



Regional Portfolio Advisory Committee

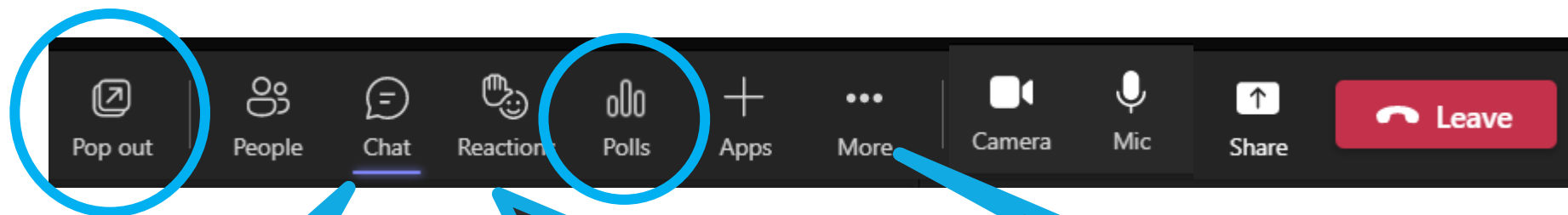
Q2 2023: May 18
9:30am – 3:15pm (Pacific)
Hybrid




neea



Tools for Today: Engaging on Teams

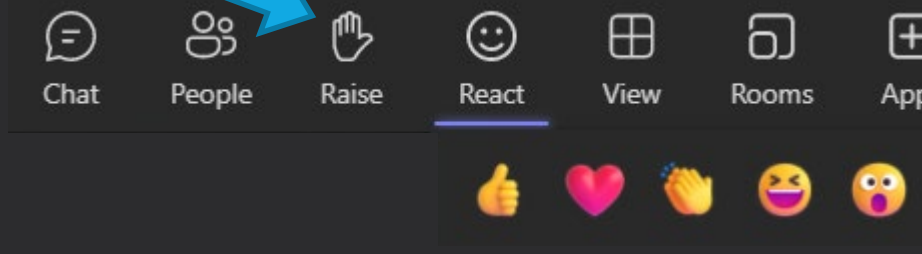


The chat is not captured in the recording.

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





Welcome New RPAC member!

❖ *Laura James, Pacific Power (replacing Don Jones)*





Introductions

- Name
- Organization
- *And...*

XXX





Agenda

All times Pacific

9:30-9:50	Welcome, Introductions and Agenda
9:50-10:20	RPAC Round Robin <ul style="list-style-type: none">• 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
10:20-10:45	Housekeeping and Looking Ahead <ul style="list-style-type: none">• Announcements: EFX Recap• HPWH Consumer Consideration Marketing Campaign• Business Planning Update• Federal Funding Coordination Work Group Update
15 min	<i>BREAK</i>
★ 11:00-12:00	Market Transformation Refresher
45 min	<i>LUNCH</i>
12:45-1:00	Portfolio Update
★ 1:00-1:45	Variable Speed Heat Pumps <ul style="list-style-type: none">• Prep for Program Advancement milestone vote (Q3)
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★ 2:00-3:00	Manufactured Homes Update
3:00-3:10	Public Comment, meeting debrief and adjourn

Role of Market
Diffusion &
NEEA's criteria
for decision
making

Packet Review & Informational Updates



- Tier 1: Agenda Focus Items

- ✓ *Market Transformation Overview (pg. 3)*
- ✓ *Electric Portfolio Update (pg. 4-12)*
- ✓ *Variable Speed Heat Pumps (pg. 13)*
- ✓ *Manufactured Homes Update (pg. 14)*

- Tier 2: Informational Updates

- ✓ *HPWH Consumer Consideration Campaign (pg. 15)*
- ✓ *Update: Federal Funding Coordination Work Group (pg. 16)*
- ✓ *Q1/Q2 Committee Updates (pg. 17-18)*

- Tier 3: Additional Resources

Market Progress Report, committee materials (charters & recent meeting resources, functional newsletters)



➤ *Round Robin*

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



» *Housekeeping and Looking Ahead*

- ✓ **Upcoming Meetings**
- ✓ **EFX Recap**
- ✓ **Update: HPWH Marketing Campaign**
- ✓ **Update: NEEA Business Planning**
- ✓ **Update: Federal Funding Work Group**





Upcoming NEEA Meetings

AC = Advisory Committee
CC = Coordinating Committee

June

- June 6-7 → Products CC (Hybrid, Portland)
- June 13-14 → NEEA Board (Hybrid, Montana)

August

- August 14 → Integrated Systems CC (Virtual)
- August 17 → Products CC (Virtual)
- August 24 → Cost Effectiveness & Evaluation AC (Virtual)
- August 29 → Regional Portfolio AC (Virtual)

September

- September 21 → Regional Emerging Technology AC (TBD)



Efficiency Exchange Conference

[Check out 2023 photos here!](#)



Save the Date: May 14-15, 2024

Coeur d'Alene, Idaho

neea.org/EFX



Proposed HPWH Consideration Campaign

- Context
 - 2023 program focus on distributors and installers
 - Ensure consumers are moving along in their journey
 - Consumer awareness of HPWHs has grown significantly in the Northwest—and it is expected to continue to grow
- Recommendation
 - Take advantage of momentum
 - Run a small-scale consideration campaign with the purpose of moving consumers from awareness to consideration
- Next Steps
 - Mid-October: Present the proposed campaign (Ops Plan webinar)
 - November: Provide feedback and comments
 - Q1 2024: Proposed campaign runs

Update
to
memo!





Business Planning for 2025-2029

Date	Business Plan Milestone
March	Draft Business Plan Outline Review
May	First Draft Strategic + Business Plan Review
June	Second Strategic + Business Plan Review
July/August	Regional Outreach: <ul style="list-style-type: none">• 1-2 Regional Webinars;• Targeted presentations/ outreach to NWECC, NWPCC, PNUCC, State Energy Offices, Commissions• Email outreach through NEEA channels/nea.org
September	Summary of regional outreach, implications for plan, any final edits
November	Final Draft Strategic + Business Plan Review
December	Final Business Plan Approval



(Northwest) Federal Funding Coordination Work Group

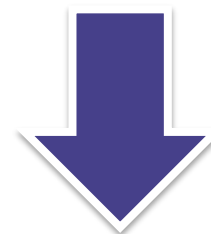
Kickoff Meeting (5/4)

Share-out of
activities, priorities,
questions



Near-term Priorities:

- Workforce
- Marketing/Communication
- Tribal Engagement



Next Steps

Q3 Meeting aligned with
(planned) Home Rebates
Guidance



Interim deep-dives on
near-term priorities



Other Upcoming Events or Announcements?

➤ ***Break!***





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Market Transformation 101

Accelerating Energy Efficiency
with the Power of Markets

RPAC Q2 2023 Meeting

Jeff Harris
Northwest Energy
Efficiency Alliance





NEEA is
AN ALLIANCE
of utilities and
energy efficiency
organizations



MT 101

AGENDA

Why do it?

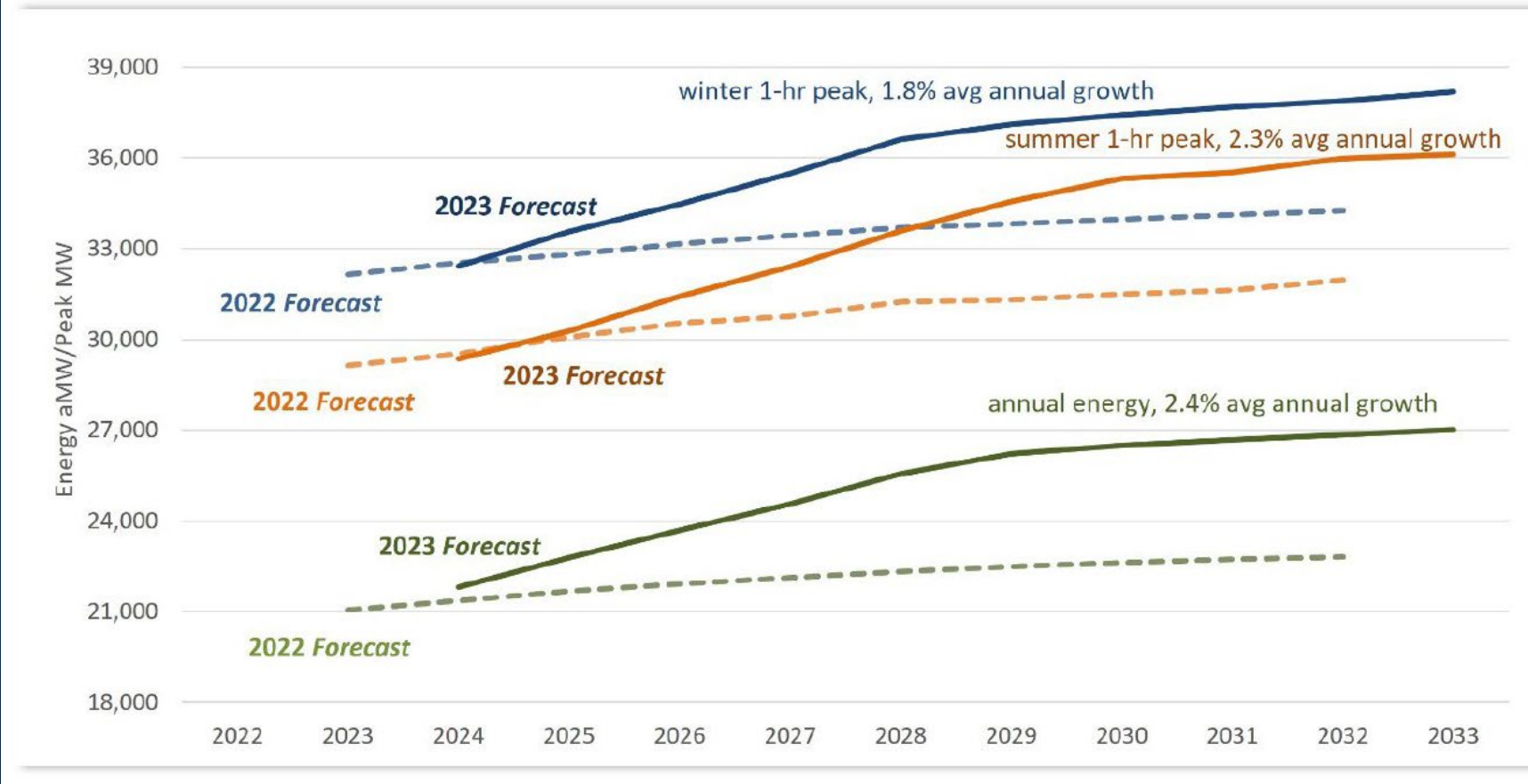
What is it?

How do you do it?

- Understanding markets
- Identifying barriers and opportunities
- Exploiting leverage points
- Deploying successful strategies
- Measuring progress, applying feedback
- Tools of the trade

Why? Reliable, Adequate and Economic Power System

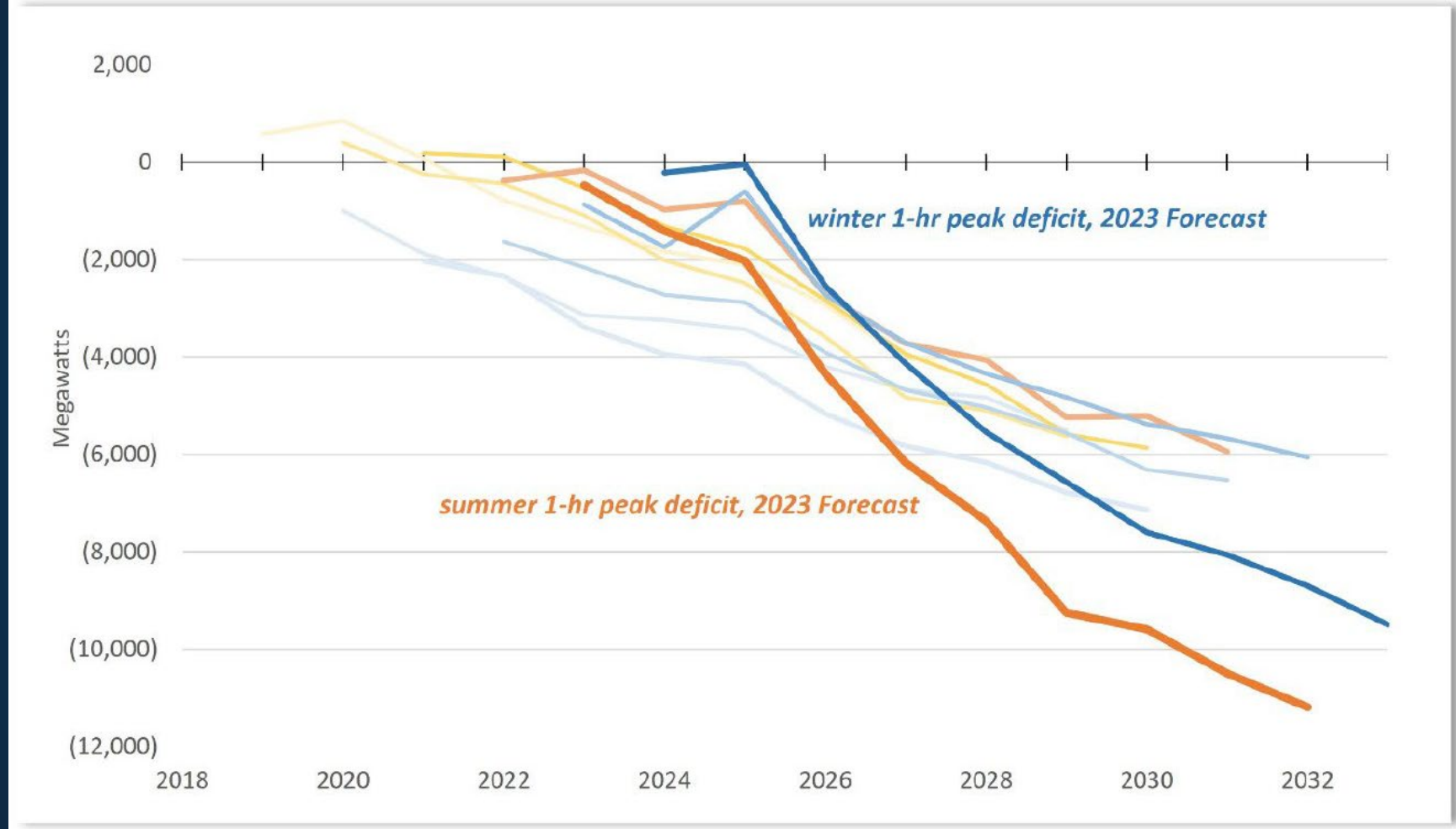
Figure 1: Load Forecasts Comparison 2023 vs. 2022



