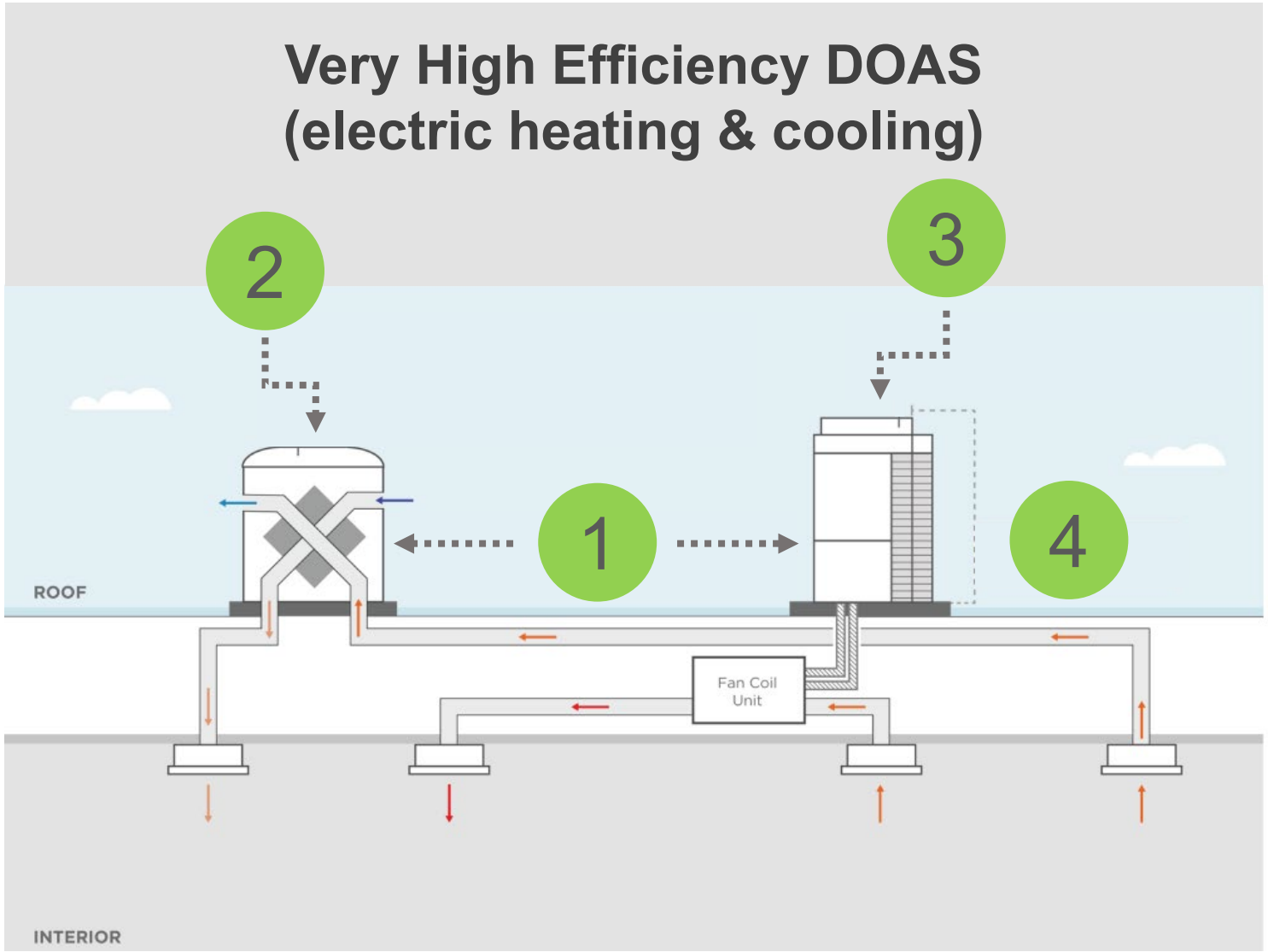
Gas High Efficiency DOAS

- Potential addition to HP HVAC program
- Opportunity to compliment VHE DOAS activities, provide access to new commercial building stock
- Leverages Market Transformation Theory & Logic Model developed for VHE DOAS technology

