

Integrated Systems Coordinating Committee Q2 2023

DATE:	Monday, May 15, 2023
LOCATION:	Webinar Only
TIME:	12:30 – 4:30 pm Pacific Time
WEBINAR:	MS Teams – See webinar/phone info in calendar invite or register here

AGENDA (All Times Pacific)

Page #

Time	Topic	Facilitator	Page #
12:30 – 12:40 pm	Welcome, Introduction & Packet Review	NEEA	
12:40 – 1:10 pm	Housekeeping <ul style="list-style-type: none"> ✓ NEEA staffing update ✓ Announcements: Upcoming events, EFX Recap ✓ Federal funding RPAC workgroup update ✓ ISCC 2023 Workplan ✓ Co-Chair position 	Kaylan Dorsch	Updated workplan Pg. 4-5
1:10 – 2:45 pm	Luminaire Level Lighting Controls (LLC) Education (C) <u>Objectives:</u> <ul style="list-style-type: none"> ✓ Discuss regional learnings about successful approaches, challenges and gaps in LLC education. ✓ Discuss where to focus next for LLC education. <u>Desired Outcome:</u> Identify opportunities for coordinated regional & local program activities to further educate audiences vital to increasing LLC adoption.	Anne Curran (NEEA), Eric Mullendore (BPA), John Petosa (Snohomish, PUD)	Tier 1 Memo Pg. 6
2:45 – 3:00 pm	<i>BREAK!</i>		
3:00 – 4:20 pm	Regional Roundtable: <u>Objective:</u> NEEA staff & ISCC members share organizational and programmatic updates since Q1. <u>Desired Outcome:</u> Committee is aware of latest progress, activities, and any potential coordinating and leveraging opportunities throughout the region	All	--
4:20 – 4:30 pm	Recap, Next Steps, Adjourn	Kaylan Dorsch, All	--

(R) RESIDENTIAL (C) COMMERCIAL

Memorandum – *Agenda Items*

May 1, 2023

TO: Integrated Systems Coordinating Committee (ISCC)

FROM: NEEA staff

SUBJECT: Meeting Packet Agenda Items, Informational Updates and Additional Information

MEETING PACKET APPROACH

This packet continues the “tiered” approach:

- Tier-1 memos for active agenda items
- Tier-2 memos for informational updates on items not currently requiring agenda time.
- Tier-3 materials provided as additional detail for those interested, accessible via links in the Tier 1 and Tier-2 memos. All other Tier 3 materials are listed below.

AGENDA ITEMS (Tier 1)

- **Page 1:** Meeting Agenda
- **Page 2:** Meeting Packet Items
- **Page 3:** NEEA’s Product Groups & Coordinating Committee Structure
- **Pages 4:** Updated 2023 ISCC Workplan
- **Page 5:** Luminaire Level Lighting Controls Education
- **Page 6:** LLLC Attachment: Regional LLLC Program Educational Resources

INFORMATIONAL UPDATES (Tier 2)

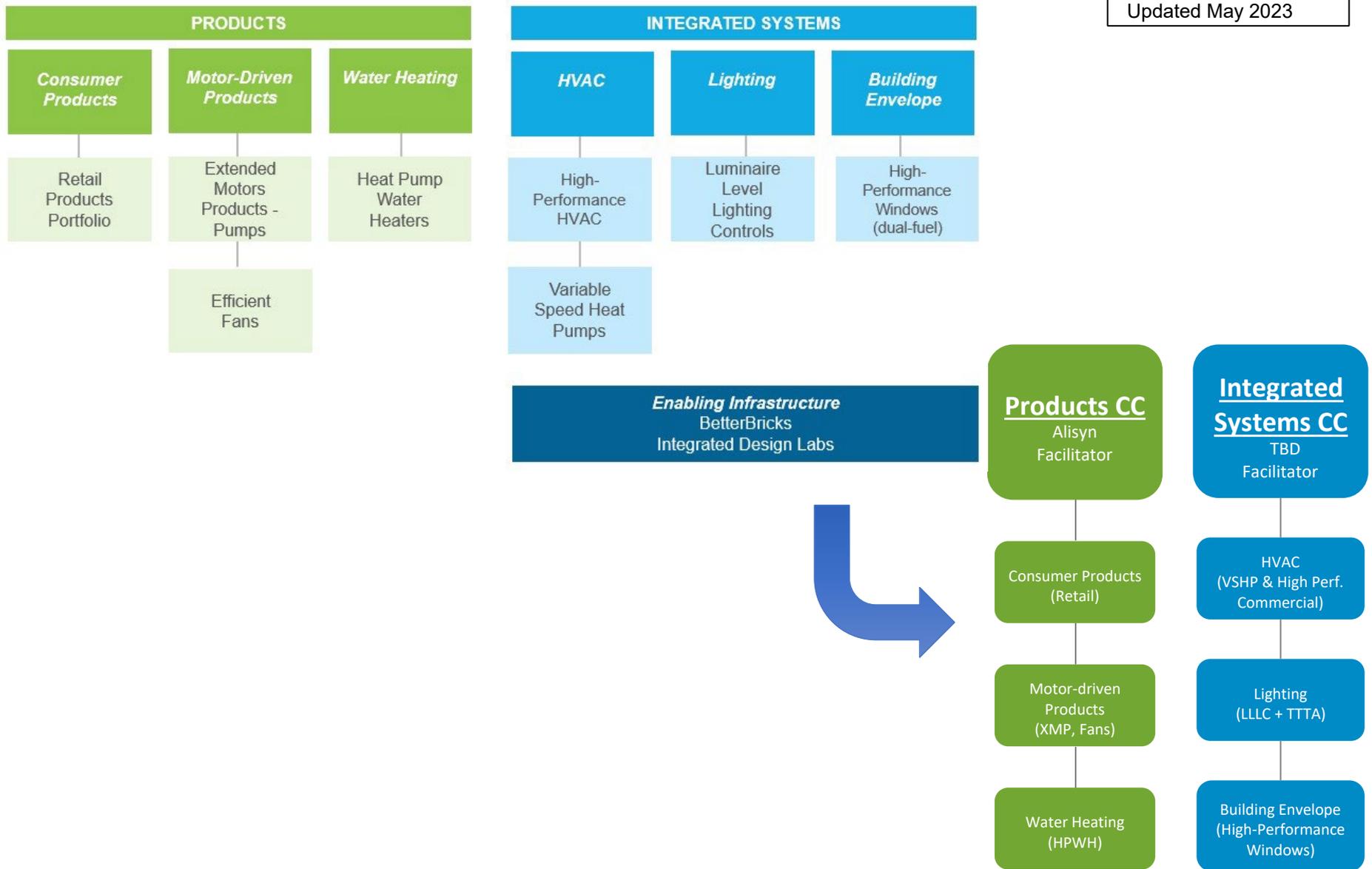
- Page 8: VHE DOAS Topics & Timeline for 2023 ISCC Meetings
- Page 9: Variable Speed Heat Pumps (VSHP) Residential HVAC Update
- Page 11: Q2 2023 Luminaire Level Lighting Controls Activity Report
- Page 16: Q2 2023 High-Performance HVAC Activity Report
- Page 20: Q2 2023 Variable Speed Heat Pump Activity Report
- Page 24: Q2 2023 BetterBricks Activity Report
- Page 28: Q2 2023 High-Performance Windows Activity Report

ADDITIONAL LINKS (Tier 3)

- [Q1 2023 Market Research & Evaluation Newsletter](#)
- [Q4 2022 Emerging Technology Newsletter](#)
- [Q4 2022 Codes, Standards and New Construction Newsletter](#)
- [Q1 ISCC Meeting Notes](#)

NEEA's Product Groups and Coordinating Committees Structure

Updated May 2023



ISCC 2023 Annual Workplan Updated 4/30/23

Reminder: 75% of Agenda is dedicated to Priority 1 topics, 25% to Priority 2 topics

LIST OF 2023 PRIORITY 1 TOPICS:

(In order of highest ranking, per survey)

Res Building Envelope: High Performance Windows (HPWs)

Topic D: Engaging with Multi-Family projects to understand approaches to multi-family projects, the decision-making process and any equity lens offerings on retrofit projects
Topic A: Leverage IRA funding to understand new opportunities for DOE funds

Commercial Lighting: Luminaire Level Lighting Controls (LLCs)