Source: PNUCC 2023 Northwest Regional Forecast

Why? Reliable, Adequate and Economic Power System

Figure 7: Peak Capacity Surplus/Deficit 2019 - 2023 Forecasts



Source: PNUCC 2023 Northwest Regional Forecast

Why? Energy Efficiency Innovation



60 watts



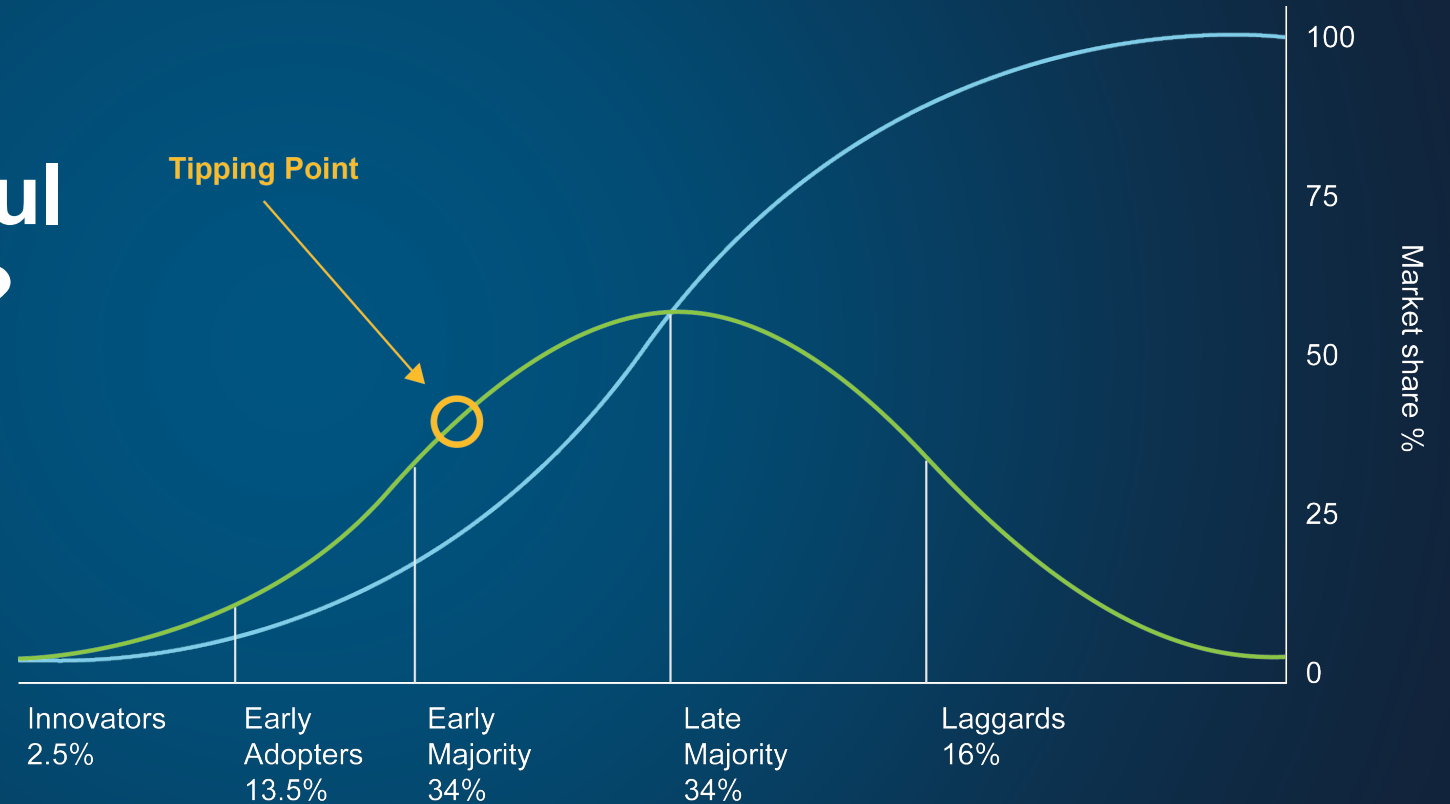
10 watts

80% reduction in energy/capacity needs

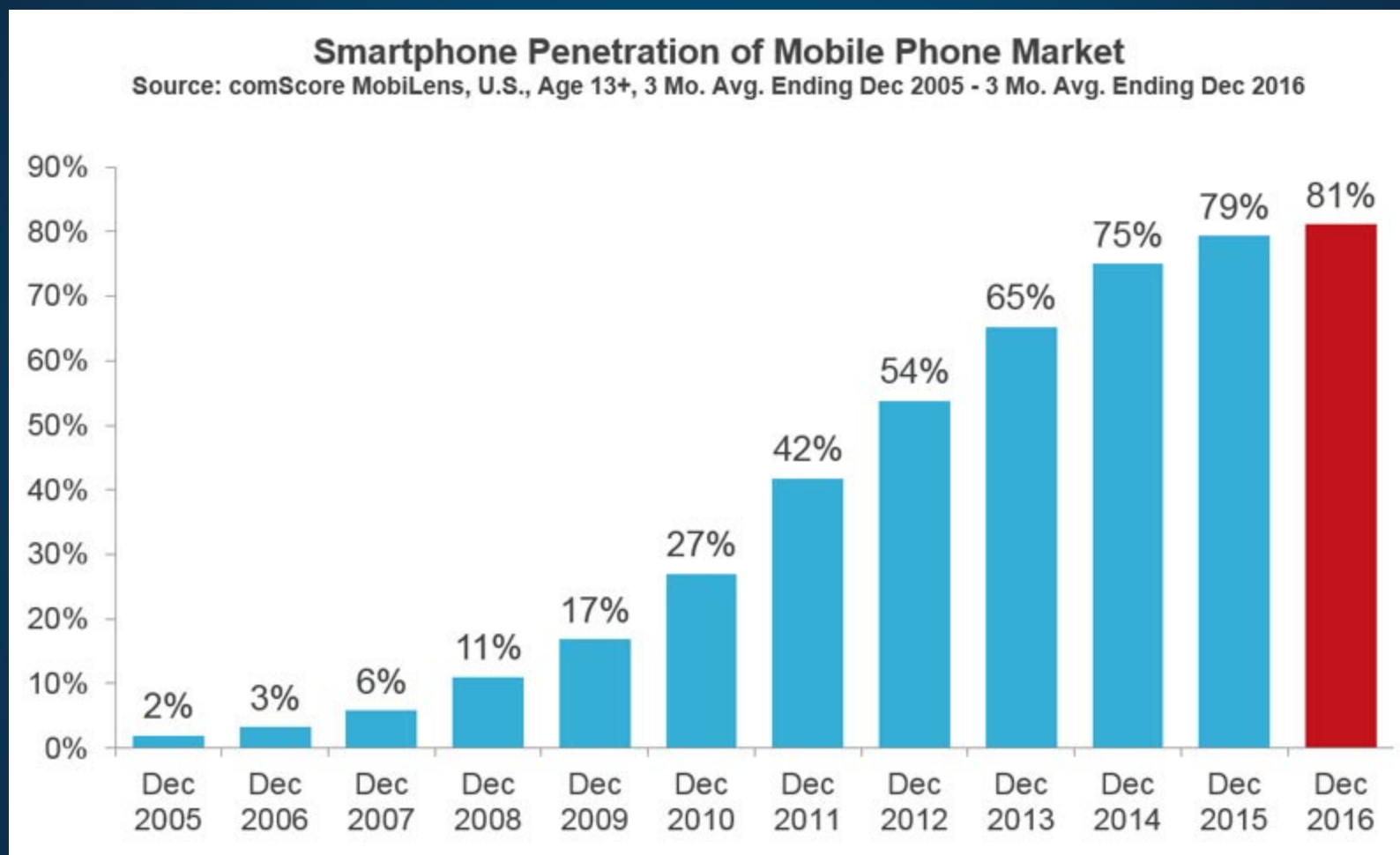
DIFFUSION OF INNOVATION

Rogers, 1962

What does successful innovation look like?

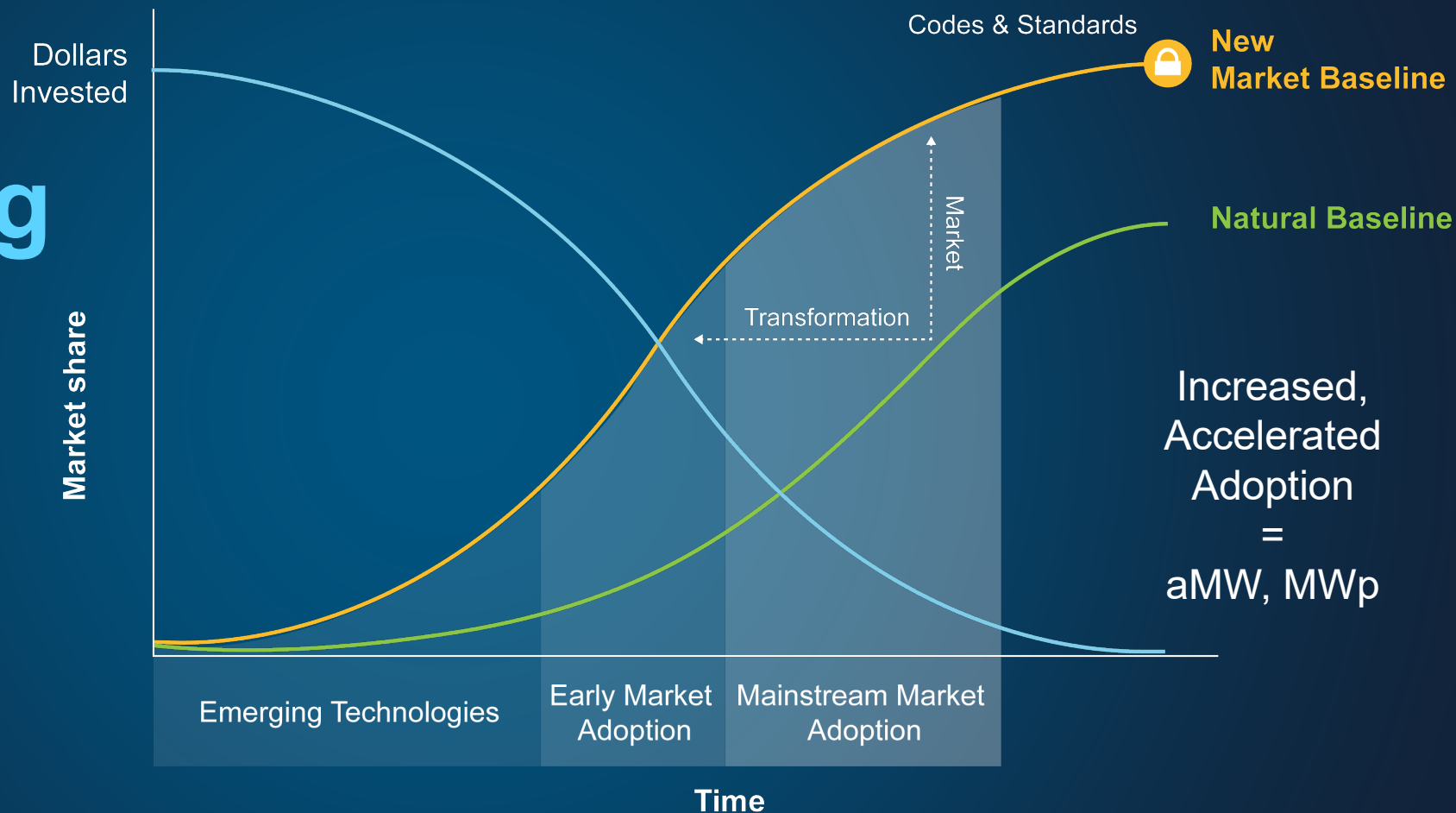


Diffusion of Innovation in Real Life...



<https://www.comscore.com/Insights/Blog/US-Smartphone-Penetration-Surpassed-80-Percent-in-2016>

Market Transformation: Accelerating Adoption of Energy Efficiency Innovation



What is it?

MARKET TRANSFORMATION

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

What is it (long definition)?:

MARKET TRANSFORMATION

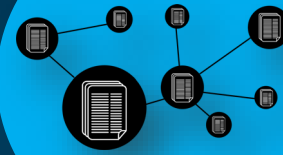
“The strategic process of intervening in the market to create lasting change **by** removing identified barriers and/or exploiting opportunities to accelerate the adoption of all cost-effective energy efficiency as a matter of standard practice.”

How do you do it?

