



Natural Gas Advisory Committee

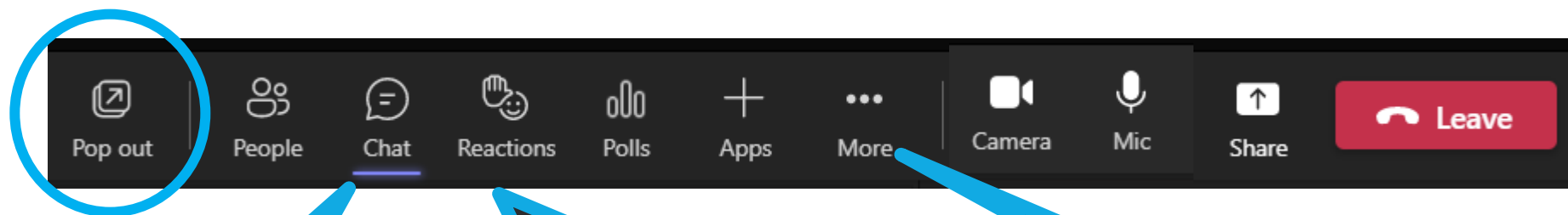
Q4 2023 Meeting

October 19, 2023
Virtual





Tools for Today: Engaging on Teams



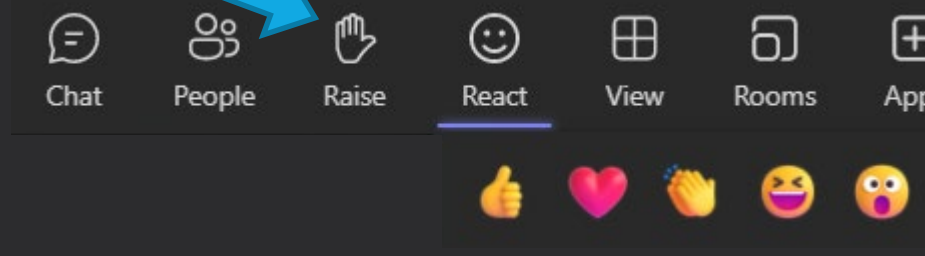
The chat is not captured in the recording.

Do you have any accessibility challenges with this technology today?



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





Agenda

All times Pacific

10:30-10:50	Welcome and Introductions
10:50-11:20	Market Transformation Refresher
(10 min)	Break
11:30-12:30	Advanced Commercial Gas Water Heating
(45 min)	LUNCH
1:15-1:35	Round Robin
1:35-1:55	Residential Gas Heat Pump Regional Pilot Opportunity
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2:30-3:50	Quarterly Portfolio Update (Q3 Recap)
3:50-4:00	Public comment, wrap up and adjourn



Introductions

- Name
- Organization
- *And...*

XXX





Agenda

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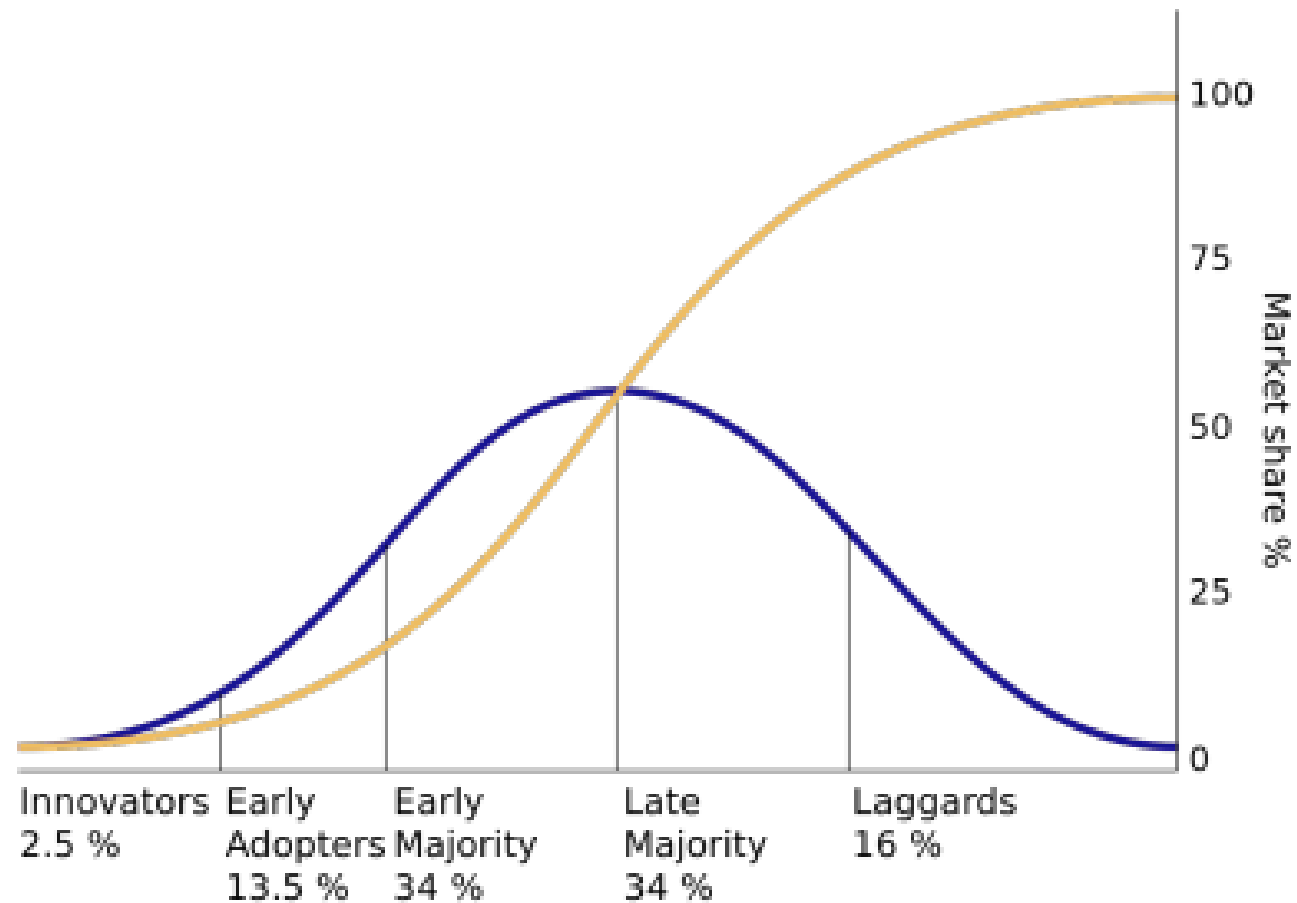
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What is Market Transformation?