Topic C: Review current LLLC training approaches/ topics which ISCC is already implementing/ planning
Topic E: Share learning by utilities from LLLC projects & key takeaways from LLLC MPER#2

Residential HVAC: Variable Speed Heat Pumps (VSHPs)

Topic A: Understand & align incentive requirements to leverage IRA funding
Topic B: Understand new fed test stds & diff products in market f/prog delivery
Topic D: Regional sharing & leveraging of diff approaches to define baseline, address capacity issues/other benefits f/programs
Topic C: Explore how to improve management of suppl heat in CC

LIST OF 2023 PRIORITY 2 TOPICS:

(In order of highest ranking within each product group, per survey)

Commercial HVAC: High Performance HVAC (VHE DOAS)

Committee did not align on any Priority 1 Topics. NEEA's recommendation is to review the Priority 2 topics during main agenda time as shown on the left;
Topic B: Local utility prog & MT regional prog share out on key findings (program and technical or market research); Recapping the year's coordination and looking toward 2024
Topic C: Lever fed, state, local funding (IRA, IJA, ESSER) to promote syst approaches
Topic A: Reg sharing & leveraging of diff approaches to define code baseline for this tech (Red Car Analysis)
Topic E: Discuss capacity issues & shared learnings/ approaches to quantifying benefits & applying CE calc
Topic D: Leverage/navigate NEEA's QPL

Res. Building Envelope: High Performance Windows (HPWs)

Topic E: Savings/ CE barriers
Topic B: Review new E* V7 spec to understand opportunities re: NEEA's MT practice & utility prog strategies
Topic F: Cross-sharing experiences from local + NEEA perspectives
Topic C: Discuss product avail challenges in rural areas/ bulk purchase opportunity "Buyers Club"

Commercial Lighting: Luminaire Level Lighting Controls (LLCs)

Topic D: Share summarized LLLC utility project data to gain insights on adoption of LLLC
Topic B: Discuss utilities' experience & opportunities to expand advance controls to exterior applications
Topic A: Review approaches for reporting LLLC energy savings, incl RTF & utility methodologies
Topic F: Discuss challenges with incentivizing LLLC, including CE

HVAC Residential: Variable Speed Heat Pumps (VSHPs)

Topic E: Sharing on supply chain constraints & labor barriers

	Q1 2023 Feb 13 1-4p (Virtual)	Q2 2023 - Day 1 May 15 (virtual)	Q2 2023 - Day 2 May 16 (Day 2 canceled)	Q3 2023 Aug 14 (virtual)	Q4 2023 - Day 1 Nov 6 (virtual)	Q4 2023 - Day 2 Nov 7 (virtual)
PRIORITY 1 TOPICS 75% of agenda time	<p>RES WINDOWS: High Perf Windows Topic A: Convene & Collaborate Panel Session with guest speakers: Leverage IRA funding to understand new oppport for DOE funds. <i>**TBD pending outcomes from federal funding workshop</i></p> <p>Topic D: Lessons Learned Panel Discussion: Engaging with Multi-Family projects Desired Outcome: Committee collectively shares lessons learned to further understand approaches to multi-family projects, the decision-making process and any equity lens offerings on retrofit projects</p>	<p>COMM LIGHTING: Luminaire Level Lighting Controls Topic C: Review current LLLC training approaches/ topics which ISCC is already implementing/ planning</p> <p>COMMERCIAL HVAC: High Perf HVAC Topic D: Discuss leveraging and navigating NEEA's QPL → Address in Q4</p>	<p>RES HVAC: Variable Speed HPs Topic A: Regional cross sharing: Understand & align incentive requirements to leverage IRA funding. <i>**Check with NEEA's Policy team. → Hold on this; RPAC Federal Funding Coordination work group formed</i></p> <p>or</p> <p>Topic D: Regional sharing & leveraging of diff approaches to define baseline, address capacity issues/other benefits f/programs → Address in Q4</p>	<p>RES WINDOWS: High Perf Windows Topic A: Leverage IRA funding to understand new opportunities for DOE funds → TBD pending Federal Funding Coordination workgroup</p> <p>COMMERCIAL HVAC: High Perf HVAC Topic A: Regional sharing & leveraging of different approaches to define code baseline for this technology. There was broad agreement that NEEA would facilitate a utility roundtable/share-out of how each of you are approaching cost-effectiveness and defining baseline for this technology.</p>	<p>COMM LIGHTING: Luminaire Level Lighting Controls Topic E: Share learning by utilities from LLLC projects & key takeaways from LLLC MPER#2</p> <p>COMMERCIAL HVAC: High Perf HVAC Combining Topics B and D: Discussion on leveraging and navigating NEEA's QPL for ventilation equipment in the context of coordination between local utility programs and the NEEA MT regional program. This will enable those who are leveraging NEEA's QPL to share out as to how they're doing so and allow a forum to touch on coordination activities that others could replicate and/or share out on any key research findings (program/technical/market) that could be useful for others.</p>	<p>RES HVAC: Variable Speed HPs Topic B: Understand new fed test stds & diff products in mkt for prog delivery ***</p> <p>or</p> <p>Topic C: Explore how to improve mgmt of suppl heat in CC ***</p> <p>or</p> <p>Topic D: Regional sharing & leveraging of diff approaches to define baseline, address capacity issues/other benefits f/programs</p> <p><i>***Depending on how program & market progresses</i></p>
PRIORITY 2 TOPICS 25% agenda	Overview and discussion of Priority 2 topics & their timeline for Q2-Q4	Hold time for Priority 1-2 topics (~30 min)		Hold time for Priority 2 topics (~30 min)	Hold time for Priority 2 topics (~30 min)	
ROUNDTABLE TOPICS	<p>LLCs: Are utilities getting any traction with LLLC in the market?</p> <p>HPWs: What are you doing to prepare market actors for E*v7?</p>					
KEY PROGRAM HIGHLIGHTS		Variable Speed Heat Pumps (VSHPs) Potential Milestone Advancement into Market Development Q2 or Q3 2023 RPAC Vote			High Performance Windows (HPWs) Potential Milestone Advancement into Market Development Q4 2023 or Q1 2024 RPAC Vote	
PORTFOLIO UPDATES		Program Activity Reports			Program Activity Reports 2024 NEEA Ops Plan Highlights	
OTHER <i>*Meeting dates, utility related, announcements</i>	EFX dates / registration	EFX Recap		NEEA Ops Plan webinar for RPAC	EFX topic solicitation Leadership Awards Confirm 2024 meeting dates	

Memorandum – Agenda Item (Tier 1)

May 1, 2023

TO: Integrated Systems Coordinating Committees (ISCC)

FROM: Anne Curran, Sr. Program Manager

SUBJECT: Luminaire Level Lighting Controls (LLLC) Education

Our Ask of You: In preparation for our discussion on “Luminaire Level Lighting Controls (LLLC) Education”, please review the attached documents:

- [Reference list of regional LLLC program educational resources on page 6](#). This will be helpful to understand current leverageable resources and to identify any gaps in resources to support our shared goal to drive LLLC adoption.
- [LLLC Q2 2023 Activity Report, beginning on page 11](#). This will provide an update on NEEA LLLC Program’s operational goals, recent program activities and potential coordination opportunities.

Brief Overview: In this highly participatory session on LLLC education, we will discuss the following:

- What is the status of market education on LLLC?
 - What have been successes and challenges?
- What have we learned from our previous efforts?
 - Which audiences are critical and how do we educate them?
 - What topics and key messaging are critical?
- What’s next in education as we continue to try to spur LLLC adoption?
 - What do we each do individually and together as a region?

Eric Mullendore from Bonneville Power Administration and John Petosa from Snohomish PUD will co-facilitate this session with Anne Curran. We will also share our takeaways from our respective experiences to help spur conversation. Our desired outcome is for NEEA staff & ISCC members to have identified some key coordinated regional & local program activities to further educate key audiences that are vital to increasing LLLC adoption.

Please contact [Anne Curran](#) if you have questions about this memo or anything related to LLLC.

PROGRAM LIFECYCLE STATUS



Attachment to ISCC May 2023 Tier 1 Memo on LLLC: Regional LLLC Program Educational Resources

Demonstration Tool

- Portable demonstration boards for use at events or training. Please contact Anne Curran to arrange usage.