Steps for MARKET TRANSFORMATION: Implementation



Step Zero:
Develop Market
Characterization &
Baseline



Step One:
Identify Barriers
and Opportunities



Step Two:
Develop
Interventions &
Metrics



Step Three:
Intervene and
Manage adaptively

Step 0: Market Characterization

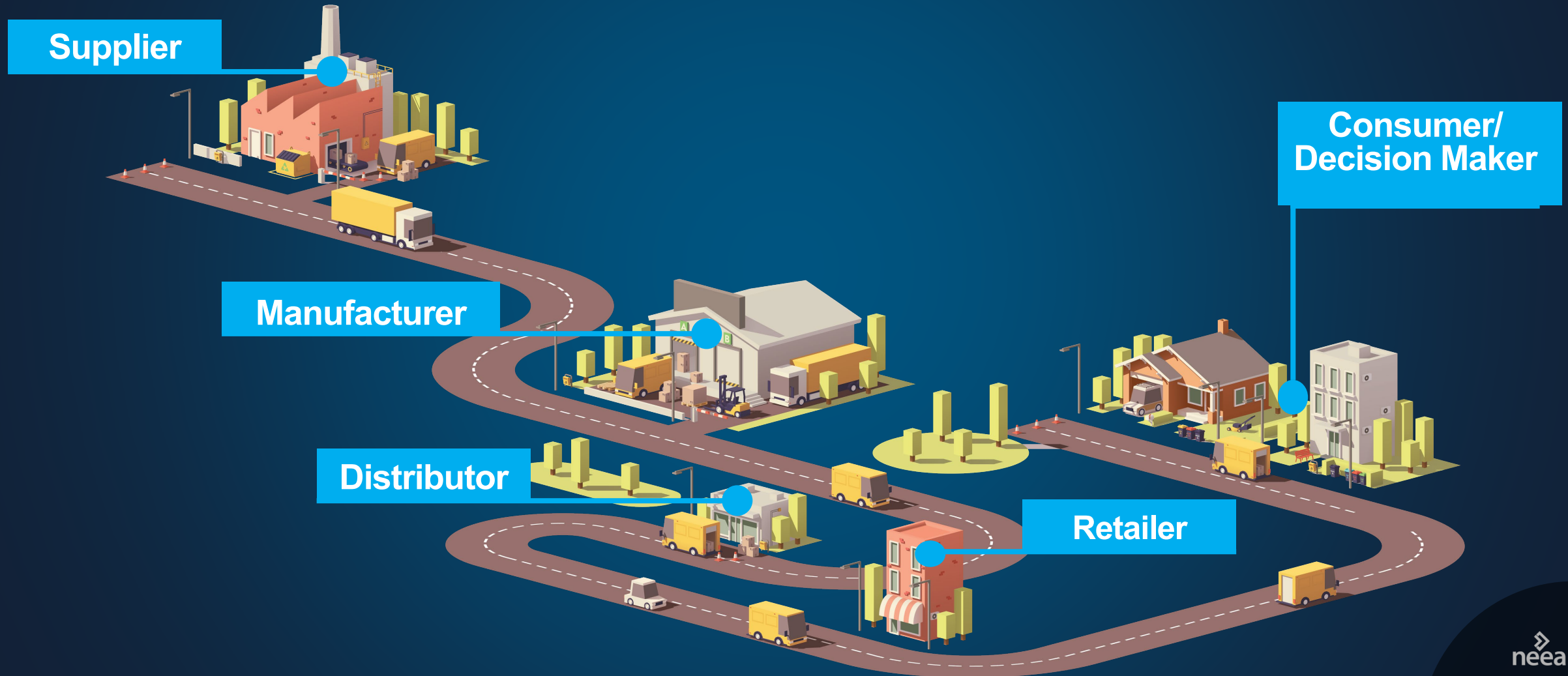
...Let's talk about MARKETS



In mainstream economics, the concept of a market is any structure that allows buyers and sellers to exchange any type of goods, services and information. [Wikipedia]