Short definition:

The strategic process of intervening in the market to create lasting change.

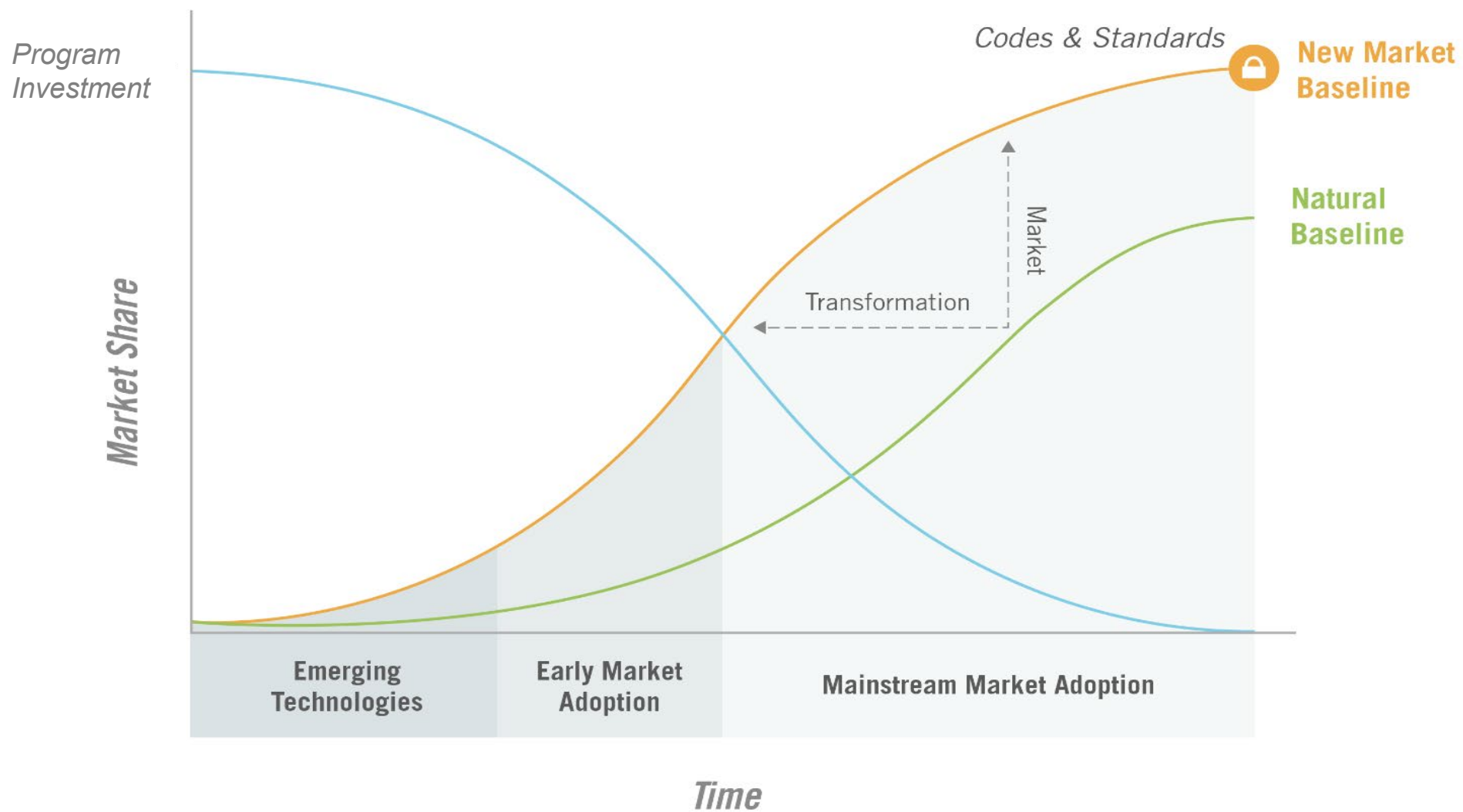
Underlying theory: Diffusion of Innovation



From Diffusion of Innovations, 5th Edition, 2003, Everett Rogers



Market Transformation in one chart





The Initiative Lifecycle: NEEA's “strategic process”



Concept Development

- Screen for regional opportunity/ application
- Develop initial market transformation theory and associated technical savings potential

Advancement to next phase = allocate resources to define “is this worth pursuing and what is NEEA’s role”

Program Development

- Develop understanding of the efficient “product”
- Develop Market Characterization and Baseline
- Identify Barriers and Opportunities
- Develop Interventions and Metrics