Example Training Topics Currently Available (delivered individually or combined, either via webinar or in person):

- Intro to LLLC (Fundamentals)
- LLLC Hands-on Demonstration Training
- Technical features of LLLC
- Myth busters: Overcoming misconceptions about LLLC
- Business benefits of LLLC
- Cost advantages of LLLC
- Leveraging LLLC Savings and Incentives for Maximum ROI
- Installation & Configuration advantages of LLLC
- LLLC Systems & Commissioning
- Productivity advantages of LLLC
- Flexibility, adaptability and future-proofing of LLLC
- Design advantages of LLLC
- Energy savings of LLLC
- Using LLLC to meet and exceed code
- LLLC in smart and healthy buildings
- One for one replacements compared to redesign
- Plus other customized topics available

Technical Series:

- [Let's Talk LLLC](#)
- [LLLC Ask the Experts: Q&A with Chris Meek, Damon Bosetti, Shaun Darragh, Steve Mesh](#)
- [Control Tech Terms](#)
- [Primary Control Strategies](#)
- [Sequence of Operations](#)
- [Wall Station Interfaces](#)
- [Communicating the Value Proposition](#)
- [Emerging Technology Trends](#)
- [Lighting Controls in Healthcare Facilities](#)
- [Lighting Controls in K-12 Schools](#)
- [Lighting Controls in Warehouses](#)
- [Wireless Technology in Lighting](#)
- [LLLC and The Future of Healthy Buildings](#)
- [Industry Voices Aprille Balangue \(lighting engineer\)](#)

Case Studies

- [Retrofitting Meant for People – Associated General Contractors of Washington](#)
- [South Lander Business Park Adopts Luminaire Level Lighting Controls: Reduces Costs and Achieves Long-Term Flexibility](#)
- [Ease of Installation and Energy Savings Make LLLC the Smart Choice for Enumclaw High School](#)
- [Pacific Tower Installs Luminaire Level Lighting Controls](#)
- [NEEA office’s cutting-edge LLLC system becomes PNNL Living Lab](#)
- [The Future of Lighting is Here: PSE Achieves 72 Percent Energy Savings with Luminaire Level Lighting Controls](#)

Marketing Materials

- [LLLC Overview](#)
- [LLLC FAQ](#)
- [LLLC Infographic](#)
- [LLLC for Hospitals](#)
- [LLLC for Offices](#)
- [LLLC for Schools](#)

Short Video: Fundamentals Series

- [The Benefits of LLLCs \(Part 1\): Flexibility for Present and Future Office Design](#)
- [The Benefits of LLLCs \(Part 2\): Task Tuning for the Right Amount of Light](#)
- [The Benefits of LLLCs \(Part 3\): Integrated Occupancy Sensors](#)
- [The Benefits of LLLCs \(Part 4\): Adjusting to Natural Light with Daylight Harvesting](#)
- [The Benefits of LLLC \(Parts 1-4 combined\): The Future of Commercial Lighting](#)

Short Video: Special Topics

- [How LLLC Lighting Systems Can Support a Healthy Building Future](#)
- [Two Lighting Solutions: How LLLC Retrofit Stacks Up Against a Networked Lighting Controls Redesign](#)
- [Flipping the Switch: How Lighting Upgrades Impact Energy Use & Tenant Comfort](#)
- [Case Study: Pacific Tower Installs Luminaire Level Lighting \(LLLC\) Controls](#)
- [Selling LLLC for Retrofits](#)
- [LLLC Solutions for Lighting Projects](#)

Short Video: Ask The Expert and Industry Voices

- [Ask the Lighting Experts: Shaun Darragh on The Benefits of LLLC](#)
- [Ask the Lighting Experts: Chris Wolgamott on How to Future-Proof Your Lighting](#)
- [Ask the Lighting Experts: Chris Meek on the Benefits of Luminaire Level Lighting Controls](#)

Recorded Webinars:

- [Webinar: LLLC Mythbusters](#)
- [Webinar: Buildings, Health, & Efficiency: How Lighting Controls Bring it All Together](#)
- [Webinar: Energy Savings Potential from Luminaire Level Lighting Controls & Network Lighting Controls](#)
- [Webinar: What 1-for-1 Replacement Means for Energy Savings & Light Quality](#)

NXT Level Training: Incorporates curriculum on LLLC in both [Level 1](#) and [Level 2](#) courses.

Memorandum – Informational Update (Tier 2)

May 1, 2023

TO: Integrated Systems Coordinating Committee (ISCC)

FROM: Maria Murphy, Senior Program Manager

SUBJECT: VHE DOAS Topics & Timeline for 2023 ISCC Meetings

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Our Ask of You:

Do you have any questions/concerns about the agenda topics and timelines below for the High-Performance HVAC Program?

Topic & Timelines 2023 ISCC Discussion:

As a follow up to the memo and discussion in Q1, the NEEA team is providing an updated list of the topics and timelines for 2023 ISCC main agenda discussions. Please note that these topics were selected based on the High-Performance HVAC program’s very high efficiency DOAS Annual Planning session discussions and survey results, and Topic A was refined in the initial ISCC meeting this year:

- Q3 Topic A: Regional sharing & leveraging of different approaches to define code baseline for this technology. There was broad agreement that NEEA would facilitate a utility roundtable/share-out of how each of you are approaching cost-effectiveness and defining baseline for this technology.

- Q4 Combining Topics B and D: Discussion on leveraging and navigating NEEA’s QPL for ventilation equipment in the context of coordination between local utility programs and the NEEA MT regional program. This will enable those who are leveraging NEEA’s QPL to share out as to how they’re doing so and allow a forum to touch on coordination activities that others could replicate and/or share out on any key research findings (program/technical/market) that could be useful for others.

Please contact [Maria Murphy](#) if you have questions about this memo.

PROGRAM LIFECYCLE STATUS



Memorandum – *Informational Update (Tier 2)*

May 1, 2023

TO: Integrated Systems Coordinating Committees (ISCC)

FROM: Suzi Asmus, Program Manager, Residential HVAC

SUBJECT: Variable Speed Heat Pumps (VSHP) Residential HVAC

Our Ask of You:

1. This program is not on the Q2 ISCC meeting agenda so please reach out to [Suzi Asmus](#) with any questions you have. Note: The original 2023 committee workplan called for a VSHP program presentation in this Q2 meeting. However, because of VSHP program milestone preparation (see below), the VSHP topics will be addressed in the Q4 committee meeting.
2. Communicate with relevant members of your residential HVAC team and your Regional Portfolio Advisory Committee (RPAC) member regarding the upcoming program Milestone vote planned for the Q3 RPAC meeting on August 29, 2023. Set aside time on your busy summer calendars to review Milestone documents ahead of the Q3 RPAC vote.
3. [Register here](#), and join NEEA’s June and July Product Councils to learn more about the research central to the residential VSHP program going up for an RPAC vote in August. See next page for a list of upcoming Product Council topics.
4. As your program team is developing your plans and budgets for 2024 and beyond, reach out to VSHP Program Manager, [Suzi Asmus](#), to learn more about the program strategies NEEA is developing and how we can support your program to lock in greater and more reliable savings into your heat pump programs.

Brief Overview:

Upcoming RPAC vote in Q3 2023:

- Foremost is the team’s intention to bring our residential Variable Speed Heat Pump (VSHP) program to the Regional Portfolio Advisory Committee (RPAC) in Q3 of this year for a vote to advance the program from the “Program Development” phase into “Market Development”, (see Lifecycle map on the next page).
- **Ask of You:** Since many of you or your colleagues participated in our Residential HVAC funder workgroup in Q4 2022 and provided input and feedback on the program design, please coordinate with your internal team, including your RPAC member, to make sure everyone has the information they need on this program to prep for the vote. The milestone documents will be distributed to RPAC members for review in mid- July. Because schedules are busy with vacations, please block time now on your late July/early August calendar. Thank you!