Step 0: Market Characterization

Buyers, Sellers, Supply and Demand



Step One (Part 1): Identify Barriers and Opportunities



Lack of Awareness/
Information



Lack of Knowledge/
Capability



Lack of Availability



Product Features/
Quality

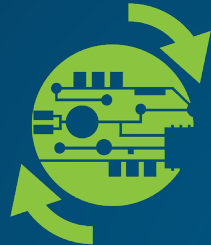


High First Cost

Step One (Part 2): Identify Barriers and Opportunities



Consumer Preferences



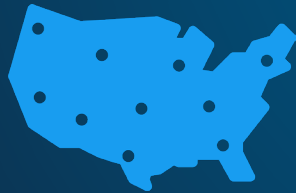
Technology Changes



State and Federal
Legislation



Codes & Standards
Spec Revisions



National
Market Changes



Regional/National
Supply-Side Market Actors



Economic Changes

Step Two, Part 1: Develop Strategies for Intervention



Provide credible
information



Build market capability,
knowledge and experience



Redefine the value
proposition



Align EE product
with Consumer Needs



Influence energy codes
and standards

Step Two, Part 2: Define Key Metrics & Market Progress Indicators



Step 3: MARKET INTERVENTION An Adaptive Process



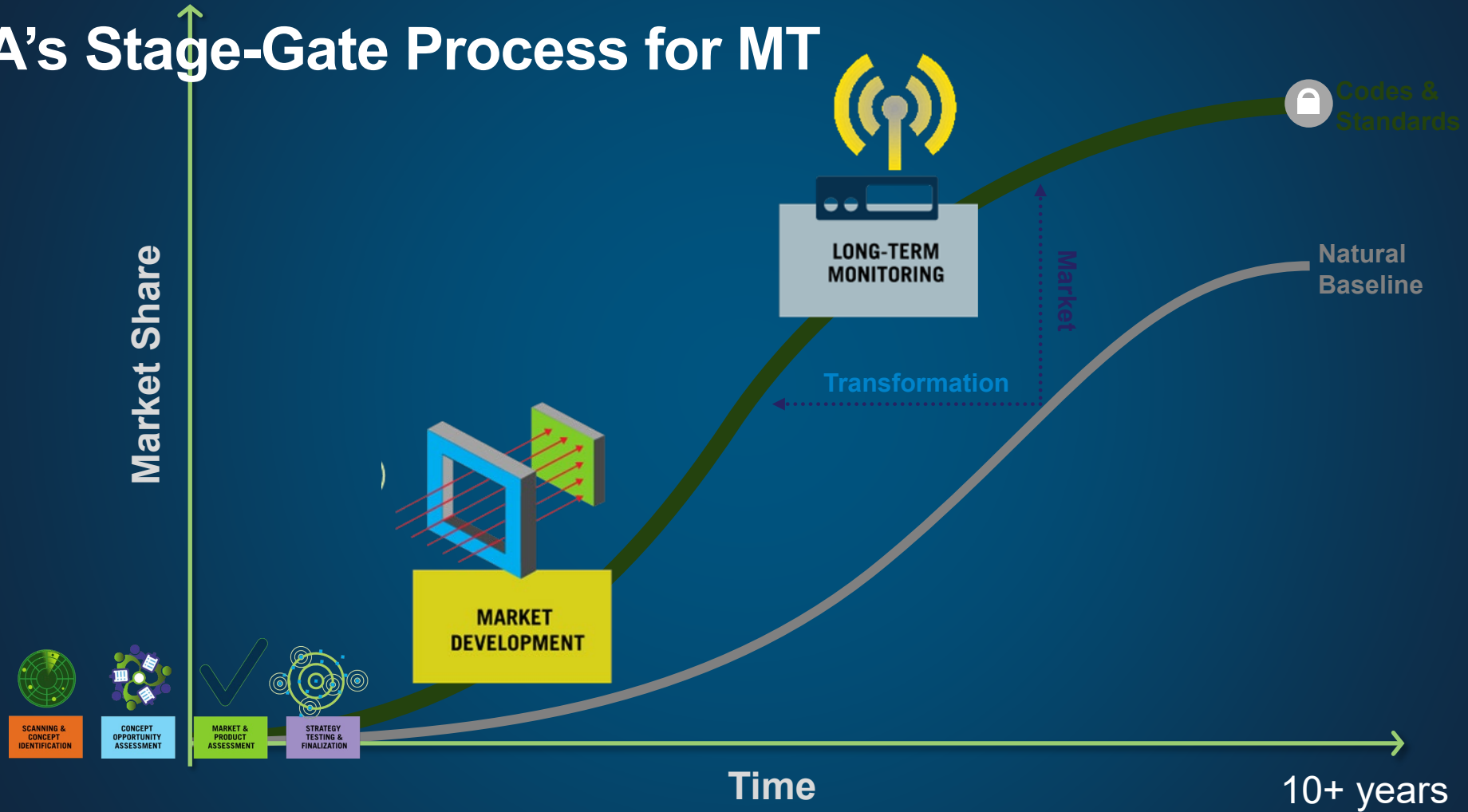
Step 3: IMPLEMENTATION

NEEA's Stage-Gate Process for MT



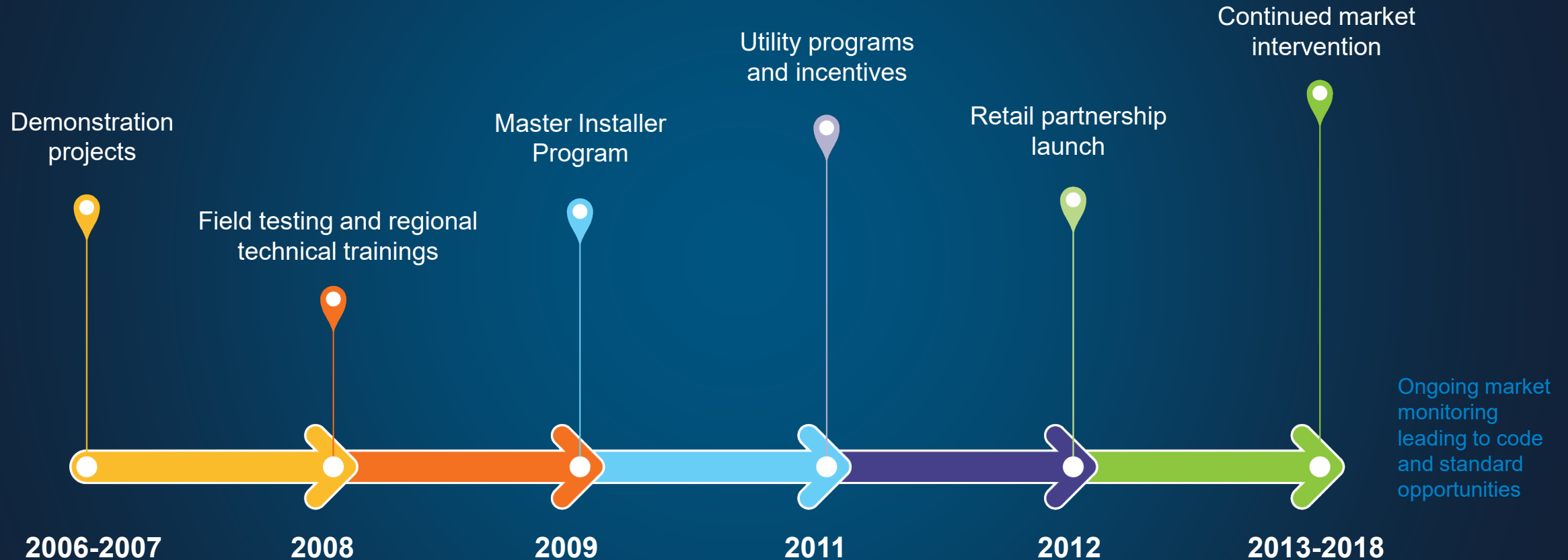
Step 3: MARKET INTERVENTION

NEEA's Stage-Gate Process for MT

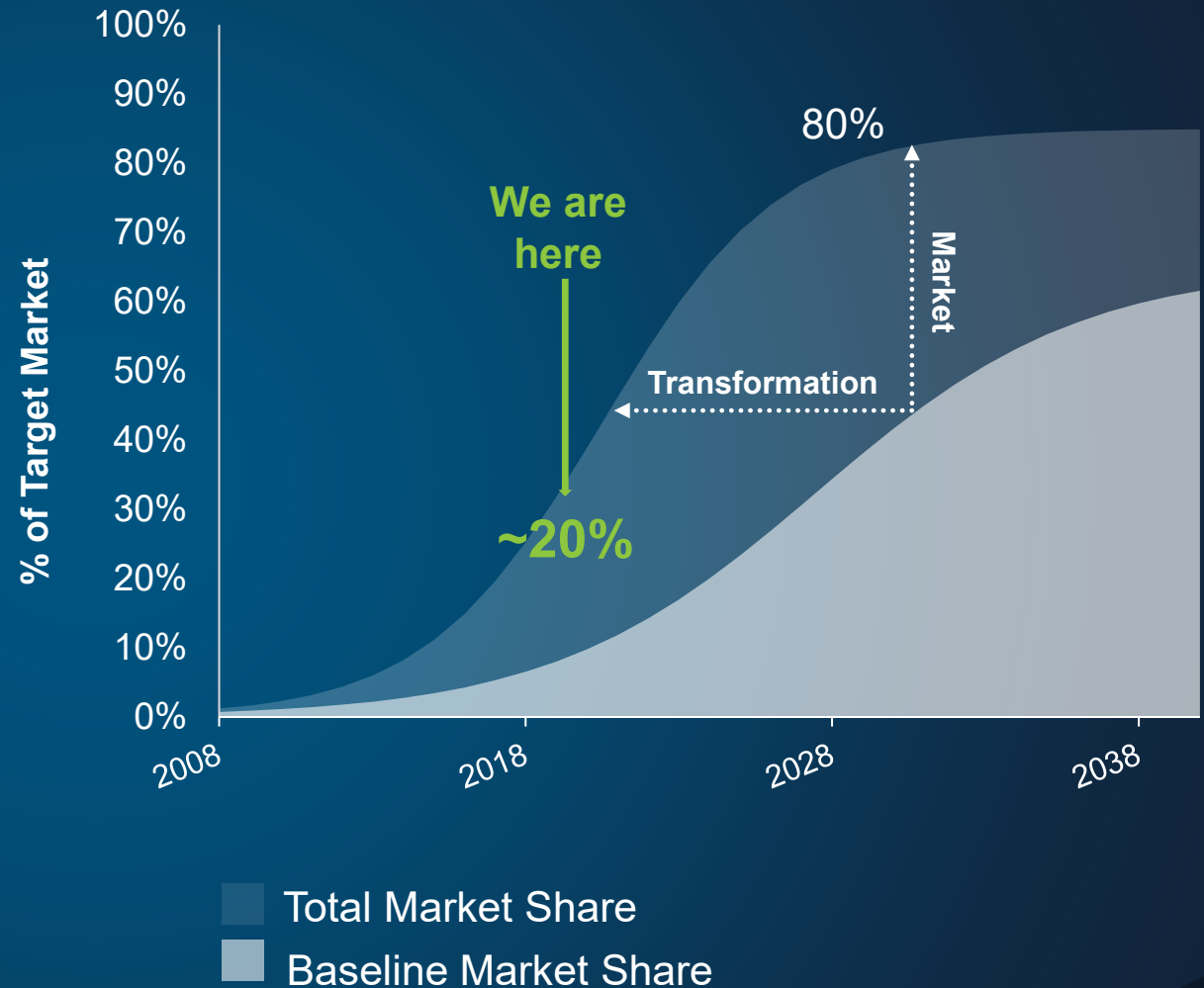


Ductless Heat Pumps

MT in Action



Ductless Heat Pumps Market Transformation in Action



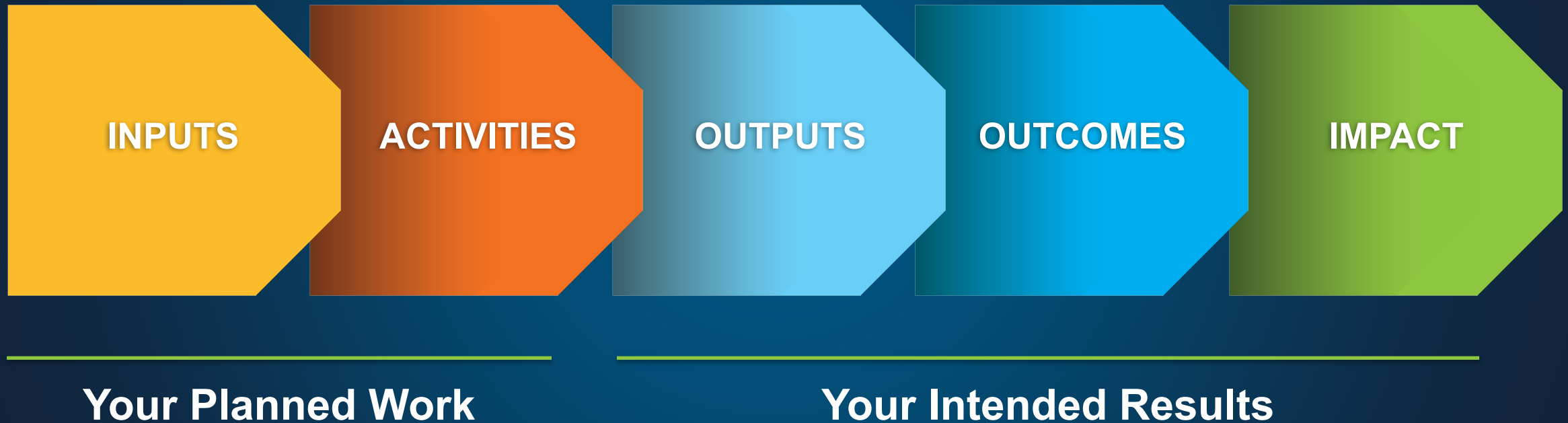


Questions?

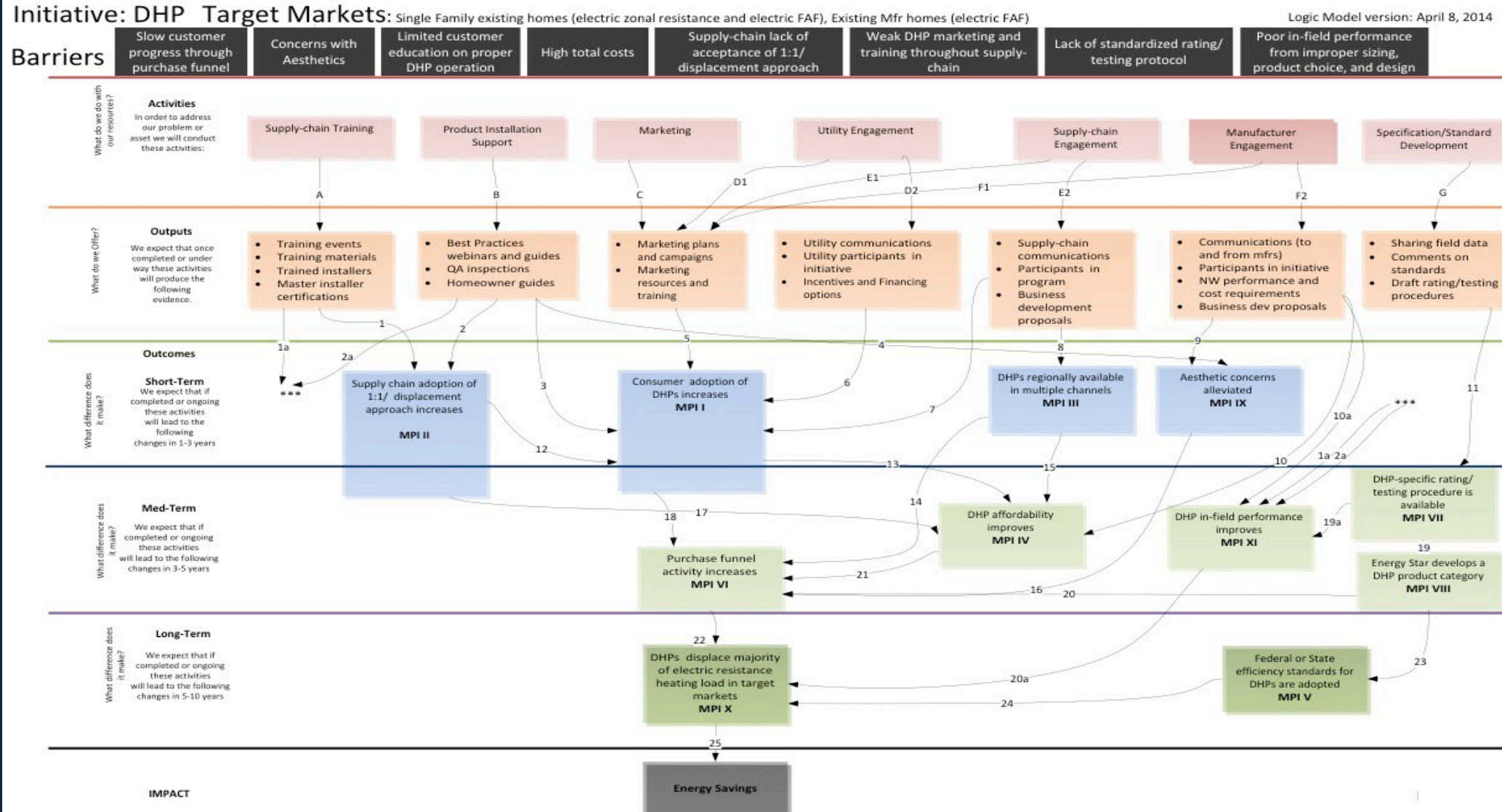
Additional Material

Tools of the Trade:

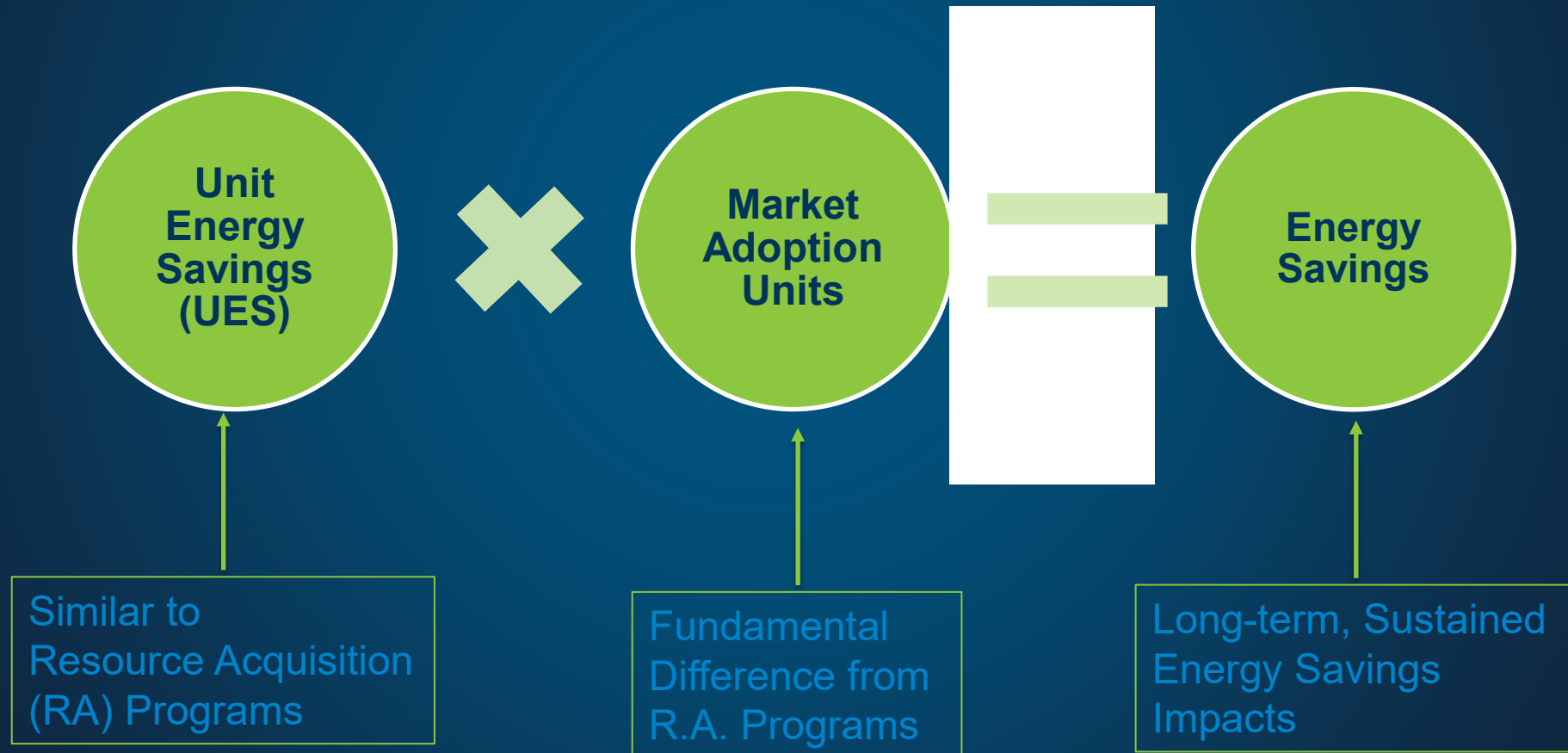
Documenting the MT program theory and defining metrics:
Logic Models and Market Progress Indicators