Program Development Activity: Product Research and Definition

Example:
Expanding product
definition from
Condensing RTUs
to Efficient RTU

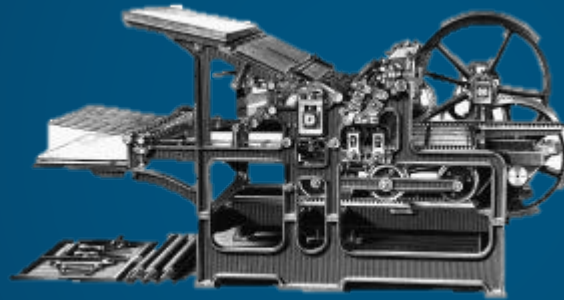
Technologies



100s



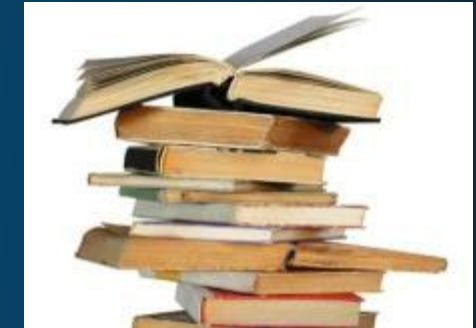
Products



10s



Applications



1000s

Program Development Activity: Market Characterization

Buyers, Sellers, Supply and Demand

Example:
Pumps:
importance of
manufacturers
reps

Supplier

Manufacturer

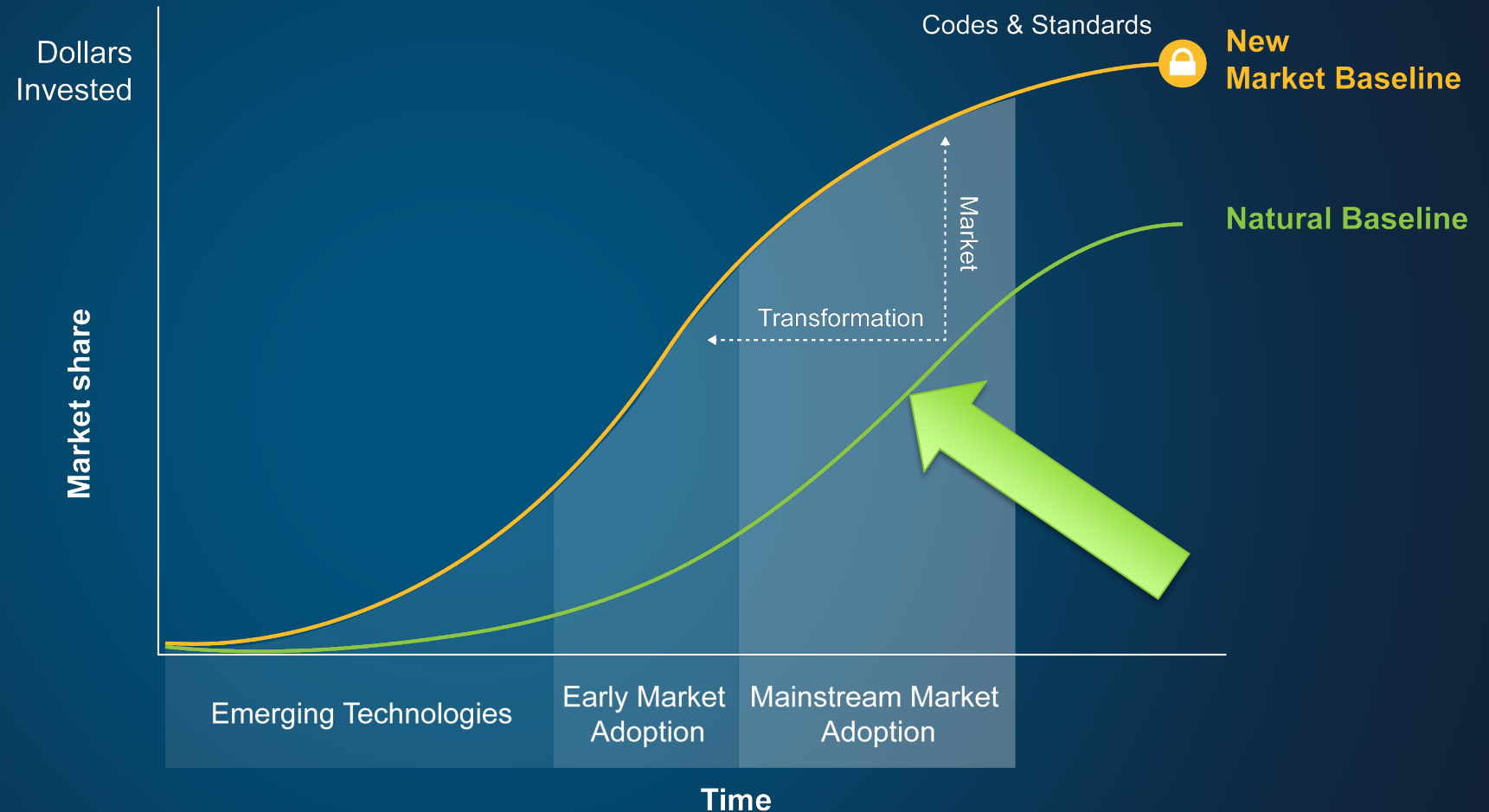
Distributor

Retailer

Consumer/
Decision Maker

Program Development Activity: Market Baseline Modeling

Market Baseline



Natural Market Baseline; or “What would have happened in absence of utility funded interventions?”. Aka “counter-factual” baseline. Aka “alternate universe”

Program Development
Activity:

Identify Barriers and Opportunities



Lack of Awareness/
Information

Example:
Reduced
wattage lamps
were special
order



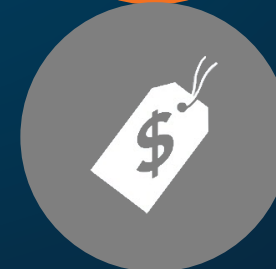
Lack of Knowledge/
Capability



Lack of Availability



Product Features/
Quality



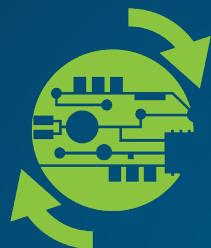
High First Cost

Program Development Activity: Identify Barriers and Opportunities

Example:
IRA tax credits



Consumer Preferences



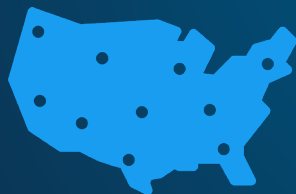
Technology Changes



State and Federal
Legislation



Codes & Standards
Spec Revisions



National
Market Changes



Regional/National
Supply-Side Market Actors



Economic Changes

Program Development Activity: Develop Intervention Strategies



**Provide credible
information**



**Build market capacity
knowledge and experience**



**Redefine the value
proposition**



**Align EE product
with Consumer Needs**

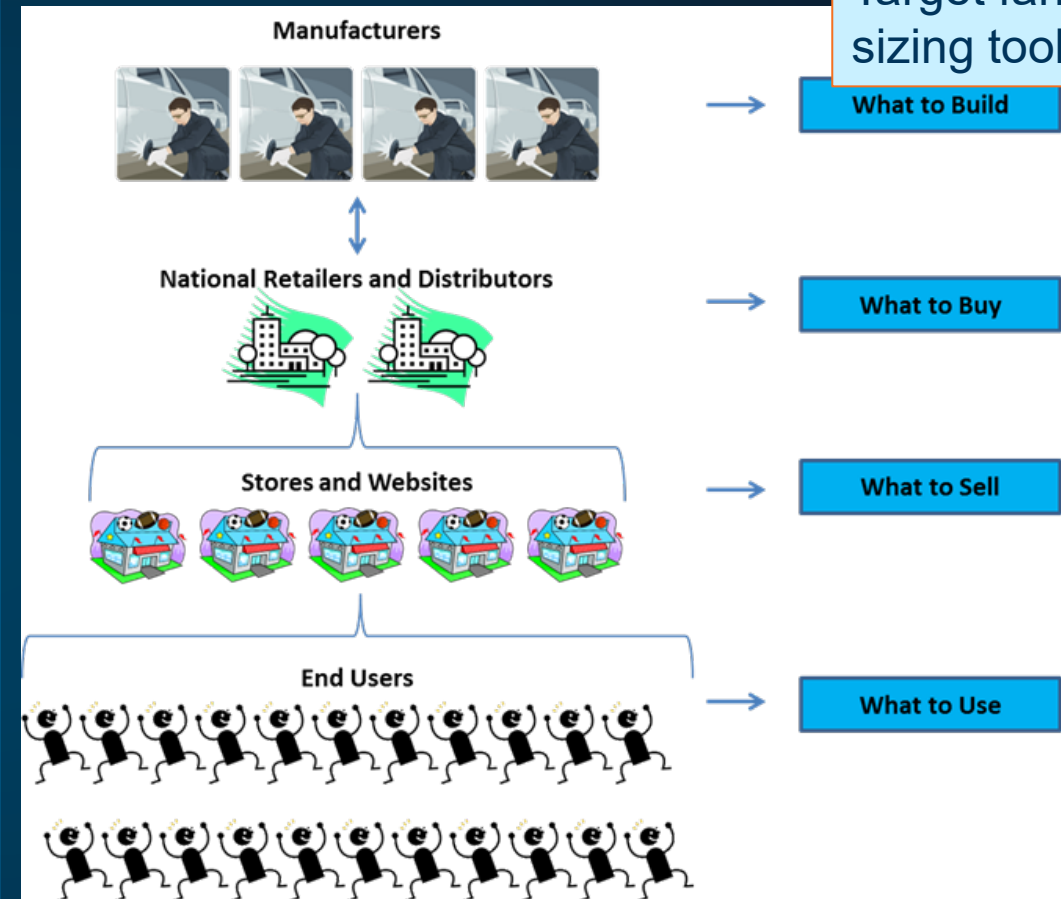


**Influence energy codes
and standards**

Example:
Advanced Heat
Pumps: establish
metrics and
incorporate into
specs and
standards