Sharing what we've learned about advanced heat pump improvements:

- Throughout the Program Development phase, the team has been conducting various research and field studies to identify heat pump features and capabilities that deliver greater savings, and to quantify the achievable savings. Several **upcoming NEEA Product Council meetings** will be focused on the VSHP program findings.
 - **June 13 – Tuesday 10:30-Noon Pacific Heat Pump Improvements** - NEEA and Cadeo Group will present results of an 8-month research effort on these heat pump improvements to prepare data for their potential future inclusion in the EPA ENERGY STAR most efficient specification. The work includes summary of current evidence, description, specification, estimated savings and method(s) of product identification.
 - **July 11 – Tuesday 10:30-Noon Pacific Rating Representativeness Preliminary Results** -University of Nebraska, NEEP, NEEA and DNV will co-present the preliminary results and findings of the Rating Representativeness project. This unique research project will help determine what aspects of load based testing and static testing provide the most representative measure of in-field performance. This is the first project of its kind to enable field to lab comparison of heat pump ratings and has support of 4 major manufacturers, NEEA, NEEP, NYSERDA, Natural Resources Canada, Southern California Edison, Pacific Gas and Electric, Xcel Energy, Com Ed, and the American Public Power Association. Complete analysis and evaluation will be included in a final report expected in late 2023.
- **Our Ask of You:** [Pre-registration](#) is required for these Product Council meetings. Share this information with your relevant team members and join NEEA's Product Council series to hear the updates on this work that is central to the VSHP program going up for an RPAC vote in August.

Supporting your Program Delivery:

- The research and initial findings above have yielded valuable information about heat pump performance. NEEA is collaborating with manufacturers and national partners to help point the market to the better performing heat pumps. These improvements can also be incorporated into utility program trainings for trade allies, with other mid-stream partnerships, as well as consumer education and outreach, to lock in greater and more reliable savings into utility programs.
- **Our Ask of You:** As your program team is developing your plans and budgets for 2024 and beyond, reach out to VSHP Program Manager, [Suzi Asmus](#), to learn more about how these research findings and the program strategies NEEA is developing can support your program residential HVAC goals.

Please contact [Suzi Asmus](#) sasmus@neea.org if you have questions about the VSHP Program.

PROGRAM LIFECYCLE STATUS



ISCC Q2 2023 LUMINAIRE LEVEL LIGHTING CONTROL (LLLC) ACTIVITY REPORT

NEEA IDENTIFIED COORDINATION & LEVERAGING OPPORTUNITIES SUMMARY (SEE PP. 2-4 FOR DETAILS):

- ❖ Identify opportunities for case study success stories
- ❖ Host and promote training sessions
- ❖ Distribute educational resources and leverage marketing materials
- ❖ Share market insights from utility incentive program experience
- ❖ Collaborate on event and speaking opportunities

KEY UPDATES:

- **PROGRAM:** Collaboration with manufacturers’ local sales channels to educate specifiers. Leverage of professional and trade organizations to increase LLLC acceptance. (see p. 2-3)
- **MARKET RESEARCH:** An updated [incremental cost study](#) was completed in Q1 2023. A third party [review of key assumptions](#) of energy savings model was completed in Q1 2023. An update to Market Progress and Evaluation Report is under way and targeted to be completed Q3 2023. [MRE newsletter](#) p.7
- **EMERGING TECH:** Integrated LLLC-HVAC controls study still on hold. The NEEA office installation is being studied as part of DOE’s Next Generation Lighting System work. [ET newsletter](#) p. 14

RESOURCES FOR UTILITIES:

- [LLLC Toolkit](#)
 - NLC/LLLC technical handout series with 10 topics
 - Customizable marketing collateral: Overview, FAQ, Infographic, Customer Benefits (Healthcare, Education, Offices)
 - Case Study –Enumclaw High School, Southlander Business Park, Associated General Contractors of Washington (new)
 - Ask the Expert Series write ups
- [LLLC Video Playlist](#) on BetterBricks YouTube Channel
 - Educational and awareness videos on a variety of topics

Program Overview	
Program Manager	Anne Curran
Product Group	Lighting
MT Goal	Adoption of LLLC becomes standard practice for commercial buildings, as the majority of lighting products come with embedded sensors and controls as the default option.
Program Status	<ul style="list-style-type: none"> • Market Development (March 2019) – see p.4 • Market Progress Evaluation Report #1 Q4 2021
Product Description	A type of wireless networked lighting control (NLC) that integrates controls and sensors into the luminaire, enabling communication with each other and transmission of data.
Sector(s)	Commercial, Industrial
Target Market(s)	Office, Schools, Healthcare, Warehouse
Key Market Actors	<ul style="list-style-type: none"> • Lighting manufacturers • Sales agencies (manufacturer representatives) • Distributors • Installation contractors • Lighting designers and engineers • Building owners and managers
Implementation Contractors	<ul style="list-style-type: none"> • Cadeo Group with Evergreen Consulting • C+C (marketing)
Program Partners	<ul style="list-style-type: none"> • Lighting Design Lab • Integrated Design Labs • Design Lights Consortium • DOE’s Integrated Lighting Campaign

KEY 2023 OPERATIONS PLAN ACTIVITIES – click [here](#) for link to current Operations Plan (p 63-68)

The LLLC program uses a multi-faceted approach incorporating specification development, market awareness building, training, utility program support, supply chain interventions, and integration with energy codes to transform the market so that LLLC systems become standard practice for commercial buildings.

GOAL 1) Increase promotion of LLLC through key manufacturer sales channels.

Target: 12 strategic engagements with specifiers via manufacturers’ sales channels completed.

Recent Progress	What’s Ahead	Coordination & Leveraging Opportunities
<ul style="list-style-type: none"> • The team partnered with local manufacturing representative agencies on eight strategic engagements with specifiers. 	<ul style="list-style-type: none"> • Continued engagement of key manufacturers and their priority local representative agencies and distributors to ensure they are well positioned to champion LLLC • Continued collaboration with manufacturer representative agencies to motivate specifiers to consider LLLC for their projects • Attend LightFair to strengthen relationships with key manufacturers and their sales channels 	<ul style="list-style-type: none"> ❖ Identify manufacturer reps and distributors that you would like to see prioritized ❖ LLLC program will reach out as local opportunities arise

GOAL 2) Influence leading specifiers who focus on key target markets to include LLLC in their ongoing business practices

Target: 10 lighting specifier educational offerings (resources or events) completed

Recent Progress	What’s Ahead	Coordination & Leveraging Opportunities
<ul style="list-style-type: none"> • LLLC featured at industry forums: <ul style="list-style-type: none"> ○ Collaborations with specifiers at Joint Engineers Conference (JEC) in Montana, Washington Association of Maintenance and Operations Administrators (WAMOA) and NXT Level 	<ul style="list-style-type: none"> • Partner with leading lighting specifiers to serve as role models who are benefiting from including LLLC into how they serve their clients <ul style="list-style-type: none"> ○ Next phase of Influential Voices campaign on lighting engineer Aprille Balangue will include on article on LD&A Magazine ○ Rollout of a second Influential Voices campaign will feature lighting designer Jim Benya • Feature early adopters in resources, earned media and awareness building with professional organizations 	<ul style="list-style-type: none"> ❖ Identify opportunities for additional case studies ❖ Host an educational webinar for your trade allies and customers ❖ Promote NXT Level and host a jump start session for your trade allies ❖ Distribute educational resources included in LLLC Toolkit and in the LLLC Video Playlist ❖ Promote LDL online training sessions and recorded webinars

<ul style="list-style-type: none"> ○ Demonstration at BOMA Oregon Expo, with Energy Trust ○ Hands-on training leveraging new LLLC installation at the International Brotherhood of Electrical Workers (IBEW) Oregon Training Center ○ Presentations at IES chapter events in Seattle and Portland ○ Presentation at NALMCO's Spring Seminar ● An new case study was published article in IFMA's Facility Manager's Journal. It was developed collaboration with Seattle City Light to highlight the Associated General Contractors of Washington building retrofit. ● Online training modules developed with four manufacturers rolled out to NXT Level ● Completion of two additional demonstration boards, for a total of six that cover LLLC product for six manufacturers ● Collaboration with utilities on trade ally training events, including BPA TAN NW, Pacific Power, Idaho Power and Energy Trust ● Integrated Design Lab at University of Idaho using LLLC demonstration site for events in collaboration with Idaho Power 	<ul style="list-style-type: none"> ○ Three new cases studies are in progress in collaboration with Puget Sound Energy and Snohomish PUD. These will be published in Q2-Q3 2023. ○ In collaboration with Seattle City Light and Integrated Design Lab, exploring potential case study of a LLLC installation on University of Washington campus. ● Planning underway with utilities for 2023 trade ally training collaborations ● Production of three additional demonstration boards planned ● Leverage professional organizations' events and resources events to reach members <ul style="list-style-type: none"> ○ Two presentations planned at LightFair - one on Emerging Technologies in collaboration with Pacific Northwest National Labs (PNNL) and another on Smart and Healthy Buildings with manufacturers Trane and Avion. ○ Presentation at BOMA International Conference in collaboration with DOE's Integrated Lighting Campaign ○ Collaboration with Lighting Controls Association to further distribute two existing LLLC videos - Selling LLLC for Retrofits and Finding LLLC Solutions for Projects 	<ul style="list-style-type: none"> ❖ Borrow LLLC demonstration boards for events and training ❖ Collaborate on event opportunities as they arise and promote upcoming webinars as they are scheduled
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GOAL 3) Increase visibility and demand for LLLC through strategic engagements