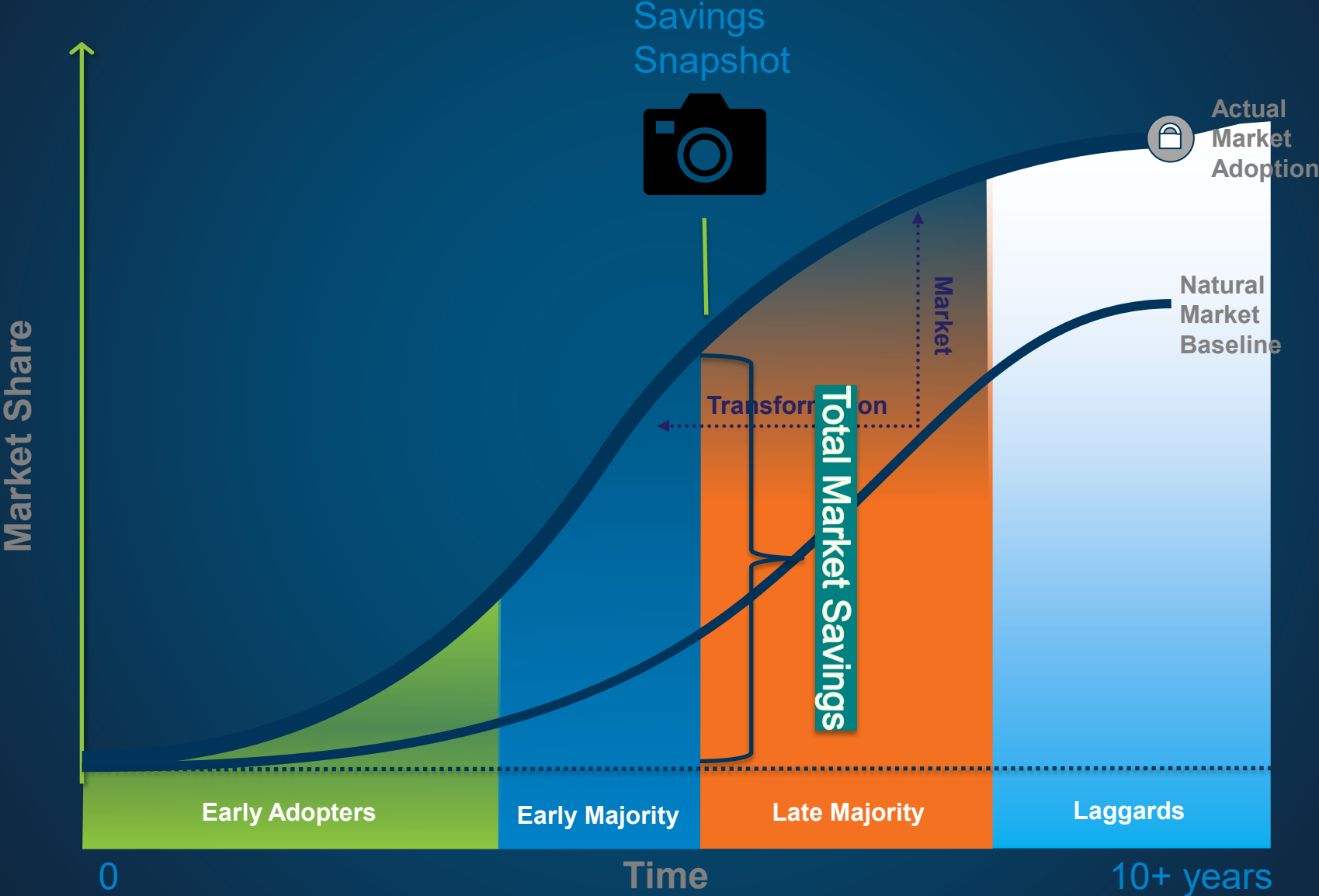
NEEA Logic Model – Ductless Heat Pumps



Energy Savings Simplified: Calculation Components



Total Market Savings

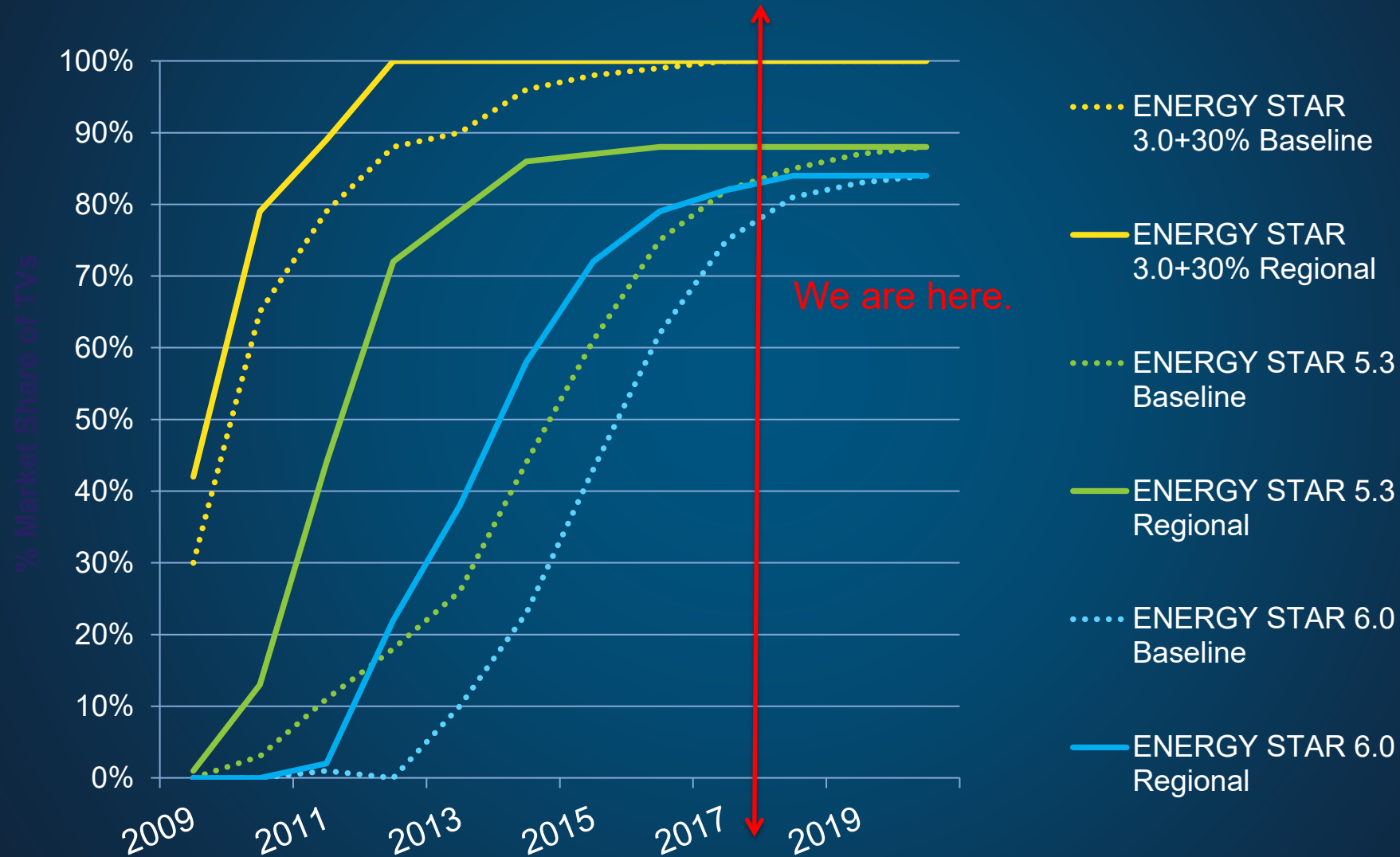


MT Initiative Life Cycle Documentation

Wraps a business plan around the MT Logic Model



Market Transformation in Action: High-definition televisions; a fast-moving market



» Thank you!

Jeff Harris, Chief Transformation Officer
Jharris@neea.org



LUNCH!

[Please return by 12:45 Pacific]





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Portfolio Update

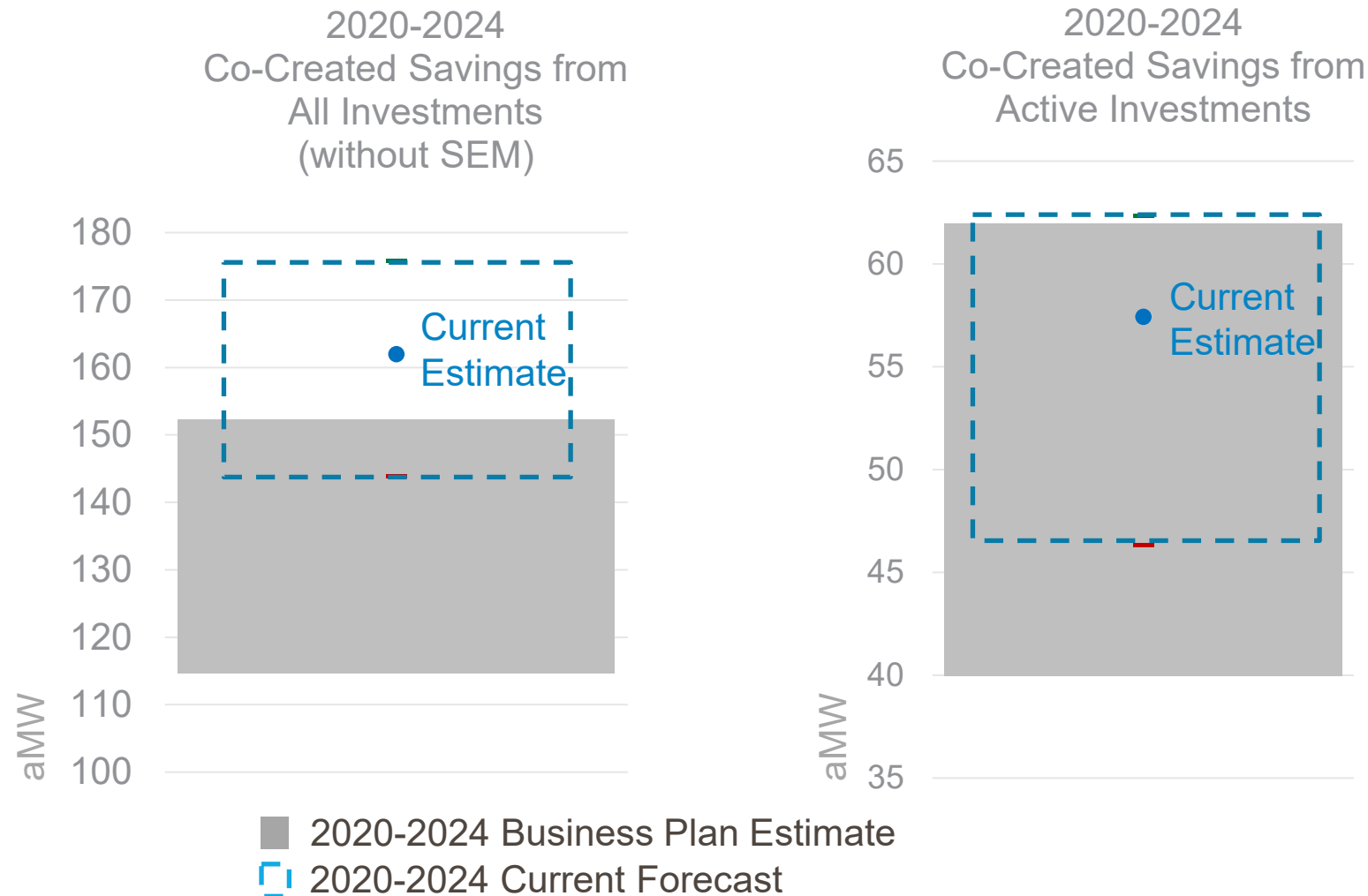
Stephanie Rider
Director – Data, Planning & Analytics




neea



Co-Created Energy Savings forecast at/above Business Plan expectations



Stable forecast, relatively unchanged from last year's estimate

~1m tons of avoided carbon emissions

Efficiency has weathered the macro-conditions well, *so far*

There are still market factors to keep an eye on



Portfolio Summary, 2022

Highlights

Improved diversification
+8-10 new aMW by 2024

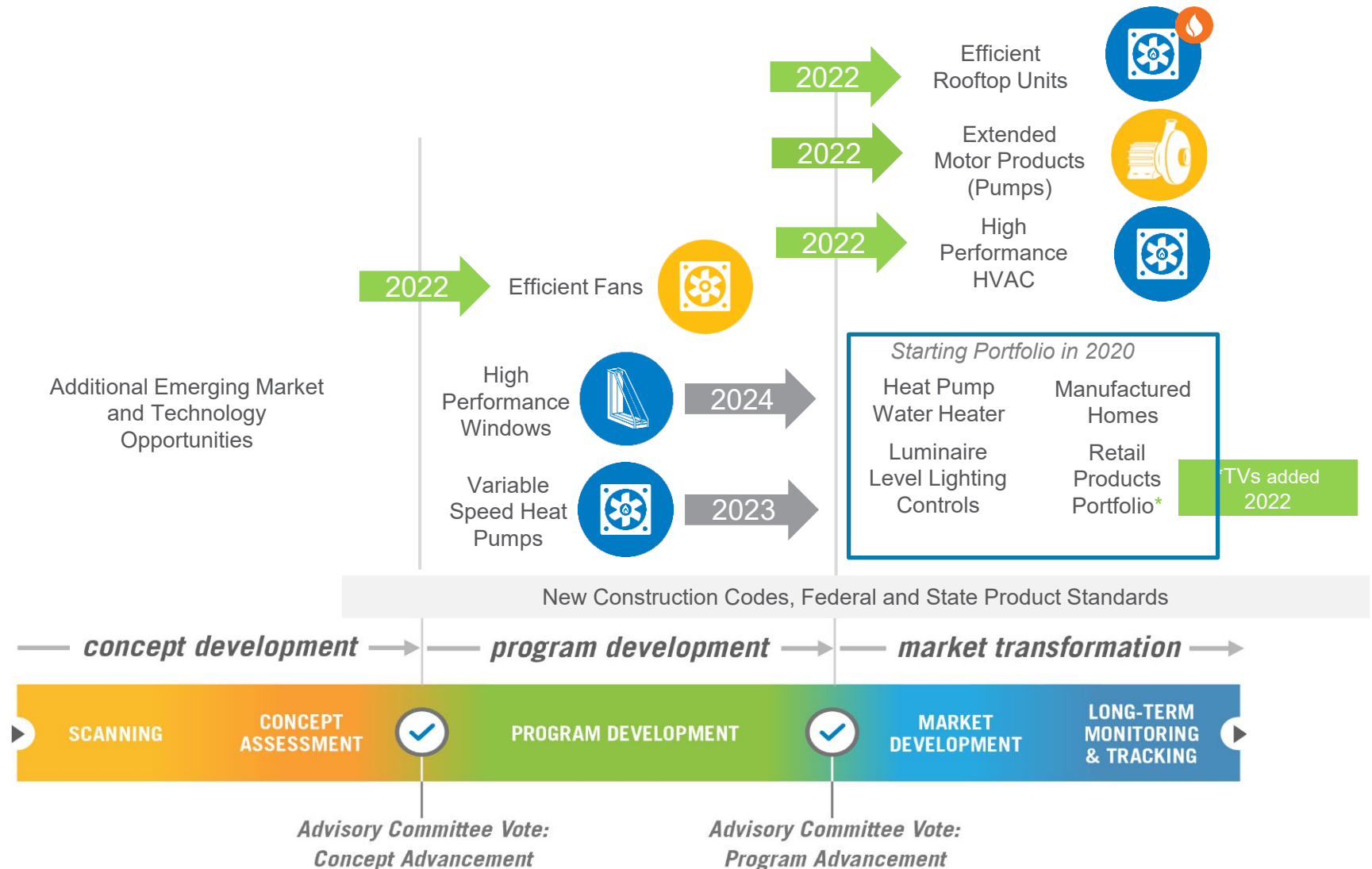
HPWH in WA code, +17%
unit growth overall

Efficiency mix at/above trend
across RPP

What to Watch

New construction trends

Speed of TVs in market



» **Thank you!**

Stephanie Rider, Director – Data, Planning & Analytics
SRider@neea.org





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Variable Speed Heat Pumps: Prep for Q3 Milestone Vote