Proposed Future Expansion

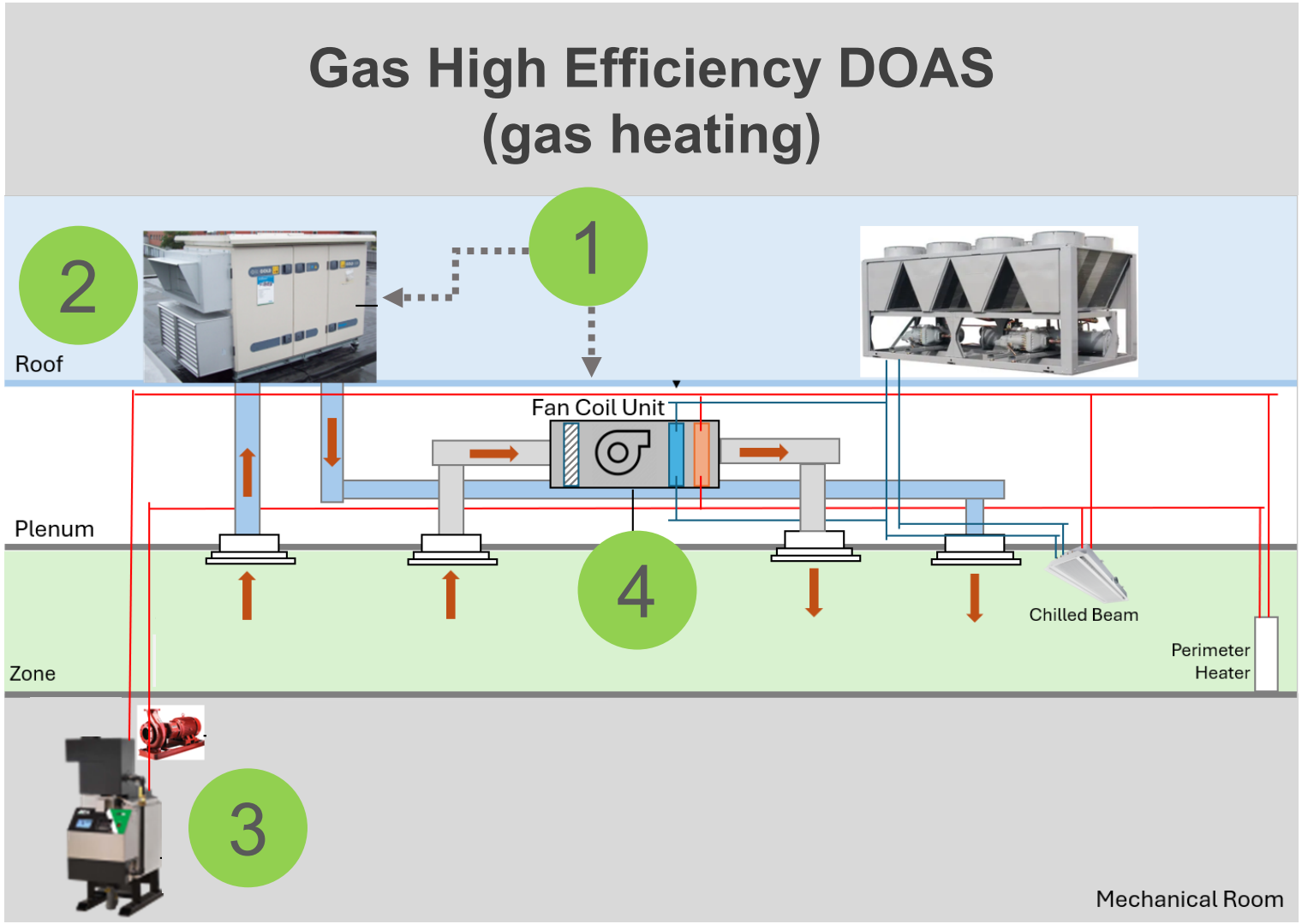
High Performance HVAC – VHE DOAS Overview

1. Fully decoupled ventilation from heating and cooling
2. High efficiency heat/energy recovery ventilator with ≥ 82% sensible effectiveness
3. High performance electric heat pump system
4. Right-sized heating and cooling system



High Performance HVAC – GHE DOAS Overview

1. Fully decoupled ventilation from heating and cooling
2. High efficiency heat/energy recovery ventilator with ≥ 82% sensible effectiveness
3. Condensing boiler (right-sized) + efficient pump control
4. Efficient terminal equipment



HP HVAC – VHE DOAS Market Transformation Theory

System Potential	• 48% Total commercial building energy savings • 69% HVAC energy savings (When compared to code-minimum system replacement)
Market Barriers	• Low adoption of very high efficiency ERVs/HRVs due to price, awareness, design principles & value proposition • Considered more complex than alternative • Limited very high efficiency ERV/HRV product availability (Successfully addressed by NEEA)
NEEA's Current Role	• Educate and motivate manufacturers/reps to promote this system, addressing awareness and complexity challenges • Raise end-user and supply chain awareness of the system benefits • Address product availability and high first cost • Influence advancement of local, state & federal codes to require elements of HP HVAC

 |

HP HVAC – VHE DOAS Market Transformation Theory

Targeted Outcome

By 2035, the commercial energy code in each NW state will require the VHE DOAS approach or equivalent efficiency.