Intervention strategies: Looking for leverage and right role for NEEA

Example:
Smart fans:
Target fan
sizing tools



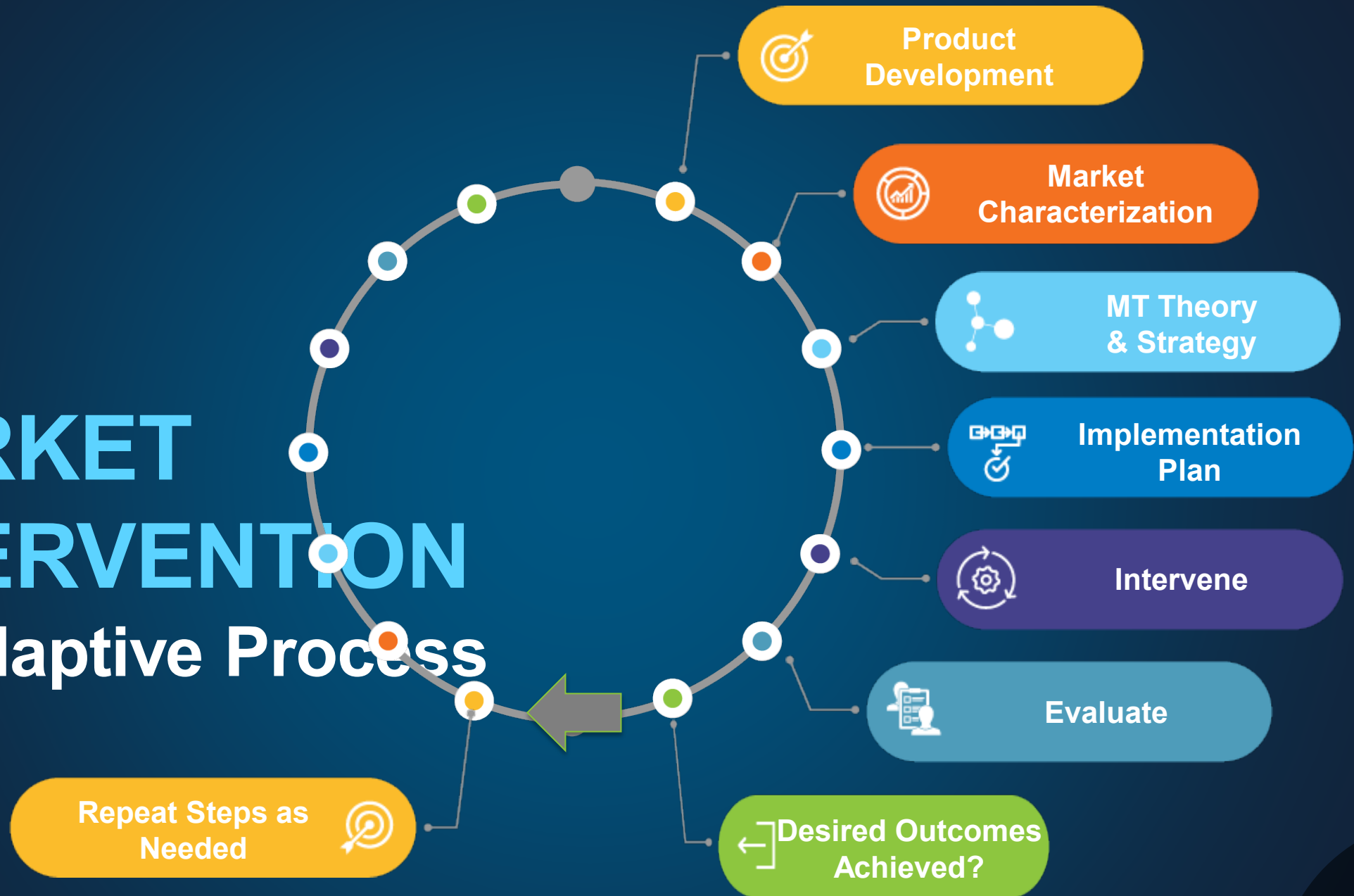
Program Development Activity: Define Key Metrics & Market Progress Indicators



Example:
Efficient RTUs
metric to
increase the
manufacturers
offering product

MARKET INTERVENTION

An Adaptive Process





Concept Advancement: What does a 'yes' vote mean?



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



Break!



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» Advanced Commercial Gas Water Heating - Concept Advancement

Neil Grigsby

NEEA

Ngrigsby@neea.org





Agenda

- Milestone Criteria
- Overview of the Opportunity
- Key Activities in Program Development



Concept Advancement Milestone

Stage gate criteria for Concept Advancement includes:

- **Preliminary Market Transformation Theory:** The market transformation theory represents a reasonable hypothesis, and it includes hypothesized barriers, interventions, how it diffuses, leverage points, and outcomes.
- **Product:** We have a reasonable product definition and clear product assessment/validation objectives.
- **Savings:** The energy savings potential is worth the anticipated cost/effort to intervene in the market, and we anticipate a viable way to measure savings.
- **Market:** We have reasonable preliminary target/defined market, as well as application.
- **Portfolio:** This program supports short-term and long-term portfolio needs, and there are available resources.



Commercial GHP Water Heating Overview



Past Research

- Robur Heat Pump Field Trial
 - Achieved a system COP of 1.06
- Vicot lab testing
 - Achieved a system COP of 1.72 delivering hot water at 120-degrees F
- Energy 350 Technical Research and Savings Assessments
 - Outlined barriers to GHP adoption
 - GHPs can achieve carbon savings compared to boilers and electric heat pumps





GHPs: Why Now?

- New developments in GHP technology
 - Product Improvements
 - Expanding commercial applications
 - New manufacturers coming to market
- Market momentum for gas heat pumps
 - Product developments, bi-national stakeholder interest
 - Co-funding and collaboration opportunities
 - Decarbonization efforts
- A straightforward MT effort for NEEA



Opportunity Summary

Technology: A Gas Heat Pump (GHP) as the primary heat source within a commercial or multifamily central water heating system.

Technical Potential: 42 million total therms

Target: mid/high-rise multifamily and commercial buildings

- *majority of savings opportunity is in retrofit and a small amount in new construction*

Barriers/Opportunities:

- High first cost (*barrier*)
- Lack of defined value proposition for decision makers (*barrier*)
- High degree of system design, installation, and operational complexity (*barrier*)
- Ongoing commercialized product development (*opportunity*)
- Code limitations/opportunities for natural gas water heating (*opportunity/barrier*)

Strategy: Develop a GHP water heating business case and value proposition for multifamily/commercial building owners and decision makers. As increased demand influences supply chain support and pricing, federal standards revisions for gas water heating technology will eventually exceed 1.0 Thermal Efficiency.