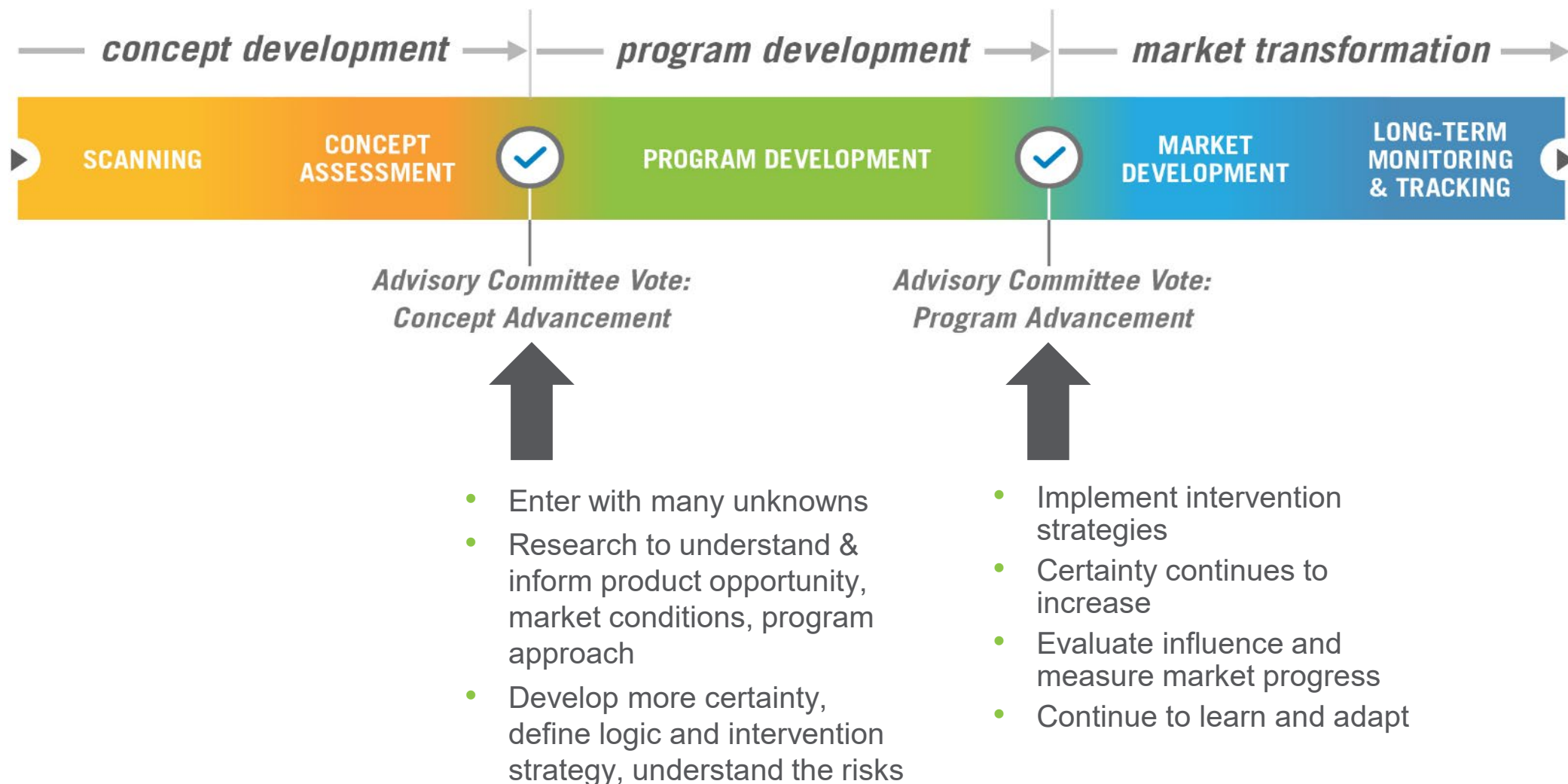
Emily Moore
Director – Electric Portfolio

Suzi Asmus
Program Manager



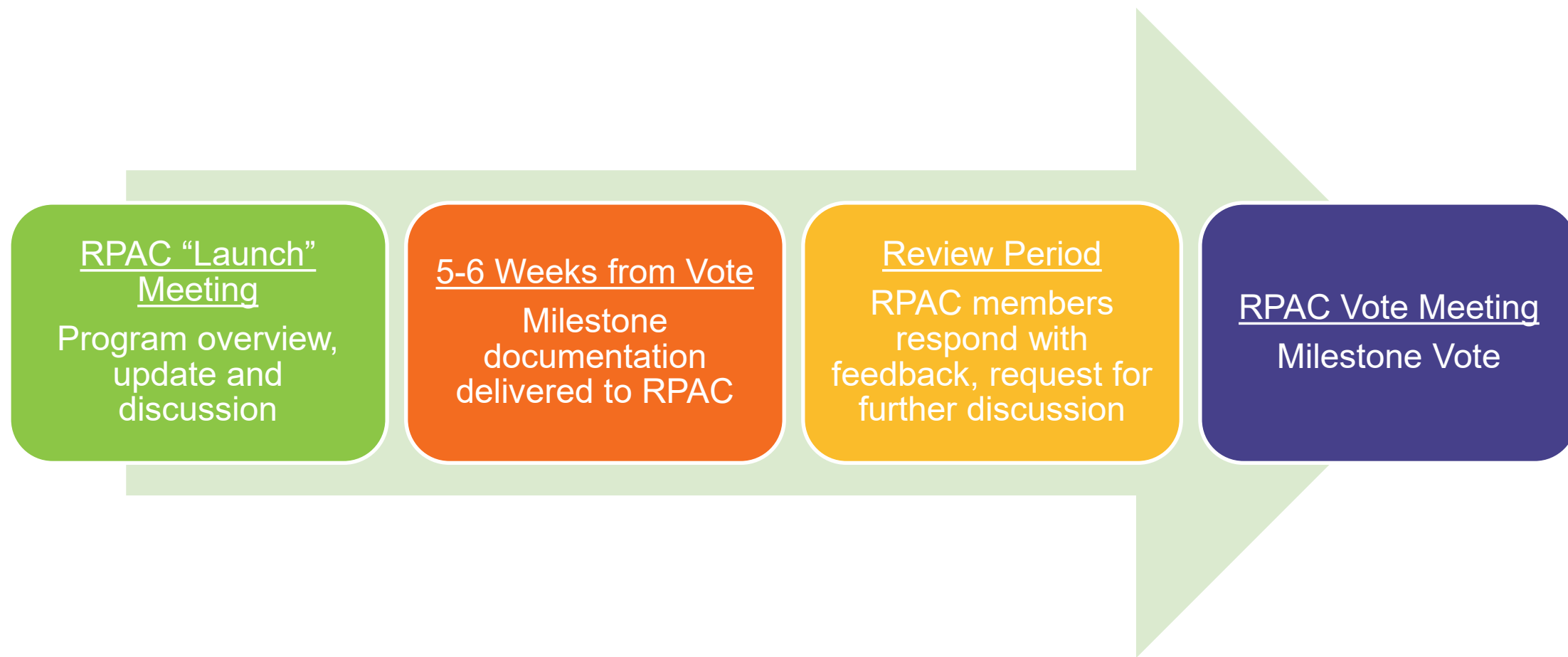


Decision Points in Initiative Lifecycle





Preparing for RPAC Vote





Ask of you

- Identify questions or clarifications to address in the preparation of the milestone review
- Consider who from your organization you may want to involve in your review
- Consider how the proposed regional MT program can support or be supported by local programs



What We'll Cover

1. Program Development Update
2. Market Transformation Theory and Program Approach
3. Why NEEA? Why now?





Program Development

Activities	What We Learned
Expand market understanding and inform program interventions	Heat pump adoption is strong and growing
Advance load-based test procedure and spec	Opportunity to better differentiate efficiency among heat pumps
Test intervention concepts and strategies for measuring program impact.	Leading manufacturers agree with need for better differentiation > Savings possible with little to no incremental cost

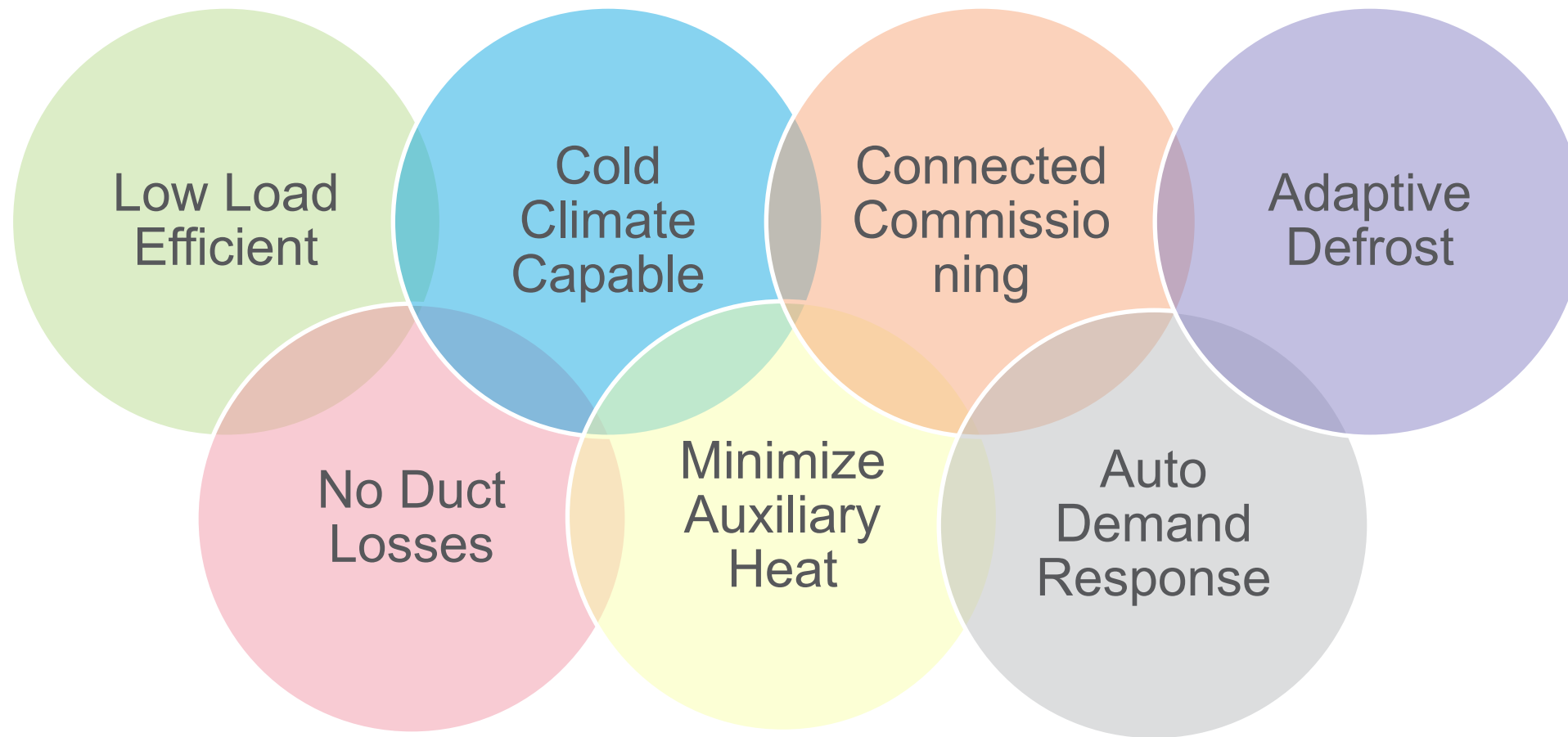


Changes Since Concept Advancement

	Concept Advancement Proposal	Program Advancement Proposal
MT Approach	Grow heat pump adoption	Improve efficiency of all heat pumps
Product Definition	Product- and practices-focused Variable speed only	Improvement-focused (e.g. low load efficient) Two- and three-stage, & variable speed
Target Market	Electric resistance heat replacement	All heat pumps \leq 65,000 Btuh
Intervention	Identify and disseminate installation best practices	Support existing contractor and customer interventions led by utilities, distributors, and other market partners.



Improvements





Current Market Transformation Theory and Program Approach



Market Barriers & Opportunities

Barriers

Lack of product differentiation for improvements that impact efficiency and capacity

Lack of awareness of energy efficient improvements and their value propositions

Opportunities

Increasing end user demand, incentives and requirements for IAQ, Decarbonization and Cooling (AC)

Many other programs/orgs investing and incenting HPs for efficiency, decarb and capacity

Spec updates enable manufacturers to differentiate more efficient products for competitive advantage



Market Transformation Approach

Promote existing, cost-effective improvements in all residential heat pumps

Locking in improvements by influencing specifications and federal standards

Resulting in continuous improvement in the average installed efficiency and increased peak savings



Intervention Approach



Make qualifying products for each improvement identifiable in the market

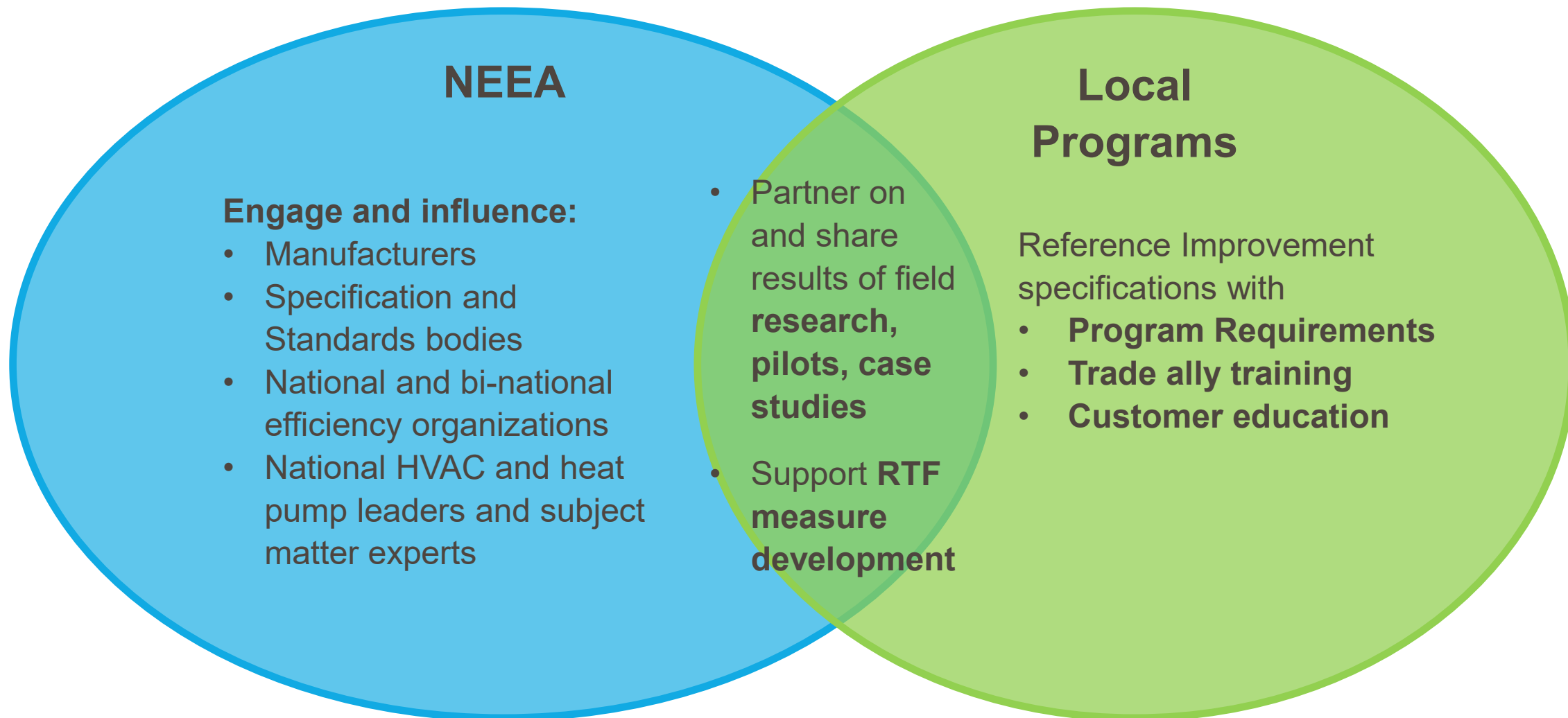


Build adoption among manufacturers and efficiency program partners



Influence specification and standards bodies to include improvements

Regional Collaboration



» *Why NEEA? Why now?*

- Heat pump adoption taking off
- Window of opportunity is...now
- NEEA's unique voice for efficiency