This exceeds the 2014 minimum commercial energy code in each of the four states by at least 45% of average HVAC energy savings

High Performance HVAC – Steps to program expansion

Define GHE DOAS

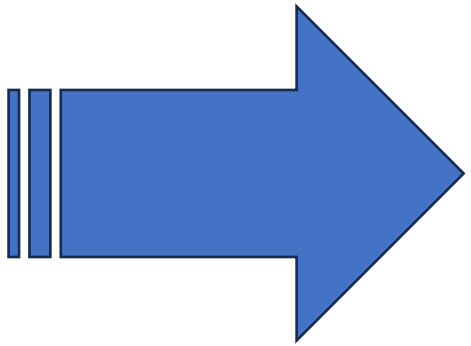
- Develop system specifications
- Model system savings potential & refine specifications as needed

Determine Program Savings Potential

- Gather baseline and incremental cost estimates
- Perform savings rate, incremental cost and cost effectiveness analyses

Modify current HP HVAC program materials

- Update HP HVAC MT Story & Logic Model
- Develop gas + electric integration plan
  - Codes & standards
  - Field research & engagement



Targeted NGAC program advancement proposal/vote:

Q4 2025 – Q1 2026

GHE DOAS - Field Site Collaboration

- NEEA is actively scanning for viable GHE DOAS field sites
- Existing buildings with
  - 4-pipe or 2-pipe fan coil units*
  - Chilled beams*
  - Other radiant or hydronic distribution system with decoupled ventilation*
- Full retrofit ideal, but there is still high value in M&V pieces of the system

*Ideally with condensing boilers and heat recovery ventilation

Lunch!

Please return by 1:30pm

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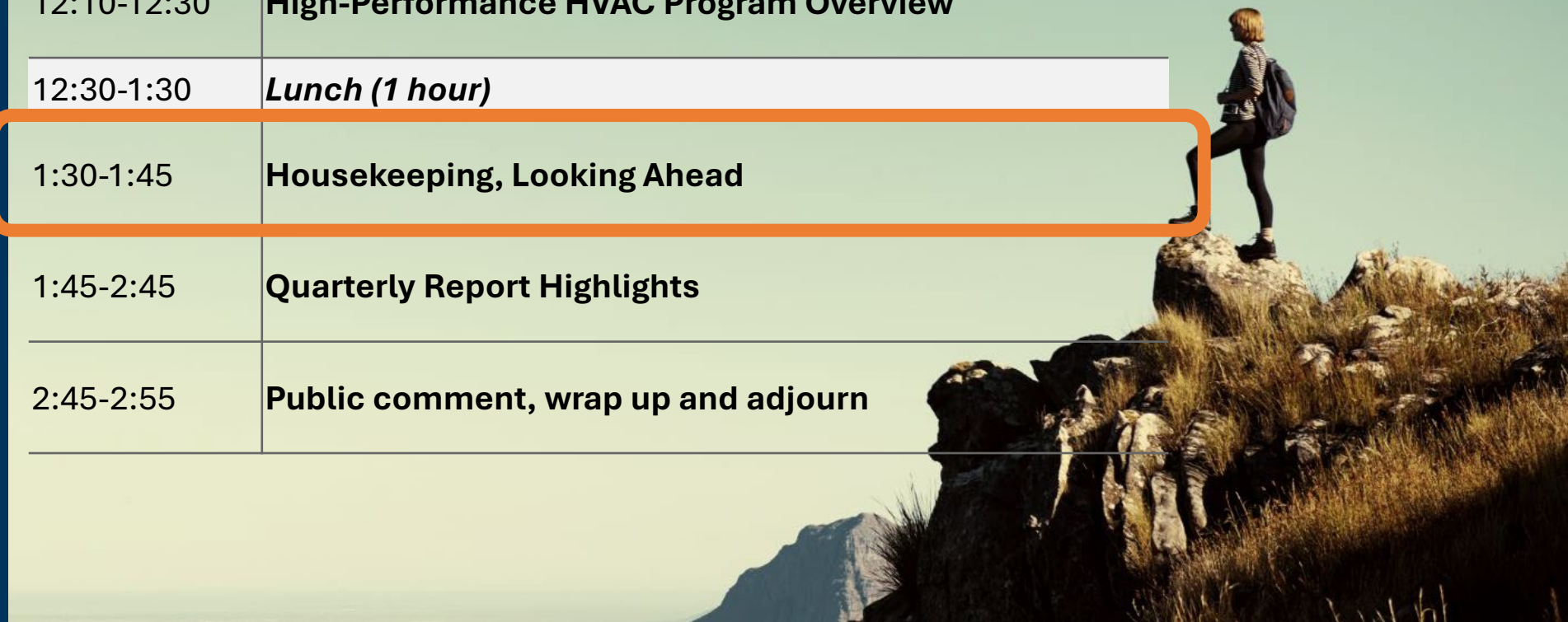