Target: Alignment with 5 partner organizations on LLLC focus

Recent Progress	What's Ahead	Coordination & Leveraging Opportunities
<ul style="list-style-type: none"> • Consultations with Minnesota's Center for Energy Efficiency (MN CEE) as they develop their plans to launch a market transformation effort for LLLC. The two teams are aligned on basic market transformation approaches and strategies for LLLC. • Illuminating Engineering Society (IES) has commenced a committee process to add LLLC to its recommended practices for offices (RP-1), which will increase visibility and credibility of LLLC as a solution among specifying engineers. 	<ul style="list-style-type: none"> • Continued collaboration with MN CEE so that respective market transformation efforts stay aligned and joint leverage opportunities are identified • Continued IES committee process to add LLLC to its recommended practices for offices (RP-1). This update is expected to be finalized late in 2023. • IES committees are also considering adding LLLC to recommended practices for Libraries (RP-3) and Education facilities (RP-4) and to Lighting Practices document (LP-6). Those updates are expected to happen in 2024. • Discussions with Design Light Consortium (DLC) on their proposed tool development for streamlining networked lighting controls in small to mid sized buildings. 	<ul style="list-style-type: none"> ❖ Participate in Design Light Consortium (DLC) member meetings and committees. Contact Anne Curran if interested in getting more involved. ❖ Join an IES committee to help influence recommended practices. Contact Chris Wolgamott if interested in getting more involved. ❖ Work with your LLLC customers to get recognition for their projects from DOE's Integrated Lighting Campaign.

Program Lifecycle



MARKET ACTORS AND TIMING

		Market Actors									Utility Role
		Manufacturers	Manuf. Reps/ Sales Agencies	Distributors	Retailers	Builders/ Developers	Contractors/ Installers	Architects/ Engineers	Designers/ Specifiers	End Use Customers/ Building Owners & Managers	
Key Program Activities	Lab & Field Testing										
	Data Collection & Assessment	Q1-Q4									Q1
	Incentives										Q1-Q4
	Market Channel Dev	Q1-Q4	Q1-Q4	Q1-Q4					Q1-Q4		
	Market Evaluation	Q1-Q2	Q1-Q2	Q1-Q2			Q1-Q2	Q1-Q2	Q1-Q2	Q2-Q3	
	Market Research	Q1-Q2	Q1-Q2	Q1-Q2			Q1-Q2	Q1-Q2	Q1-Q2	Q2-Q3	
	Marketing		Q1-Q4	Q1-Q4		Q1-Q4	Q1-Q4	Q1-Q4	Q1-Q4	Q1-Q4	Q1-Q4
	Technical Support										
	Training		Q1-Q4	Q1-Q4			Q1-Q4	Q1-Q4	Q1-Q4		Q1-Q4
	Technical Research										
Other (specify)											

= Potential Coordination Opportunities (see Coordination & Leveraging Opportunities on p.2-3 for details)

Utility/Program Administrator Related Activities Check the box under the activities you are currently implementing			
Training	Incentives	Marketing	Other
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Notes:			

ISCC Q2 2023 HIGH-PERFORMANCE HVAC ACTIVITY REPORT

NEEA IDENTIFIED COORDINATION & LEVERAGING OPPORTUNITIES SUMMARY (SEE PP. 2-4 FOR DETAILS):

- ❖ NEEA technical support still available to encourage VHE DOAS on potential HVAC upgrades
- ❖ [Technical analysis](#) from product definition work available to inform potential alliance partner E/HRV incentive development
- ❖ Leverage growing number of program materials and coordinate on updates/additions

KEY UPDATES:

- **PROGRAM:**
 - **Updated!:** [Very High Efficiency DOAS Comprehensive Design Guide](#) revised to integrate last two years of market and technical learnings.
 - **Updated!:** [Very high efficiency DOAS system requirements](#) revised to include minor clarifications on several requirement elements & ‘Compliant’ heat/energy recovery equipment list¹ (pg 7) now includes *six manufacturers and over 60 qualifying products.*
 - **New!:** [Energy Modeling Guide for Very High Efficiency DOAS](#) provides a resource for energy analysts and design consultants to address gaps to more accurately represent gaps in annual energy modeling
 - **New!:** [Calibrated Energy Savings for Very High Efficiency DOAS in Multi-Family Housing](#) report provides an initial investigation of the energy benefits of using this system approach in multi-family building applications

ADDT’L RESOURCES FOR UTILITIES:

- **New!:** [Short animated video](#) about very high efficiency DOAS - How it works and why it matters

Program Overview	
Program Manager	Maria Murphy
Product Group	HVAC
MT Goal	The majority of eligible buildings will use very high efficiency DOAS system approach in both new construction and renovation projects.
Program Status	<ul style="list-style-type: none"> • Market Development (August 2022) – see p. 4
Product Description	Very high efficiency DOAS is an approach that pairs a very high efficiency heat/energy recovery ventilator (HRV/ERV) type of DOAS with a high efficiency heating and cooling system, while following set design principles that optimize efficiency.
Sector(s)	Commercial
Target Market(s)	Existing Buildings and New Construction; specifically, Schools, Offices and Retail
Key Market Actors	<ul style="list-style-type: none"> • HVAC manufacturers • HVAC vendors (Manufacturer’s Representatives/Distributors) • HVAC designers (architects, engineers, design build firms, etc.) • Building owners and managers
Implementation Contractors	<ul style="list-style-type: none"> • Cadeo Group, HRV/ERV Manufacturer outreach and Supply Chain Teams implementation • Energy 350, Lead contractor on technical support • New!: Limited RFP for outreach support being issued in late April

- [ACEEE 2022 Summer Study Paper](#) which provides performance summary of all 12 demonstration projects completed within NEEA’s target market(s)
- [Product Definition Analysis](#)
- [Report on COVID-19 Risk Reduction Strategies and HVAC System Energy Impact](#)
- [VHE DOAS Introduction](#) and [2-page fact sheet](#)

KEY 2023 OPERATIONS PLAN ACTIVITIES – click [here](#) for link to current Operations Plan (p 51-55)

The High-Performance HVAC program is focusing on informing design of market intervention activities associated with its first area of focus- an HVAC systems approach called very high efficiency DOAS. Key areas of focus for 2023 include (1) ramping up market engagement through NEEA’s midstream incentive strategy with manufacturer’s reps/distributors and HVAC design team participants more generally (2) Continuing to grow the E/HRV Complaint Products List (CPL) and (3) continue generating market and performance data to inform codes.

GOAL 1) Educate and motivate early adopter manufacturer’s reps/distributors to promote the system approach <i>Target: Six agreements in place with manufacturer’s rep/distributor of compliant E/HRVs by Q2 2023</i>		
Recent Progress	What’s Ahead	Coordination & Leveraging Opportunities
<ul style="list-style-type: none"> • All six agreements signed by end of Q1 2023 & held initial kick off meeting with all participants • Program team working to determine and potential pipeline of projects 	<ul style="list-style-type: none"> • TBD support for participant events and/or activities 	<ul style="list-style-type: none"> ❖ TBD. NEEA’s agreements are structured to support mid-stream incentives and proposals from manufacturer’s reps/distributors to integrate support for the system approach into their work. If/where there the NEEA team sees an opportunity to include local utility partners, Maria Murphy will reach out.
GOAL 2) Raise supply chain and end-user awareness of the system approach, and its significant cost savings and non-energy benefits <i>Target: 8 featured events in collaboration with alliance partners, key industry and/or professional/ trade organizations</i>		
Recent Progress	What’s Ahead	Coordination & Leveraging Opportunities
<ul style="list-style-type: none"> • Energy Trust Building Energy Simulation Forum - 2/22 (on-demand training link to be provided once available) • ACEEE 2023 Hot Water and Hot Air Forum - 3/7 • IFMA Seattle Chapter Powerful Facilities Energy Conference - 3/16 • OR and SW WA IFMA Symposium - 3/24 	<ul style="list-style-type: none"> • WA Association of School Business Officials (WASBO) Conference - 5/5 • Engineers for a Sustainable Future - 5/9 • Seattle BOMA lunch-and-learn - 5/31 	<ul style="list-style-type: none"> ❖ The Program team will coordinate with utility partners through NEEA’s BetterBricks relationships where applicable. For program-specific partnership opportunities, Maria Murphy will coordinate with local utility partners.