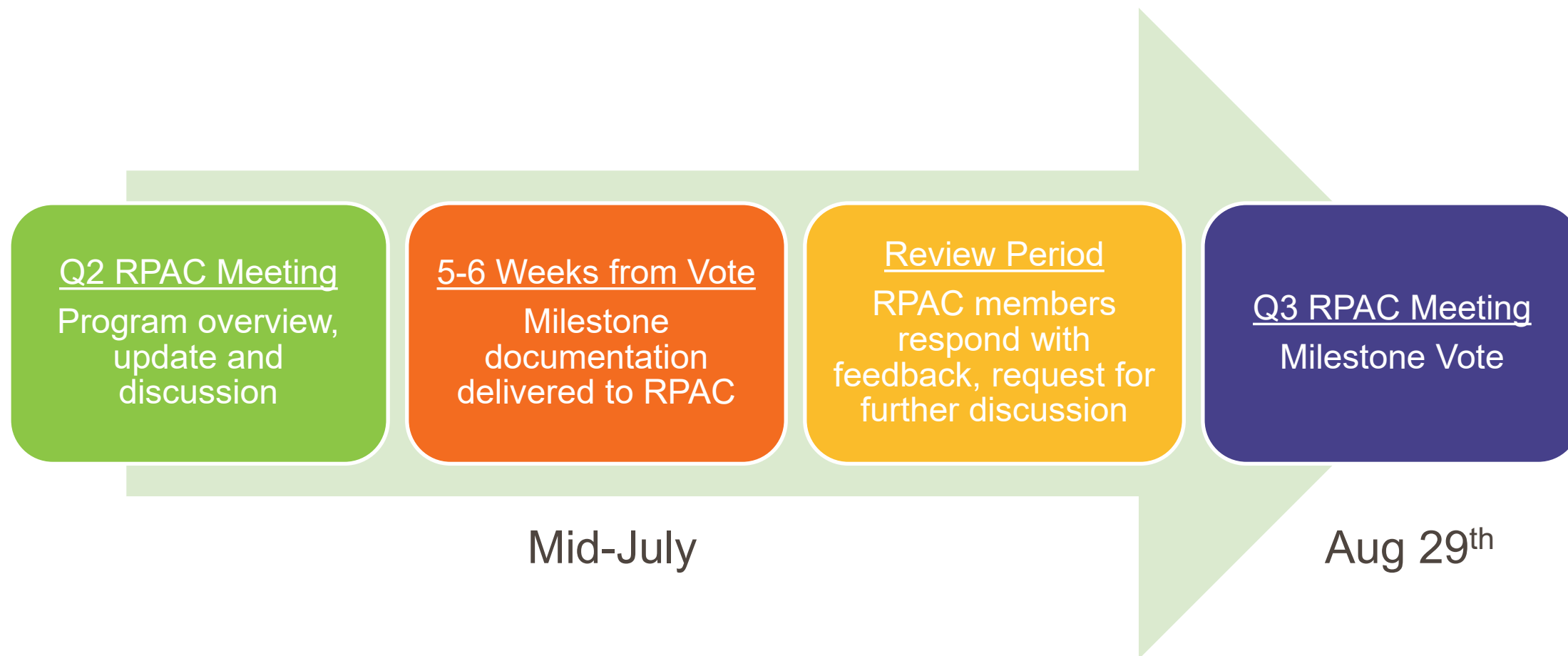


Preparing for the Program Advancement Milestone in Q3





Preparing for RPAC Vote





Questions

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

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

» Thank you!

Suzi Asmus, VSHP Program Manager
SAsmus@neea.org





Break!



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➤ Manufactured Homes Update

Mark Rehley

Director – Codes, Standards, New
Construction, Emerging Tech

MRehley@neea.org





What you need to know: Key Takeaways


- NEEA's Manufactured Homes Program will likely move to the Long-Term Monitoring & Tracking Phase this year or early 2024
- The Northwest Energy Efficiency Manufactured Housing Program (NEEM) is structured to continue to support the market through certification fees
- Utility program opportunities remain
- The Federal standard and HUD code have been updated but delayed
- ENERGY STAR version 3.0 is active but likely to change
- First cost is often driving policy decisions
- NEEA will continue to track due to the market uncertainty





Origin

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58
GLENDALE



INTRODUCING FOR 1958 . . .
AN EXCITING NEW RANGE OF MODELS WITH CAREFULLY ENGINEERED DESIGNS
TO FULFIL THE NEEDS OF MOBILE HOME OWNERS THROUGHOUT CANADA

EXPANDO-HOME



Converts from an 8 foot wide traveling unit to a 15 foot wide 5 room DREAM HOME in a few minutes. EXPANDO-HOME gives you twice the ROOM, QUALITY, CONVENIENCE and BEAUTY.

7 BIG MODELS

40 FT. — One or Two Bedroom Models	35 FT. — One or Two Bedroom Models
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For free brochure and complete dealership information contact:

BUDGER MANUFACTURING COMPANY, INC.
11182 Penrose Avenue • Sun Valley, California



Today's Manufactured Home



<https://www.bobvila.com/articles/8405-mobile-homes-then-and-now/#.WPuld5V1rTs>

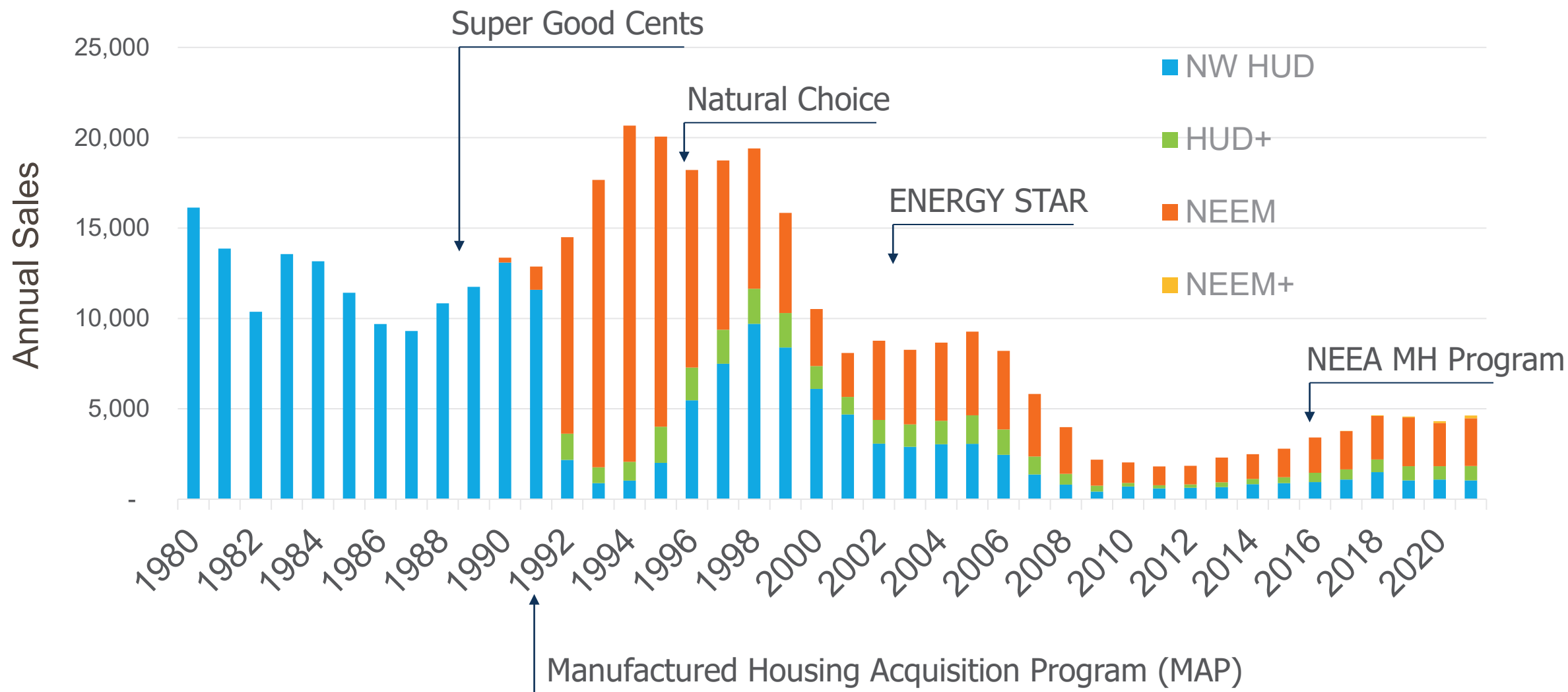


Today's Manufactured Home





Manufactured Home Programs and Sales History



Northwest Factories

★ NEEM+ actively sold
★ NEEM+ in the works

Valley

Marlette

Clayton

★ Skyline

Champion

Fleetwood

Cavco

★ Palm Harbor

Cavco

★ Golden West

Clayton

Champion

Champion

★ Kit Homebuilders

Fleetwood of ID

Cavco



High Performance Demonstration Homes

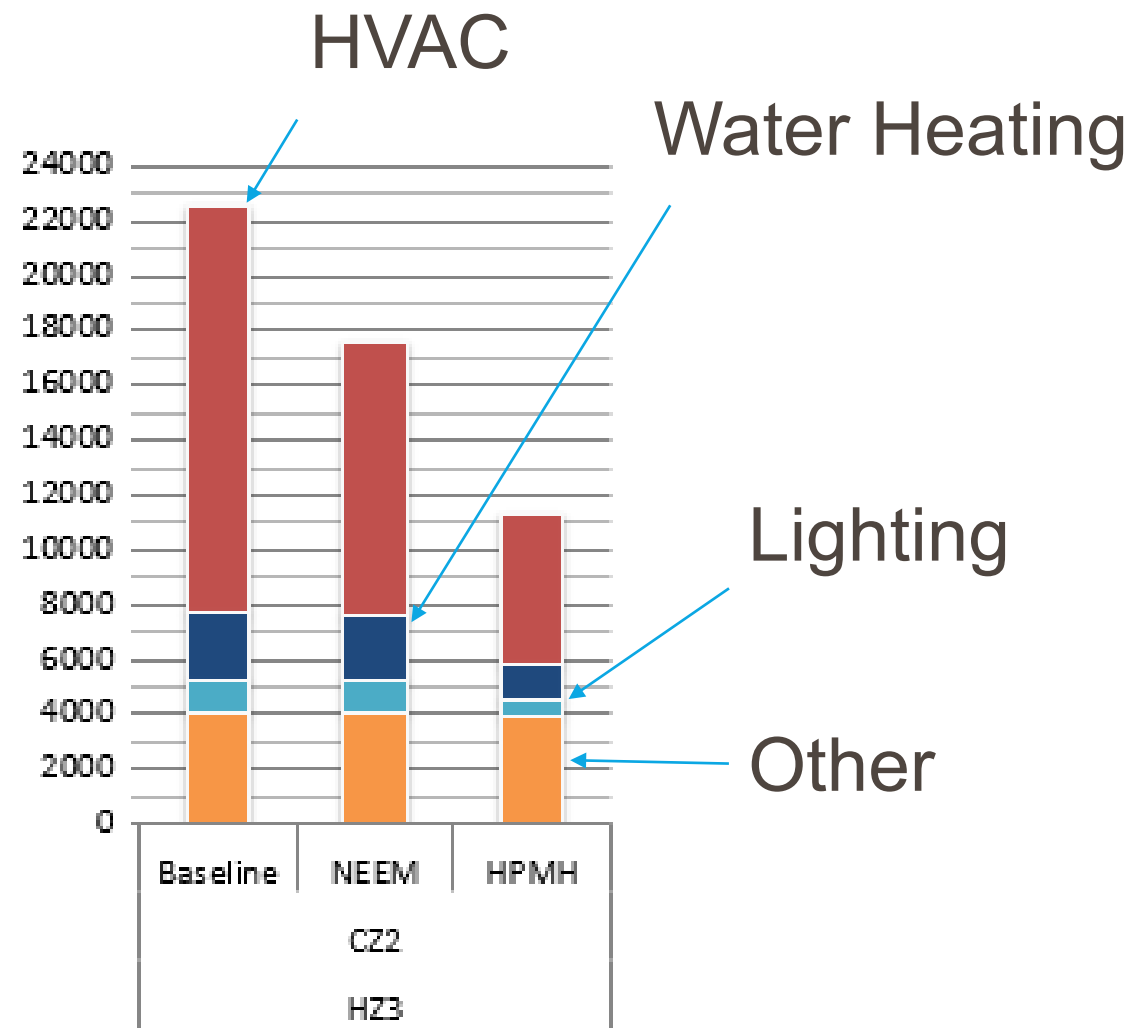




Energy Use Comparison for Climate Zone 3 (CL3)