Housekeeping & Looking Ahead

- Product Council Updates
- Feb 4 Notes check & action items
- Heads up! Neea.org redesign
- Upcoming Meetings & Events

Product Council

(Noe Contreras)

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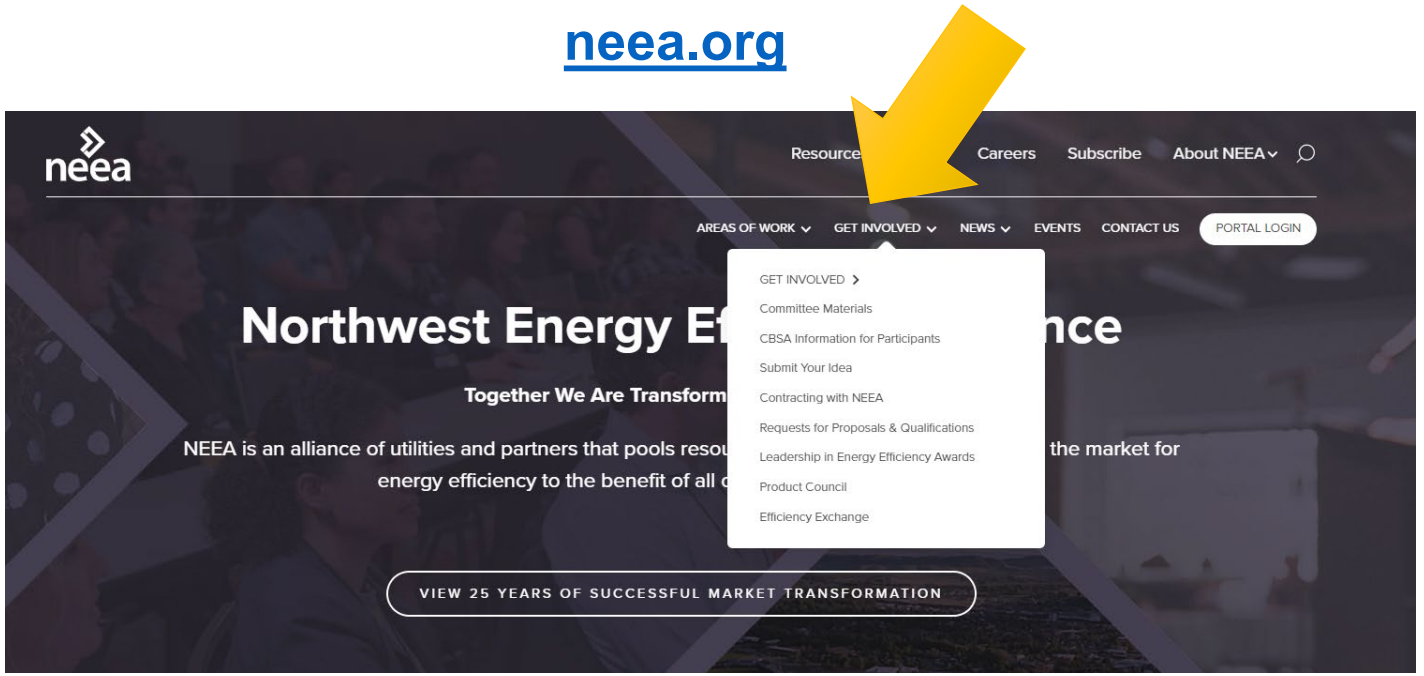
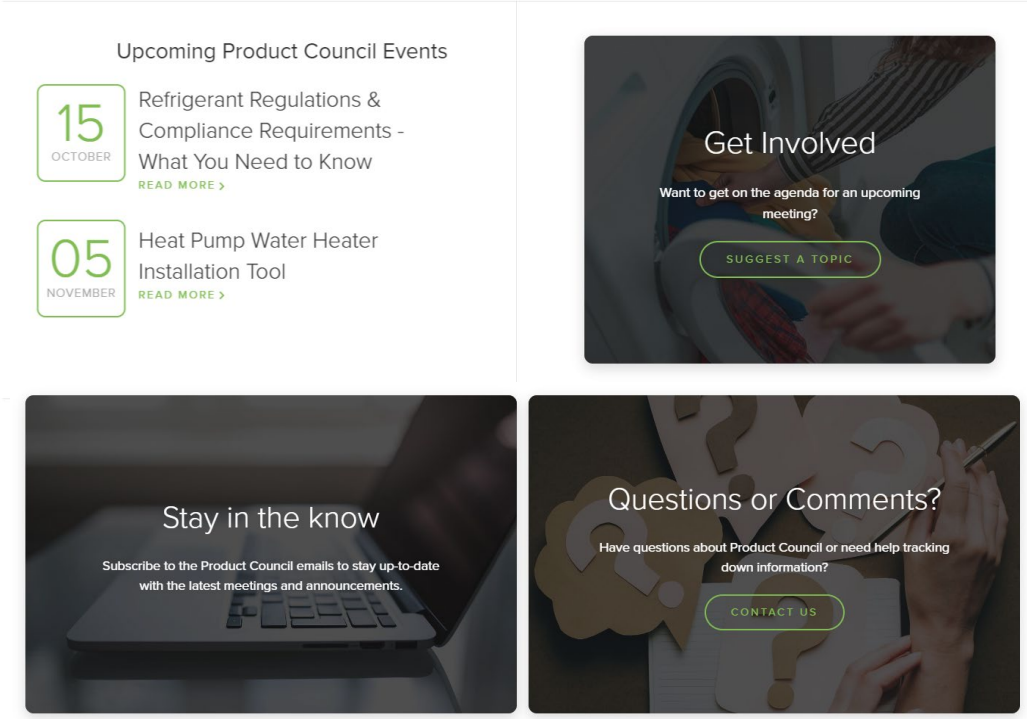
Product Council Website