¹ Equipment on the *compliant* list has been independently tested, and those units on the *pending compliance* list are awaiting independent testing but have been validated using manufacturer-provided data.

* Based on current project commitments, the program team estimates meeting the threshold of two projects by Q2 2023 versus originally targeted four. More detail provided in ‘Recent Progress’

GOAL 3) Increase availability of qualifying E/HRVs

Target: At least 2 new capacities, 2 new price points or 2 new manufacturers with eligible equipment

Recent Progress	What's Ahead	Coordination & Leveraging Opportunities
<ul style="list-style-type: none"> Program team included the first lower-cost ventilation model in NEEA's compliant product list in Q1 2023 	<ul style="list-style-type: none"> Team will continue engaging with manufacturers to build the compliant products list 	<ul style="list-style-type: none"> ❖ N/A

GOAL 4) Provide market data and evidence to influence the advancement of local, state and federal codes

Target: 1 revised code change proposal submitted for ASHRAE 90.1-2025 development process

Recent Progress	What's Ahead	Coordination & Leveraging Opportunities
<ul style="list-style-type: none"> Participated in commercial International Energy Conservation Code (IECC) HVAC subcommittee meetings to collaborate with industry stakeholders on proposed DOAS definition revision for 2024 IECC. This engagement will also contribute to alignment for parallel incorporation into ASHRAE 90.1-2025. 	<ul style="list-style-type: none"> Team will continue identifying and engaging in relevant IECC and ASHRAE committees throughout 2023 to determine data needed to inform stakeholder decision-making alignment 	<ul style="list-style-type: none"> ❖ N/A

Program Lifecycle



MARKET ACTORS AND TIMING

		Market Actors									Utility Role	
		Manufacturers	Manuf Reps/ Sales Agencies	Distributors	Retailers	Builders/ Developers	Contractors/ Installers	Architects/ Engineers	Designers/ Specifiers	End Use Customers/ Building Owners & Managers		Other (specify)
Key Program Activities	Lab & Field Testing											
	Data Collection & Assessment											
	Incentives		Q1-Q4	Q1-Q4								
	Market Channel Dev	Q1-Q4	Q1-Q4					Q1-Q4	Q1-Q4	Q1-Q4		Q1-Q4
	Market Evaluation											
	Market Research											
	Marketing											Q1-Q4
	Technical Support			Q1-Q4				Q1-Q4	Q1-Q4	Q1-Q4		Q1-Q4
	Training							Q1-Q4	Q1-Q4	Q1-Q4		Q1-Q4
	Technical Research											
	Other (specify)										Q1-Q4 research to inform Codes	

 = Potential Coordination Opportunities (see Coordination & Leveraging Opportunities on p.2-3 for details).

Utility/Program Administrator Related Activities			
Check the box under the activities you are currently implementing			
Training	Incentives	Marketing	Other
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Notes:			

ISCC Q2 2023 VARIABLE SPEED HEAT PUMP ACTIVITY REPORT

NEEA IDENTIFIED COORDINATION & LEVERAGING OPPORTUNITIES SUMMARY (SEE P. 2-3 FOR DETAILS)

- ❖ Attend Q2 ISCC meeting on May 16 ready to share any relevant Res HVAC research, program updates
- ❖ Join Advanced Heat Pump Coalition [link](#)
- ❖ Help improve CEE specifications for heat pumps and best practices. Contact Program Manager [Suzi Asmus](#) to coordinate participation at CEE’s Summer Meeting in Boston June 8-9.
- ❖ Attend any of NEEA’s four upcoming [Product Councils](#) focused on residential heat pump research updates and outcomes

KEY UPDATES:

- **PROGRAM: Inaugural ACEEE Hot Air Forum:** NEEA helped launch, plan, lead opening plenary and facilitate several sessions at the first ever national Hot Air Forum.
- **PROGRAM:** NEEA coordinated Advanced Heat Pump Coalition meetings with 12 top manufacturers at the 2023 **AHRExpo** to introduce and gain support for advanced heat pump improvements
- **PROGRAM:** SME Work sessions on Low Load Efficient, Cold Climate Capable and Connected Diagnostics completed. Findings presented at [June 13th Product Council](#).
- **PROGRAM:** Canadian Standards Association (CSA) published heat pump test procedure CSA SPE07:23 which provides better product performance differentiation than the AHRI test procedure.

RESOURCES FOR UTILITIES:

- [NEEP Cold Climate ASHP Product List](#)
- Product Council recording of NEEP’s Product List [presentation](#) on
- NEEA’s heat pump research reports on [NEEA.org/resources-reports](https://www.neea.org/resources-reports)

Program Overview	
Program Manager	Suzi Asmus
Product Group	HVAC
MT Goal	By 2030 the average residential and small commercial HVAC system installed in NW is 30% more energy efficient than the average system installed in 2020 through improved standards, ratings and EnergyStar specifications, and through new product improvements that reduce dependence on contractor practices.
Program Status	Program Development (entered February 2021)
Product Description	Air source heat pumps with both compressors and fans that can vary their speed to meet heating and cooling demand (2 or more speed compressor, multispeed fans), available in several system configurations: central forced air, ductless, whole home multi split, micro, manufactured home packaged, packaged terminal and dual fuel. Systems must: 1) Meet EPA ENERGY STAR v6.1 certification requirements for heat pumps 2) Include one or more efficiency improvement
Sector(s)	Residential
Target Market(s)	All residential heat pump sales ≤65,000Btu
Key Market Actors	<ul style="list-style-type: none"> • HVAC manufacturers • HVAC distributors • National and extra-regional efficiency partners
Implementation Contractors	<ul style="list-style-type: none"> • None at this time
Program Partners	<ul style="list-style-type: none"> • AHRI, BCHydro, CEE, CSA, DOE, EnergyStar, EPA, Lincoln Electric System, Mass Save, MEEA, MN CEE, NEEP, NRCAN, NYSERDA, ORNL, PG&E, PNNL, Purdue University, Southern California Edison, UL, Xcel Energy

KEY 2023 OPERATIONS PLAN ACTIVITIES – click [here](#) for link to current Operations Plan (p 57-60)

In 2023, the program team is continuing its focus on improving standards and ratings, working with manufacturers to build in product improvements to increase installed efficiency, and reduce reliance on contractor practice. The program team will focus on validating identified improvements and building national alignment around identification, differentiation, and wider adoption of these advanced heat pumps.

GOAL 1) Improve test procedure and metrics to better differentiate product performance

Target: Complete Ratings representativeness project by Q4

Recent Progress	What's Ahead	Coordination & Leveraging Opportunities
<ul style="list-style-type: none"> Rating Representativeness study completed in Q1 Canadian Standards Association (CSA) published the load-based test procedure for heat pumps first edition of CSA SPE-07:23, which supersedes the CSA EXP07 on the same procedure 	<ul style="list-style-type: none"> Rating Representativeness lab research in Q2 NEEA will continue to participate in CSA SPE-07:23 validation work to move it closer to accreditation Work with utility and EE partners to gain alignment between CEE heat pump Tiers and EPA ENERGY STAR Most Efficient specifications 	<ul style="list-style-type: none"> ❖ Register here and attend NEEA's July 11 Product Council to hear preliminary findings of the Rating Representativeness research ❖ Attend CEE Summer Meeting (June 8-9, Boston) and coordinate with NEEA on Residential HVAC topics including heat pump tier criteria

GOAL 2) Identify highest value product improvements for efficiency

Target: Complete product specification for at least 4 high value improvements

Recent Progress	What's Ahead	Coordination & Leveraging Opportunities
<ul style="list-style-type: none"> Completed project to create a market identification and differentiation roadmap for two product improvement (low load efficiency/cold climate capable) Hosted subject matter expert collaborative work session on a third improvement (minimize auxiliary heat) to fill knowledge gaps and identify remaining research needs 	<ul style="list-style-type: none"> Gather data identified in improvement roadmaps (low load efficiency/cold climate capable) Complete third product improvement roadmap project (minimize auxiliary heat) Continue gathering data and validating baseline and savings for full list of improvements 	<ul style="list-style-type: none"> ❖ Register here and attend NEEA's June 13 Residential Heat Pump Advanced Features and Capabilities Product Council presentation ❖ Share with NEEA any heat pump research or pilot projects your utility is currently conducting, planning, or looking for partners on