Target Market

- Buildings with high daily hot water demand
 - Healthcare
 - Multifamily
 - Lodging
 - Restaurants
- Best suited to replace larger sized tanked water heaters found in larger commercial spaces





Program Development: Key Activities

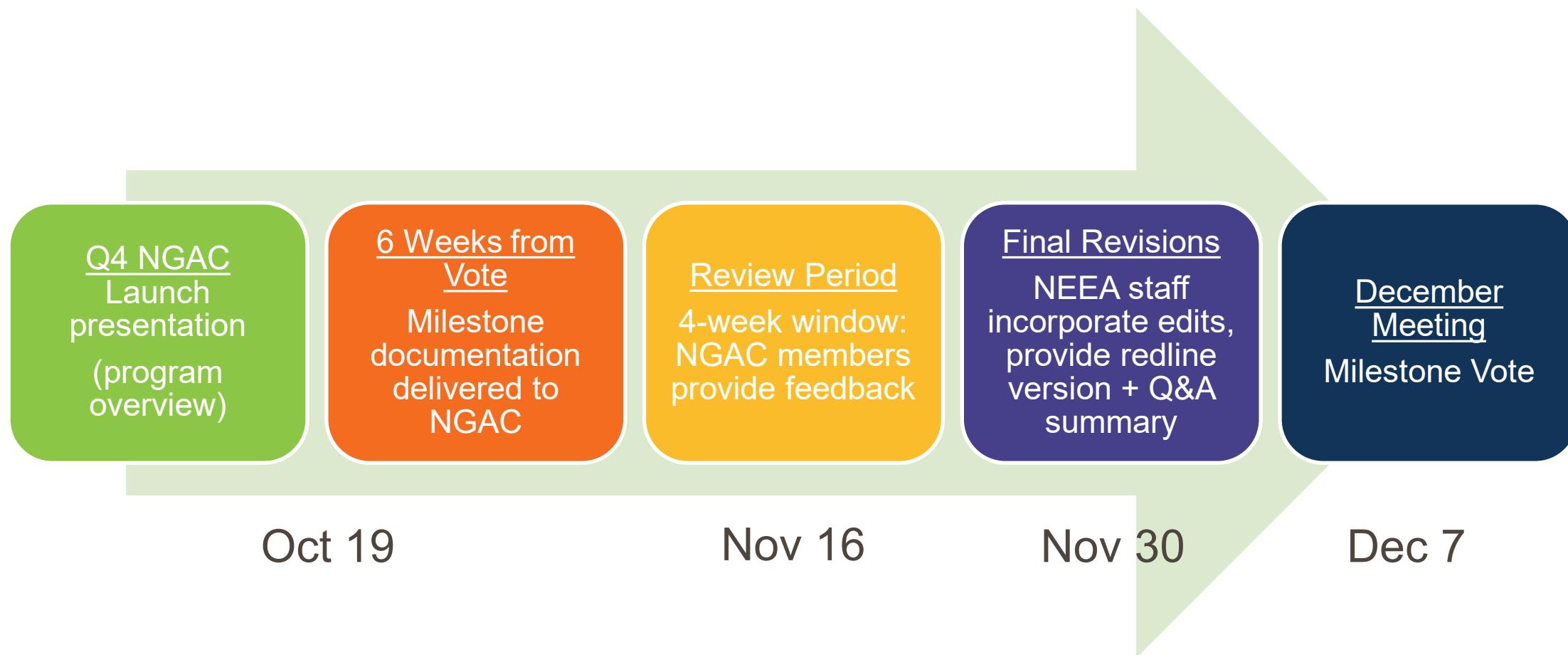


Key Activities in Program Development

Goal	Objectives	Timing
Validate Product Performance and Energy Savings	<ul style="list-style-type: none">- Measure energy savings- Monitor product performance	Q1 2024 – Q4 2025
Refine the target market, energy savings model inputs, and value proposition	<ul style="list-style-type: none">- Collect data through a Market Characterization study- Receive key market actor feedback	Q1 – Q4 2024 (Market Characterization) Q1 2024 – Q4 2025 (Demonstration projects)
Confirm or revise barriers to product adoption and intervention strategies	<ul style="list-style-type: none">- Learn supply chain, installation, and operational challenges/best practices- Identify market leverage points	Q1 2024 – Q4 2025



Preparing for NGAC Vote





Questions

Are there any critical questions to address as we prepare for the NGAC milestone review?

→ Please reach out if you have questions that would be best addressed by a 1:1 with your team and NEEA staff

» Neil Grigsby

Market Transformation Manager, Water Heating
ngrigsby@neea.org



LUNCH!

[Please return by 1:15 Pacific]





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Round Robin

- Focus: Organizational & program highlights since July





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Residential Gas Heat Pump Field Opportunities