neea.org



- What to expect
  - ✓ Recordings
  - ✓ Upcoming events
  - ✓ Ask questions
  - ✓ Meeting time
  - ✓ Subscribe



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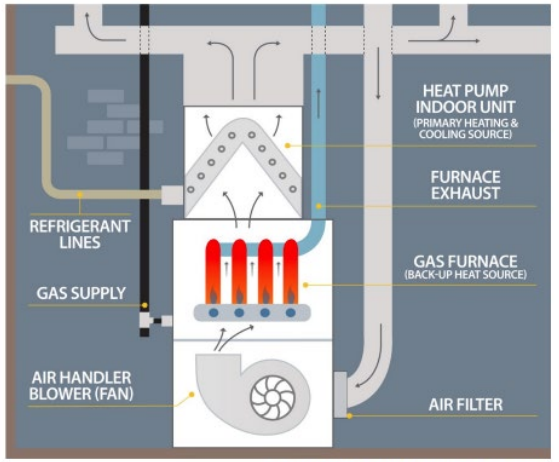
Low Load Efficiency (LLE)

- When sized right, a variable speed heat pump spends most of its time running at part load
- Dual-fuel heat pumps don't operate the heat pump and the furnace at the same time. The majority of the time, the heat pump will operate in a part-load condition
- Control Verification Procedure added to AHRI 210/240 test condition



graphic by Slipstream Inc.