GOAL 3) Increase market partner (both EE and industry) adoption of highest value improvements
Target: Three high value improvements gain manufacturer support (adopt or indicate plan to adopt)

Recent Progress

- Met with 12 major manufacturers at AHR Expo to introduce and gain feedback and support for advanced heat pump improvements
- Presented research and case for adoption of heat pump improvements at inaugural ACEEE Hot Air Forum to continue building alignment and partnerships among EE community

What's Ahead

- Continue to meet regularly with heat pump manufacturers to partner on heat pump differentiation and research opportunities

Coordination & Leveraging Opportunities

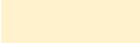
- ❖ [Join](#) the Advanced Heat Pump Coalition to keep up with national subject matter experts, share knowledge, and align efforts to impact market adoption of residential heat pumps
- ❖ Reach out to NEEA to learn more about how these product improvements can benefit your 2024 program goals

Program Lifecycle



MARKET ACTORS AND TIMING

		Market Actors									Utility Role	
		Manufacturers	Manuf Reps/ Sales Agencies	Distributors	Retailers	Builders/ Developers	Contractors/ Installers	Architects/ Engineers	Designers/ Specifiers	End Use Customers/ Building Owners & Managers		Other (EEorgs, DOE, EPA, etc)
Key Program Activities	Lab & Field Testing	Q1-Q4									Q1-Q4	Q1-Q4
	Data Collection & Assessment Incentives	Q1-Q4	Q1-Q4	Q1-Q4							Q1-Q4	
	Market Channel Dev	Q1-Q4		Q1-Q4								
	Market Evaluation											
	Market Research										Q1-Q4	Q1-Q4
	Marketing											
	Technical Support	Q1-Q4										
	Training											
	Technical Research	Q1-Q4		Q1-Q4							Q1-Q4	Q1-Q4
	Other (specify)											

 = Potential Coordination Opportunities (see Coordination & Leveraging Opportunities on p.2 for details)

Utility/Program Administrator Related Activities			
Check the box under the activities you are currently implementing			
Training	Incentives	Marketing	Other
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Notes:			

ISCC Q2 2023 BETTERBRICKS ACTIVITY REPORT

NEEA IDENTIFIED COORDINATION & LEVERAGING OPPORTUNITIES SUMMARY (SEE PP.2-3 FOR DETAILS):

- ❖ Share and amplify content; provide relevant topic suggestions
- ❖ Identify opportunities for case study success stories
- ❖ Provide content and/or participate in case studies
- ❖ Highlight key events and cross-promote when applicable
- ❖ Collaborate on event and speaking opportunities

KEY UPDATES:

- **PARTNERSHIPS:** 2023 Partnership outreach and agreements in-process (see sidebar).
- **Resources:** BetterBricks updated and repackaged outdated resources to create a new Building Renewal Series of educational articles on the BetterBricks website (see below).
- **Market Intelligence Scan:** This is in progress and will propose strategic and innovative EE activities to better serve stakeholders in the Pacific Northwest to reach clean building targets.

RESOURCES FOR UTILITIES:

- [BetterBricks.com](#)
- Lighting Solutions [YouTube playlist](#)
- [LLC utility toolkit page](#)
- [XMP Smart Pump video](#)
- CRTU Field Study [final report](#)
- Building Renewal article series:
 - [What is Building Renewal?](#), [Funding Your Building Renewal](#), [Importance of Measurement and Verification Recognizing and Mitigating Pitfalls](#), [Operations and Maintenance](#), [Marketing a High-Performance Building](#)

Program Overview	
Infrastructure Lead	Josh Pelham, Market Channel Manager, Building Professionals and Trades
Product Group	Enabling Infrastructure
Description	BetterBricks supports the alliance’s commercial and industrial programs by fostering market relationships and providing tools and resources to help raise market awareness and capability for energy-efficient products, services, and practices.
Sector(s)	Commercial, Industrial
Target Market Actors	<ul style="list-style-type: none"> • Architects and building designers • Engineers • Building owners and managers • Specifiers/system designers
Implementation Contractors	<ul style="list-style-type: none"> • Re-Tech Advisors (partnerships and outreach)
Program Partners	<ul style="list-style-type: none"> • U.S. Department of Energy: Better Buildings Initiative • Integrated Design Labs • BOMA OR • AIA OR • AIA Seattle • NEEC • Seattle 2030 • New Buildings Institute

KEY 2023 OPERATIONS PLAN ACTIVITIES – click [here](#) for link to current Operations Plan (pp. 101-104)

GOAL 1: Create new market engagement opportunities and develop deeper market understanding to support current and future MT efforts.

Target: Identify and partner with 3 influential market leaders to engage and educate commercial building market

Recent Progress	What's Ahead	Coordination & Leveraging Opportunities
<ul style="list-style-type: none"> • BetterBricks is currently completing a market inventory to identify and analyze existing models for engagement with the commercial sector around whole building approaches to energy efficiency. The results will lead to a deeper market understanding and potential interventions. • BetterBricks updated a Relationship Gap Analysis first completed in 2022 to evaluate current BetterBricks partnerships and determine where to prioritize engagement. • BetterBricks continues to engage with key partners, including Seattle 2030, AIA Oregon and NEEC. These conversations, particularly with Seattle 2030, have provided salient market intelligence on the topic of compliance and HB1257 and are helping shape plans to support the market. • BetterBricks expanded market engagements by speaking at events such as the Powerful Facility Energy Conference in Q1 2023. 	<ul style="list-style-type: none"> • The LLLC team will be speaking at a BOMA Idaho event in May 2023, an organization with which BetterBricks is working to more consistently engage. • BetterBricks will continue to monitor and track potential partner organizations to partner with new influential market leaders to engage and educate the commercial building market. • Exploring partnerships with additional BOMA and AIA chapters across the region. • BetterBricks will be using information gained in the market inventorying work to identify target partners with whom we have not previously or recently engaged. 	<ul style="list-style-type: none"> ❖ We would welcome and appreciate suggestions about possible market partners and collaborations, as well as introductions via utility relationships ❖ Share BetterBricks communications to help boost program participation ❖ Share tradeshow booth space and/or attend industry events together ❖ Share and amplify BetterBricks content. ❖ Identify, flag and/or participate in success stories for potential case studies ❖ Make us aware of your content and tools to which BetterBricks.com can drive traffic ❖ Link to and leverage BetterBricks.com as appropriate in your work ❖ Partner with BetterBricks and/or program teams on trainings (identifying training opportunities, delivering trainings, promoting trainings, etc.) ❖ Provide info on your trainings and events for BetterBricks to amplify through its owned channels

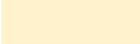
GOAL 2: Increase awareness, access, relevance, and utilization of BetterBricks resources to move the market toward higher performing buildings.