- Product updates
- Process overview
- Opportunities
- Next steps



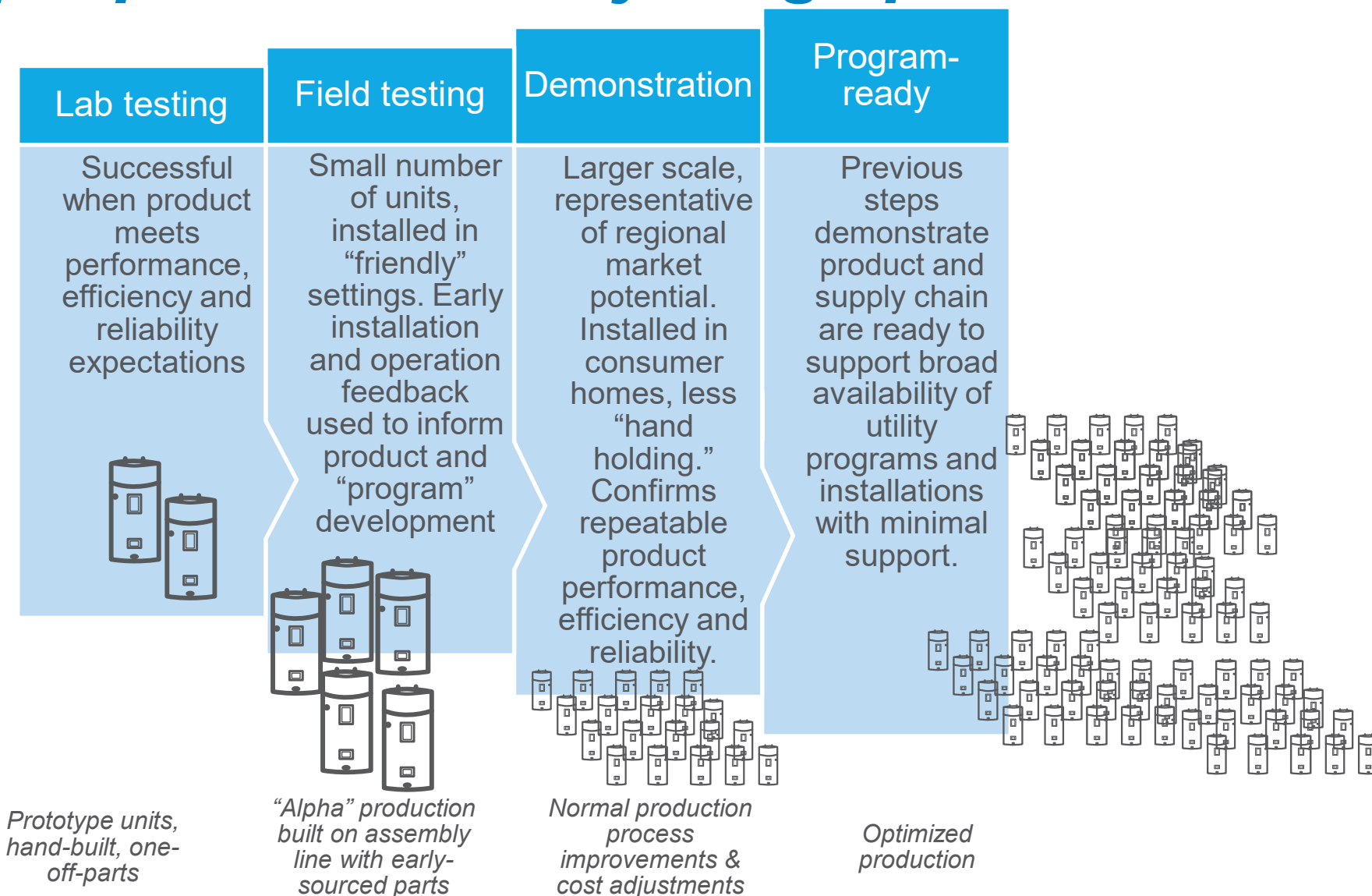


Residential Product Updates

Product	Manufacturer overview	Production version completed successful lab testing?	Earliest recommended NW field installations	Notes
Vicot V20	Established manufacturer, series production (small volume)	No (In-Progress)	Late 2024	GTI unable to start test unit, multiple issues, working with Vicot to troubleshoot. Enbridge has units installed but not operational.
SMTI/Anesi	New manufacturer, series production scheduled	No (Planned)	Late 2024	NEEA staff visiting production facility late October, GTI scheduled to test early series production unit
Robur K18	Established manufacturer, series production of EU-compliant product	Yes	Mid 2024	Units would not be NA compliant, pilot only
Ariston	Established manufacturer	No	TBD	Establishing EU sales/distribution, unit availability TBD



Example process – Early-stage product testing





Opportunities

- Vicot and Anesi – NA-compliant units field testing late 2024; durability and reliability needs to be proven
- Robur K18 – EU-compliant units field testing mid-2024
- Ariston – EU-compliant units lab testing, ETA TBD
- **Commercial GHPWH** – Vicot V65 available for field installation 3-6 months. Additional products/ field installations possible pending successful vote on Commercial GHPWH program.



Discussion and next steps

- Organizational priorities
- Perspectives
- Questions
- Next steps

*What's on
your mind?*



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Housekeeping & Looking Ahead

- Whole Buildings Update
- Product Council updates
- Dual Fuel Workgroup Update
- [Notes](#) & action items from July 26
- Looking Ahead
 - 2024 Operations Planning update
 - Stakeholder Satisfaction Survey
 - Upcoming meetings & events
 - 2024 EFX Call for Topics (deadline Oct 27)
 - Leadership in Energy Efficiency Awards Dec 4
 - Dec 7 interim webinar ***Vote***
 - 2024 meeting schedule



Whole Buildings Update



Commercial Whole Building Efficiency

Debbie Driscoll

*Prepared for the Natural Gas Advisory Committee Mtg
October 19, 2023*




neea



In Washington & Oregon

- **100's** of custom projects/year
- **10,000's** of Tier 1 buildings
- **100,000's** of Tier 2 buildings

...with increasingly stringent performance standards in future years.





Vision for Commercial Whole Building Efficiency

Motivate and accelerate buildings toward meeting or exceeding state and local policy goals and/or their organization's sustainability goals in a way that is accessible *at scale*, centered on efficiency, and attractive to building owners because it helps them be successful.

Barriers

- Lack of awareness of comprehensive efficiency opportunities and value proposition
- Lack of technical and financial resources and infrastructure
- Complexity

Opportunities

- Proven business case and case studies for existing building renewal
- Building performance standards and Corporate/municipal sustainability goals
- New technologies and strategies



Priority strategies

- **Support longer-range planning** to maximize benefits
- **Enable scale** by engaging the market
- **Illuminate path to financing** by providing information and build infrastructure



Special Project: Proposed Approach

Discovery

- Evaluate existing technical and financial practices, tools and resources (building community, utility, NEEA, DOE, etc.).
- Explore data-driven methods to aggregate buildings and automate engagement.
- Consider how to enhance the value proposition for buildings and utilities by integrating load flexibility.