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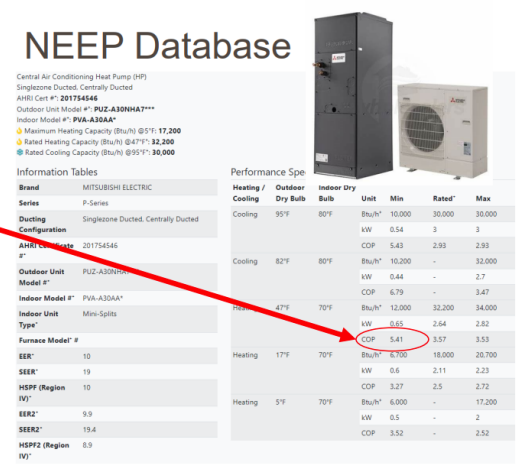
NEEA LLE Specification

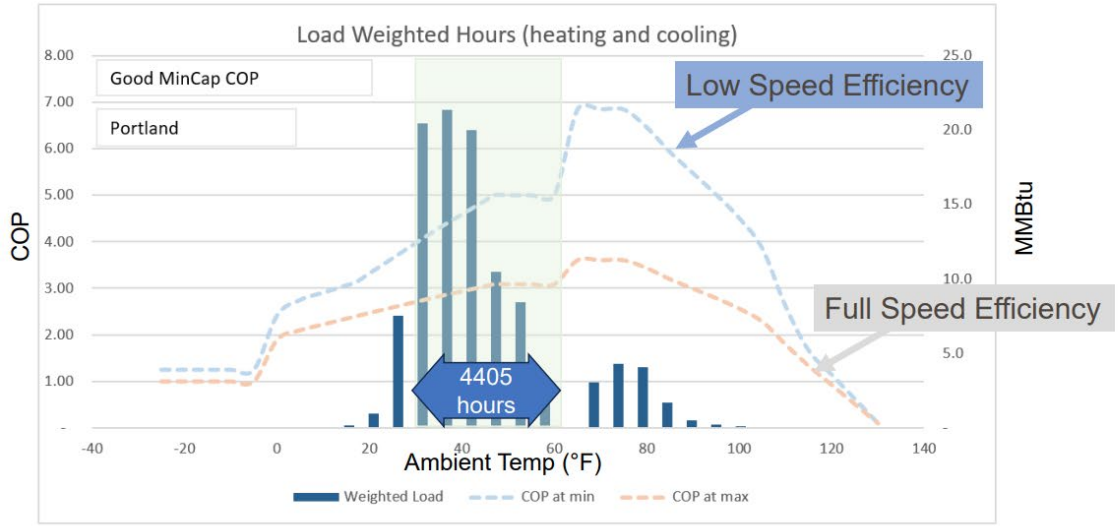
- Variable Speed Heat Pump
- MinCapCOP @ 47°F **≥ 4.5**

Minimum Capacity COP at 47°F provided by the NEEP Database It should be the same as the AHRI 210/240 $H1_{low}$ test condition



Annual Heating vs COP

Portland, OR



[Northwest Energy Efficiency Alliance (NEEA) | Low-Load Efficiency...]

Last Meeting: Notes & Action Items

- Action Item Review
  - ✓ Feb 4: Noe to share details about refrigerants with Josh/WUTC
- Notes Check
  - Additional edits or questions?
- Neea.org link to notes

Website Redesign Announcement

- **New Website Launch**:
  May 2025
- **Key Features**:
  - Continued access to committee materials, documents, and meeting information
  - Simplified navigation for easier access to resources and reports

Housekeeping & Looking Ahead

- ✓ Product Council Updates
- ✓ Feb 4 Notes check & action items
- ✓ Heads up! Neea.org redesign
- Upcoming Meetings & Events

2025 Final NGAC Meeting Dates

Expect to use webinars

Quarter	Day(s)	Date(s)	TIME	LOCATION
Q1	Tues	Feb 4	9-4	Virtual
Interim Webinar	~~Wed~~	~~March 12~~	~~1-2~~	~~Virtual~~
Q2	Wed	April 16	9-4	~~Cedarbrook~~ Virtual
Interim Webinar	Thurs	June 5	1-2	Virtual
Q3	_	No Q3 Mtg	_	_
Interim Webinar	Wed	Sept 10	1-2:30?	Virtual
Q4	Tues	Oct 28	9-4	NEEA
Interim Webinar	Wed	Dec 10	1-2	Virtual

= Proposed Hybrid / In-person Option

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Key Upcoming Meetings

Natural Gas Related

Thursday, June 5 (1pm)

- **NGAC Interim Webinar**

Tuesday, June 17 (2pm)

- **Dual Fuel Product Workgroup**

Wednesday, Sept 10 (1pm)

- **NGAC Interim Webinar**

Other Q2 NEEA Advisory Committees

Wed, Apr 30 & Thurs, May 1

- **Cost Effectiveness & Evaluation**

Thursday, May 22

- **Regional Portfolio (electric)**

Wednesday, June 18

- **Regional Emerging Technology**

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Efficiency Exchange 2025

Early Bird Registration

February 18 – ***April 25***

neea.org/EFX

EFX25 Hybrid Conference

May 20-21 in Portland

In-person + Virtual

Could others in your organization benefit from a NEEA / MT 101?