Target: Partner with program teams and/or market leaders to develop 7 new resources specific to whole building efficiency or integrated design

Recent Progress	What's Ahead	Coordination & Leveraging Opportunities
<ul style="list-style-type: none"> • BetterBricks updated and repackaged outdated resources to create a new Building Renewal Series of educational articles on betterbricks.com/. • BetterBricks has created and published a new blogpost discussing Strategic Energy Management as well as published 2 new white papers, 1 new blogpost, and refreshed a training guide on HVAC energy efficiency. • In Q1 2023, BetterBricks communicated with NEEC, Seattle 2030, BOMA Idaho, and BOMA Oregon to explore educational opportunities around energy efficiency. • BetterBricks produced a refreshed brand identity and activation handbook, continuing the evolution toward becoming a more user-centric and relevant resource for integrated building design information. 	<ul style="list-style-type: none"> • BetterBricks will be present at NBI's Net Zero conference in May, as attendees and event sponsor (no booth). • BetterBricks will attend the 2030 Vision Awards with Seattle 2030 in April as attendees and event sponsor (no booth). • Partner discussions have led to educational opportunities with AIA Oregon and BOMA Oregon, the latter in partnership with Energy Trust. • BetterBricks is working on new content related to whole building efficiency and integrated design to publish throughout 2023. • BetterBricks will attend and speak at the Department of Energy's Better Buildings Summit in April. • BetterBricks will finalize the brand identity assets, then begin rolling them out across our owned marketing channels and training internal and external partners on how to use them. 	<p>Coordination & Leveraging Opportunities</p> <ul style="list-style-type: none"> ❖ We would welcome and appreciate suggestions about possible market partners and collaborations, as well as introductions via utility relationships ❖ Share BetterBricks communications to help boost attendance at speaking sessions/trainings ❖ Share tradeshow booth space and/or attend industry events together as possible ❖ Consider collaborating and sharing time at individual speaking engagements ❖ Consider collaborating on upcoming BetterBricks webinar series by participating and sharing information on available programs and incentives ❖ We are still interested in increasing collaborations in ID and MT. Please reach out with any ideas or contacts. ❖ Providing information/plans around utility partner E&T efforts can inform our best practice and inventorying work, adding more opportunities for collaboration

MARKET ACTORS AND TIMING

		Market Actors									Utility Role	
		Manufacturers	Manuf Reps/ Sales Agencies	Distributors	Retailers	Builders/ Developers	Contractors/ Installers	Architects/ Engineers	Designers/ Specifiers	End Use Customers/ Building Owners & Managers		Other (specify)
Key Program Activities	Lab & Field Testing											
	Data Collection & Assessment											
	Incentives											
	Market Channel Dev						Q1-Q4	Q1-Q4	Q1-Q4	Q1-Q4		Q1-Q4
	Market Evaluation											
	Market Research											
	Marketing						Q1-Q4	Q2-Q4	Q2-Q4	Q2-Q4		Q2-Q4
	Technical Support											
	Training											
	Technical Research											
	Other (specify)											

 = Potential Coordination Opportunities (see Coordination & Leveraging Opportunities on p.2-4 for details)

Utility/Program Administrator Related Activities			
Check the box under the activities you are currently implementing			
Training	Incentives	Marketing	Other
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Notes:			

ISCC Q2 2023 HIGH PERFORMANCE WINDOWS (HPWs) ACTIVITY REPORT

NEEA IDENTIFIED COORDINATION & LEVERAGING OPPORTUNITIES SUMMARY:

- ❖ Consider direct involvement in PAWS Utilities working group if you have a strong interest in windows measures at your utility; working group provides connection to other utility program staff and access to program design resources. If you are interested, contact Elaine Miller at emiller@neea.org.

KEY UPDATES:

- **PROGRAM:**
The program is continuing the volume builder pilot in 2023 with three different builders than from 2022, to get builders used to installing High-Performance Windows and to encourage builders to choose High-Performance Windows for their standard offering in new homes in the Northwest.
- **ENERGY STAR®:**
[Version 7.0 spec update](#) will go into effect October 23, 2023. Update will lower northern climate zone spec to U-value 0.22.

Manufacturers are preparing for this change.
- **MARKET RESEARCH:**
Third-party validation of NEEA’s Naturally Occurring Baseline is expected to be published by Q3 2023.

RESOURCES FOR UTILITIES:

- [Habitat for Humanity Case Study](#)
- [Triple-Pane Windows Flyer](#)
- [Partnership for Advanced Windows \(PAWS\) website](#)
- [PAWS Utility Playbook](#)
- [Storm Window and Insulating Panel Utility Playbook](#)
- [Now is the Time for Advanced Window Solutions](#)

Program Overview	
Program Manager	Tamara Anderson
Product Group	Building Envelope
MT Goal	Over 50% of windows sold in the Northwest have a U-value of 0.22 or less.
Program Status	Program Development (2024) – see p.3
Product Description	High performance windows (HPW) are residential primary windows with two or more panes, a U-value of 0.22 or less, and a width and weight akin to standard double pane windows, making them easy to install in standard window sash and wall designs.
Sector(s) Target Market(s)	Residential New construction, existing homes, single family, multifamily, manufactured homes
Key Market Actors	<ul style="list-style-type: none"> • Primary window manufacturers • Glass/IGU manufacturers • Residential builders • Window suppliers, distributors, and retailers • Window installers
Implementation Contractors	<ul style="list-style-type: none"> • TRC Engineers, Inc. (field testing with builders)
Program Partners	<ul style="list-style-type: none"> • Partnership for Advanced Window Solutions (PAWS) • National Fenestration Rating Council (NFRC) • Lawrence Berkeley National Lab (LBNL)

KEY 2023 OPERATIONS PLAN ACTIVITIES – click [here](#) for link to current Operations Plan (p.p. 39 -43)

The overall Market Transformation theory focuses first on stimulating national builder and consumer demand for HPWs, which will motivate manufacturers to then meet that demand with scaled production and subsequent price declines. In addition, pushing the ENERGY STAR specification to HPW performance levels will serve as the longer-term diffusion mechanism to reach the large existing home and multi-family window replacement market. Over time, the program will push for HPW performance levels to be included in building codes with the long-term goal of over 50% of windows sold in the Northwest at 0.22 U value or less.

GOAL 1: Engage with builders in a pilot to increase their use of HPW as a standard offering in new homes.

Target: Three builders grow their use of HPW as standard offering in new homes in the Northwest by Q4.

Recent Progress	What’s Ahead	Coordination & Leveraging Opportunities
<p>Two of the four builders who participated in the volume builder pilot in 2022 have committed to continue their use of High-Performance Windows in future builds, as documented in the exit interviews from the project and the 2022 final report. The other two builders who participated in the volume builder pilot for 2022 will continue to consider High-Performance Windows as a path to energy efficient homes.</p>	<p>The program is continuing the volume builder pilot in 2023 with three different builders and have confidence that at least one more builder will continue their use of High-Performance Windows when building new homes in the Northwest.</p>	<p>NEEA anticipates a share out in November on 2023 builder pilot results.</p>

Goal 2: Engage with manufacturers to co-create strategies for scaling future supply of HPW to meet growing demand.

Target: Two leading manufacturers supplying the Northwest develop roadmap to scale production of HPW by Q2.

Recent Progress	What’s Ahead	Coordination & Leveraging Opportunities
<p>Seven large window companies dominate sales in the Northwest and are also active in California and Canada. Currently, hybrid triple pane windows are available and scalable to meet demand from Andersen, Marvin, Milgard, Pella, PlyGem and Prime (the latter two are brands owned by Cornerstone Building Brands).</p>	<p>A national manufacturer with regional manufacturing capacity is nearing commercial launch of its thin triple window (it does not make a hybrid triple at this time).</p>	<p>None at this time.</p>

Goal 3: Finalize key intervention strategies and transition to Market Development.

Target: Program Advancement presented to RPAC and NGAC by Q4 of 2023, no later than Q2 2024

Recent Progress

The program is working with a major window association, manufacturers, and suppliers to gain access to data for the program.

What's Ahead

- The program will require more time in program development than originally anticipated to assess the program benefit-cost ratio, refine program logic, target market(s), and intervention strategies.
- Additional market research may be needed to understand gaps in potential data streams.

Coordination & Leveraging Opportunities

Currently, the program team is tracking to the threshold for this goal, with presenting to RPAC and NGAC for Program Advancement in Q2 2024.

Program Lifecycle



MARKET ACTORS AND TIMING

		Market Actors									Utility Role
		Manufacturers	Manuf Reps/ Sales Agencies	Distributors / Window Suppliers	Retailers	Developers/ Builders	Contractors/ Installers	Architects/ Engineers	Designers/ Specifiers	End Use Customers/ Building Owners & Managers	
Key Program Activities	Lab & Field Testing	Q1-Q4		Q1-Q4		Q1-Q4					
	Data Collection & Assessment	Q2-Q4		Q2-Q4	Q1-Q4					Q2-Q4	
	Incentives					Q1-Q4					
	Market Channel Dev	Q1-Q4				Q1-Q4					
	Market Evaluation										
	Market Research	Q3-Q4		Q3-Q4							
	Marketing	Q2-Q4		Q2-Q4		Q2-Q4					
	Technical Support	Q1-Q4				Q1-Q4					
	Training										
	Technical Research										
	Other (specify)										

= Potential Coordination Opportunities (see Coordination & Leveraging Opportunities on p.2-3 for details)

Utility/Program Administrator Related Activities			
Check the box under the activities you are currently implementing			
Training	Incentives	Marketing	Other
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Notes:			