2024

Prototype and Pilot

- Prototype solutions.
- Conduct iterative pilots; identify and refine most effective approaches.
- Identify **scalable process for planning, financing, and implementing high performance buildings**

2025-2026

Engage

Build market transformation program informed by findings.

2026+



Next steps in path from concept to reality

October

NEEA discussions with interested funders to solicit feedback and gauge interest

December

NEEA develops Special Project proposal, with a more detailed project plan and scope

If this Special Project may be of interest to your organization, please reach out to Debbie Driscoll DDriscoll@neea.org



Product Council Updates

Noe Contreras

Product Manager, Gas

NContreras@neea.org





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<https://neea.org/subscribe>



Submit an Emerging Technology idea
<https://neea.org/get-involved/submit-your-idea>



Attend Product Council (most Tuesdays)
<https://neea.org/get-involved/product-council>



Reach out directly via email
eolson@neea.org

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Address 2		
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City	State	Zip Code
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Preferred Phone		Fax
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<input type="button" value="SUBMIT"/>		



Role of Carbon Capture in Decarbonizing Buildings

- Carbon Pricing & Credits
- Key Players
- Lifecycle assessment showed a 21-27% reduction in GHG emissions

GTI Energy
working with Clean O2



Presentation not recorded
If interested in learning more, please contact [@Noe Contreras](#)

A faint, light blue geometric logo is centered in the background. It consists of several interlocking diamond shapes that form a larger, complex pattern.

Work Group Updates (more to come in Q1)



July 26 Notes & Action Items

- Notes
 - Action items
 - ✓ Meghan Bean to follow-up with NEEA's Codes and Standards team about code compliance enforcement for Washington Energy Code.
 - ✓ Mark Rehley to follow-up on the cost differences for the points pathways.
 - ✓ Noe Contreras to bring new gas heat pump manufacturer to Product Council when they are ready.
 - Additional edits or questions?



2024 Operations Plan Timeline



Oct. 12: Full draft plan sent to Board, RPAC & NGAC

Oct. 12 – Nov 1:
Feedback period for Board and committee members

December 5:
Board vote on final 2024 Operations Plan



**CALL FOR
SESSION TOPICS**

**| COEUR D'ALENE, IDAHO
| MAY 14–15, 2024**

Efficiency Exchange 2024
Submit a Session Idea
neea.org/EFX
Deadline October 27



➤ Join us for the hybrid ceremony!

NEEA's Board and staff will recognize individuals and teams for their exemplary dedication and performance in energy efficiency during the NEEA Board Annual Meeting on **December 4**.

**Rising Star
Innovative Collaboration
Lifetime Achievement**

To RSVP* go to: neea.org/leadershipawards

**in-person attendees must RSVP by Nov. 17*



Upcoming Meetings

Date	Event
Oct 24	CEAC Dual Fuel Measurement Work Group
Oct 26	2024 Draft Operations Plan Webinar
TBD	NGAC Dual Fuel Product Work Group
Dec 7	Interim NGAC webinar* (1-2pm) - <i>confirmed</i>



***Key Q1 Topic(s): *VOTE* on Advanced Commercial Gas Water Heating**



2024 Meeting Schedule



Last Chance: Any major industry or organizational conflicts?

QUARTER	DAY	DATE	TIME (PACIFIC)
Q1'24	Wednesday	Jan 31	9am – 4pm hold
Interim Webinar	Thursday	Mar 7	1-2pm hold
Q2'24	Wednesday	Apr 24	9am – 4pm hold
Interim Webinar	Wednesday	June 5	1-2pm hold
Q3'24	-	No Q3 mtg	-
Interim Webinar	Thursday	Sept 19	1-2pm hold
Q4'24	Tuesday	Oct 22	9am – 4pm hold
Interim Webinar	Monday	Dec 9	1-2pm hold





*Other regional /
industry events or
announcements?*





Break!



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➤ PORTFOLIO UPDATE

- *Financials Review*
- *Progress Report Highlights (Q3'23 recap)*





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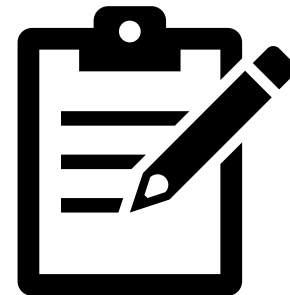
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A piece of brown paper with a string tied in a bow. The string is a light brown, twisted cord. It is tied in a bow that is centered on the right side of the paper. The bow has two loops, one pointing upwards and one pointing downwards. The string extends horizontally across the middle of the paper, and then vertically down the right side. The background is a solid, textured brown paper.

Let's wrap it up!



Action Items | Any Final Qs?



NGAC Member Action Items

1. Adv Commerc Gas WH:
 - ✓ Review milestone doc (4 weeks)
 - ✓ Email feedback to Alisyn **by Nov 16**
 - ✓ Let Alisyn know ASAP if you/your team would like a 1:1 to discuss the document and/or upcoming vote
 - ✓ Come to Dec 7 webinar & vote
2. Review 2024 Draft Ops Plan
 - ✓ Feedback due **Nov 1**
3. Res Gas Heat Pump
 - ✓ Let Aaron know if you want to explore field demo opportunities **by xx**
4. Whole buildings
 - ✓ Let Debbie know if you want to explore or participate in this special project opportunity **by xx**

NEEA Action Items



Public Comment?
Closing Remarks?

» Until we meet again...

Upcoming Meetings (all times Pacific):

- *CEAC Dual Fuel Measurement Work Group: Tuesday, Oct 24*
- *2024 Gas + Electric Operations Planning Webinar: Thursday, Oct 26 (1230-430)*
- *NGAC Dual Fuel Product Work Group (Q4 mtg TBD)*
- ****VOTE* - Advanced Commercial Gas Water Heat: Thursday, Dec 7; 1-2pm***