- Considering 2x/year 90 min webinar for alliance members
- Target audience:
  - Committee members wanting a refresher
  - EE/conservation team members not on NEEA committees, but interact with NEEA's work or would benefit from a basic overview

Other regional / industry events or announcements?

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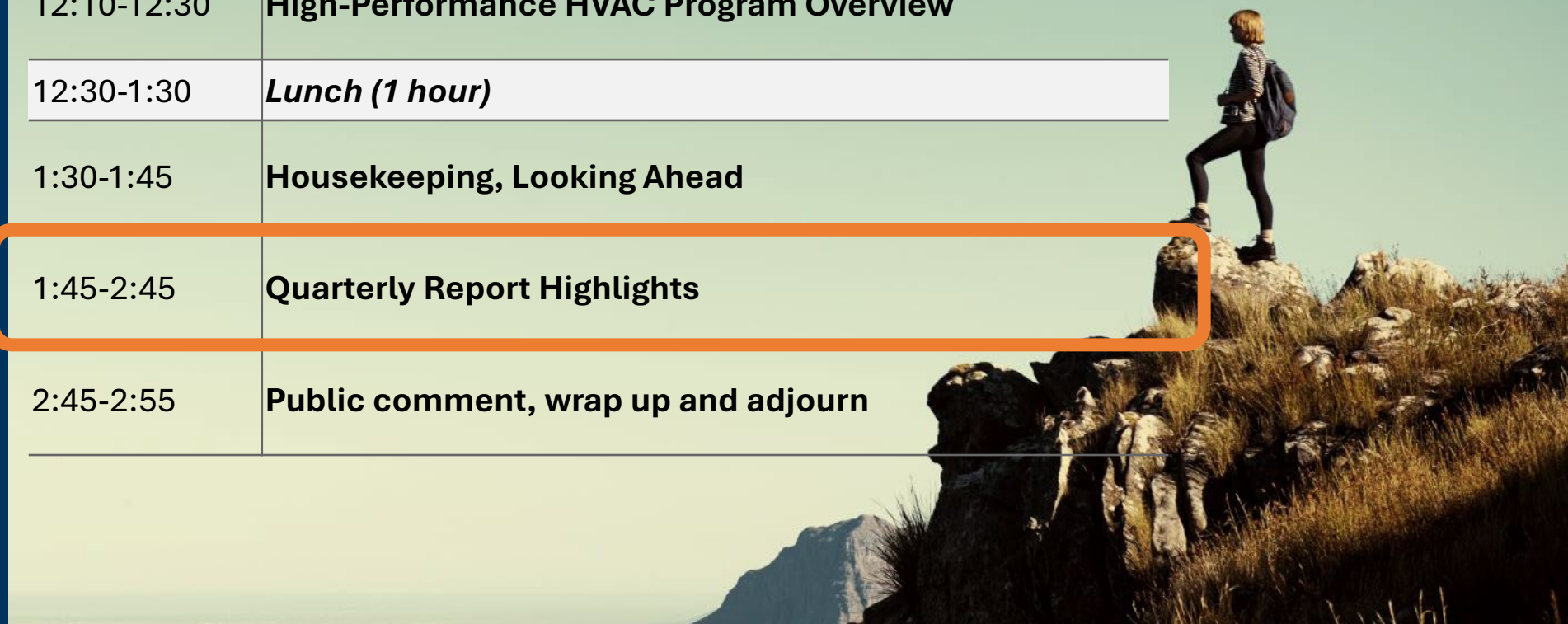

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Natural Gas Portfolio

Efficient Commercial Laundry

Dual-fuel Residential HVAC

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Program expansion:
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Efficient Rooftop Units (ERTU)

New Building Codes and Product Standards

concept development → *program development* → *market transformation*

SCANNING | CONCEPT ASSESSMENT | PROGRAM DEVELOPMENT | MARKET DEVELOPMENT | LONG-TERM MONITORING & TRACKING

PORTFOLIO UPDATE

- *Progress Report Highlights (Q1'25 recap)*

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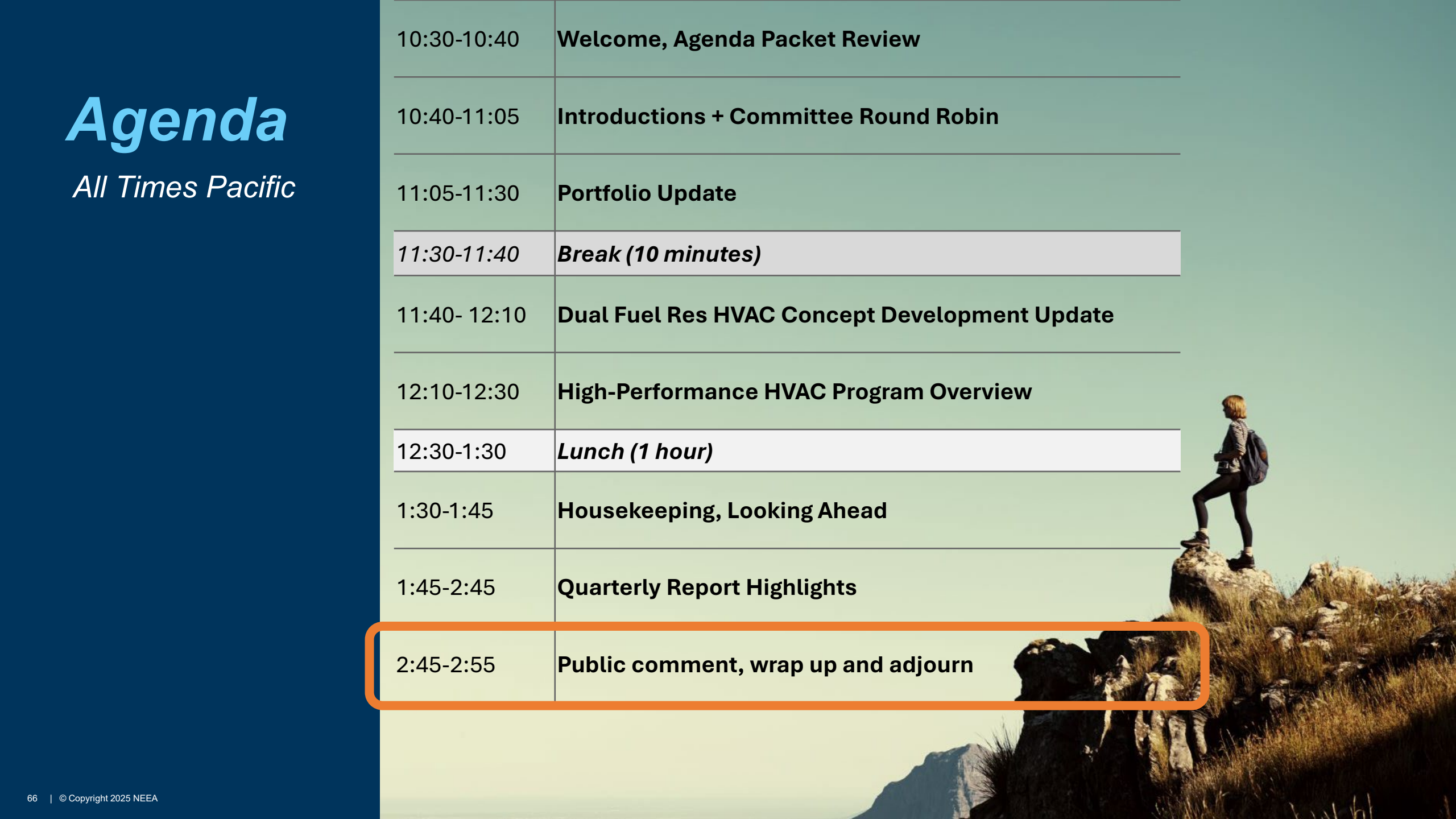
11:40- 12:10	**Dual Fuel Res HVAC Concept Development Update**
12:10-12:30	**High-Performance HVAC Program Overview**
12:30-1:30	***Lunch (1 hour)***
1:30-1:45	**Housekeeping, Looking Ahead**
1:45-2:45	**Quarterly Report Highlights**
2:45-2:55	**Public comment, wrap up and adjourn**



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Action Items / Recap / Final Qs?

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Meeting Feedback

- One thing you learned?
- What was helpful?
- Opportunities for improvement?
- Would you like us to follow up with you on anything?

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Public Comments?

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Thank You!

That's a wrap NGAC! Until we meet again…

- Interim Webinar: Thursday, June 5 (1-2 pm)
- Interim Webinar: Wednesday, Sept 10 (1-2 pm) *may extend to 90 min*