Bonneville and NEEA's field study demonstrated the value of high performance manufactured homes (HPMH)

- 50% reduction in energy use from baseline
- Mostly due to envelope and improved heating





Manufactured Homes and Federal Standards

Codes = Buildings



Standards = Appliances / Equipment





Manufactured Home Requirements

Voluntary

Northwest
Energy
Efficiency
Manufactured
Housing
Program™



ENERGY
STAR



Required

Federal
Department of
Energy
Standard

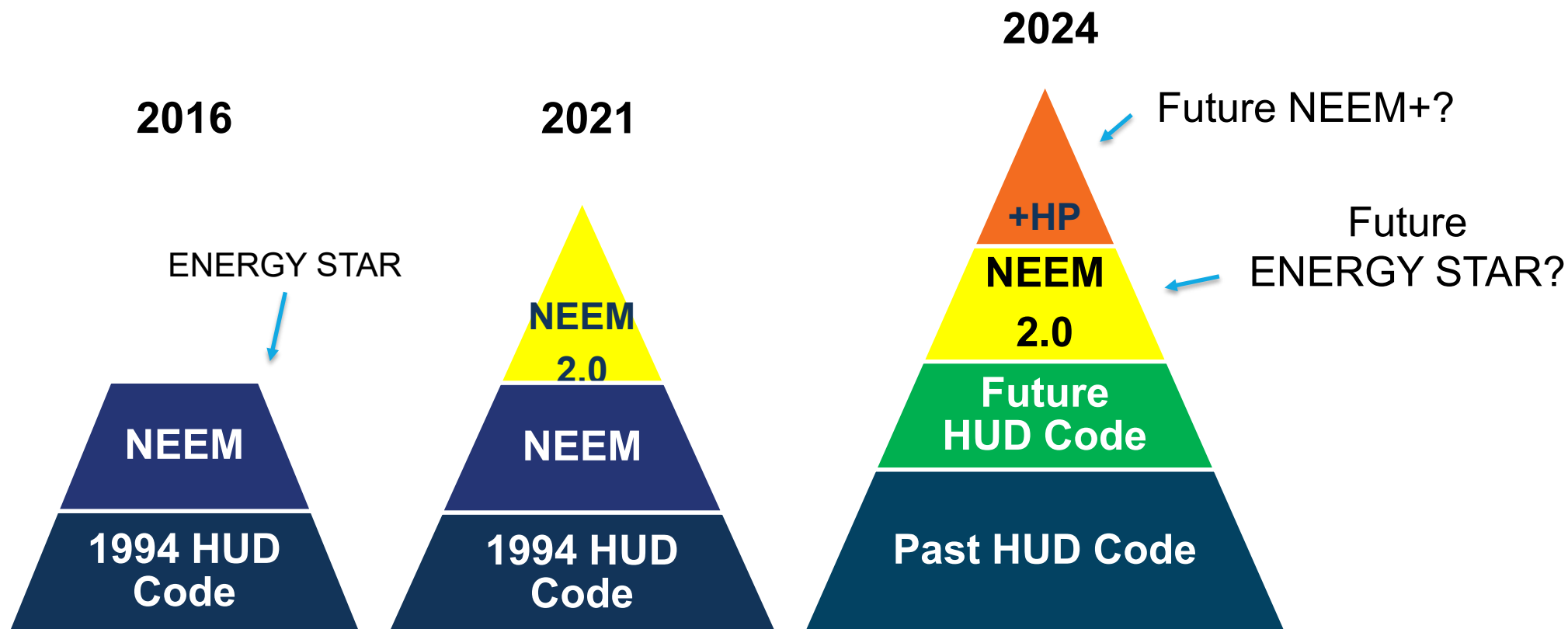


Housing and
Urban
Development



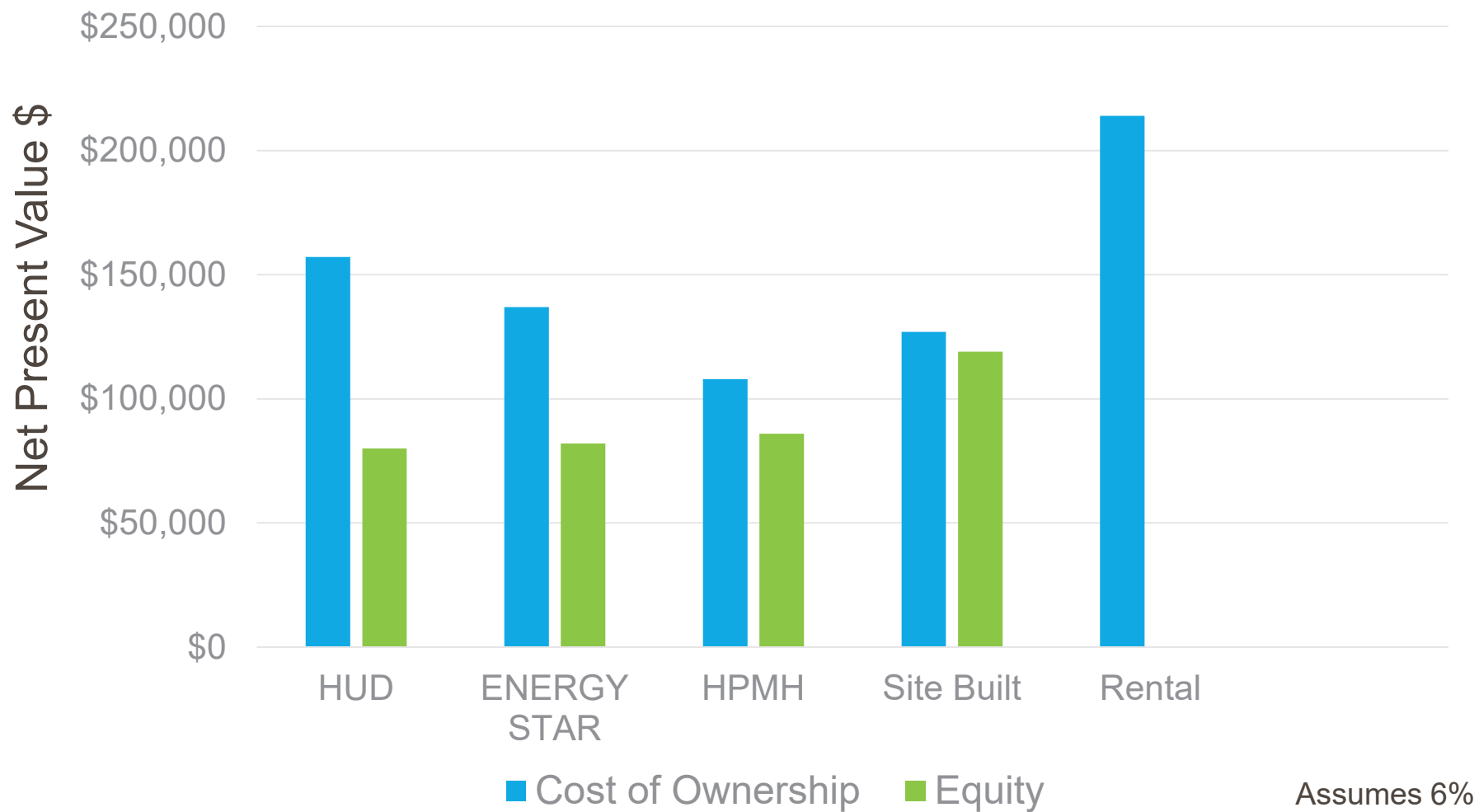


Specifications in the Northwest





Costs of Ownership and Equity



Assumes 6%
interest rate



Status of Federal Standard and HUD Code



DOE Standard

- Announced – August 1, 2022
- Effective date – May 31, 2023
- Separate standards for single wide and double and larger homes



HUD Code

- Announced – July 19, 2022
- Effective date – May 31, 2023
- Focused on material strength, structural design, and EE appliances

Delayed



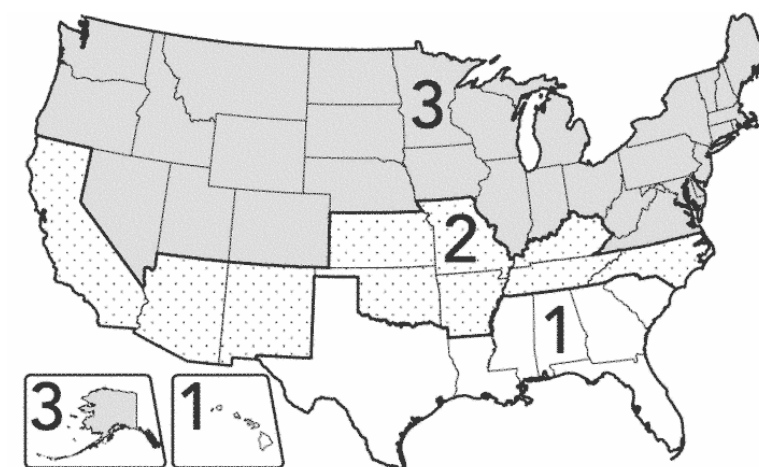
DOE 2023 Proposed Standard Comparison (Based on envelope Uo value)

Old				New			
HUD CODE	NW Market Baseline	ENERGYSTAR (NEEM verified)	NEEM+	DOE Code single wide	DOE Code double+ wide	ENERGYSTAR single wide	ENERGYSTAR double+ wide
0.079	0.066	0.053	0.050	0.074	0.055	0.057	0.054
				7%	44%	45%	2%
				over 1994	over 1994	over 2023 DOE	over 2023 DOE

- Updated DOE standard is significant for double wide and larger homes
- ENERGY STAR improvements are mostly not envelope measures
- NEEM is so good that standard doesn't greatly impact the Northwest

ENERGY STAR V3.0

- Effective – January 1, 2023
- Transition period – 1 year
 - Homes can be certified v2 or v3 during this period
- Climate zones – The northwest states are CZ3





ENERGY STAR V3.0 – Mandatory Requirements

Mandatory Energy Efficiency Measures

Envelope, Windows, & Doors

- Insulation and glazing U-factor levels shall comply with one of the following options:
 - Meet or exceed the following performance levels:

Climate Zone: ⁶

Wall Insulation:

Floor Insulation:

Ceiling Insulation:

Door U-factor:

Window U-factor:

CZ 1

R-13

R-22

R-33

0.40

0.30

CZ 2

R-21

R-22

R-33

0.40

0.30

CZ 3

R-21

R-33

R-38

0.30

0.30

- OR achieve an overall coefficient of heat transmission ⁶ (U_o) that does not exceed:

Single-section U_o:

Multi-section U_o:

0.076

0.070

0.065

0.063

0.057

0.054

- The solar heat gain coefficient of fenestration shall not exceed: ⁷

SHGC:

0.25

0.25

N/A



ENERGY STAR V3.0 – Additional Options

Energy Efficiency Measure		Point Value		
		CZ 1	CZ 2	CZ 3
Mandatory Requirements				
All requirements in Exhibit 1.		7.5	2.5	2.0
Optional Envelope Improvements				
Coefficient of heat transmission (U_o) ≤ 0.049 . ⁶		12.0	9.5	4.5
Optional Heating and Cooling Equipment				
Heat pump ≥ 7.5 HSPF2 / 14.3 SEER2. ⁹		9.0	13.5	17.0
Gas / propane Furnace ≥ 90 AFUE.		2.0	2.5	5.5
Gas / propane Furnace ≥ 95 AFUE.		2.5	3.5	7.5
Gas / Propane Furnace ≥ 96 AFUE.		3.0	4.0	8.5
Optional Water Heater Equipment				
Gas / Propane Water Heater ≥ 0.93 UEF.		4.5	3.5	0.5
Heat pump water heater ≥ 2.20 UEF.	With electric furnace, electric strip, or electric baseboard primary space heating.	6.0	5.5	1.5
Heat pump water heater ≥ 3.30 UEF.		7.5	7.0	1.5
Heat pump water heater ≥ 2.20 UEF.	With all other primary space heating systems.	9.0	10.0	7.5
Heat pump water heater ≥ 3.30 UEF.		11.5	13.0	9.0
Optional Lighting, Appliances, & Water Fixtures				
LED lighting installed in all permanently installed fixtures. ¹⁰		0.5	0.5	0.5
Bathroom faucets ≤ 1.5 gallons per minute (gpm) and showerheads ≤ 2.0 gpm.		0.5	0.5	0.5
ENERGY STAR certified refrigerator and dishwasher. ¹¹		0.5	0.5	0.5
ENERGY STAR certified clothes washer. ¹¹		0.5	0.5	0.5

Base requirements

Improvement options

10 points needed to meet v3.0



Low Income Housing Policy Trends

1. First cost concerns are causing questions about energy codes
2. State goals for residential new construction volume driving questions about simplification of construction



Regional Technical Forum – Measures & Sunset Dates

- New Manufactured Homes and HVAC - May 31, 2023
- Manufactured Home Weatherization - May 31, 2023
- Air Source Heat Pump Upgrades and Conversions MH - Dec 31, 2023
- Ductless Heat Pump for Forced Air Furnace SF and MH - Sep 30, 2024
- Ductless Heat Pumps for Zonal Heat MH - Oct 31, 2024
- Residential Heat Pump Water Heaters - Dec 31, 2024
- MH Duct Sealing - Dec 31, 2024
- Manufactured Home Replacement - May 31, 2027

Utility program options remain but likely to change.



**Regional
Technical Forum**



NEEA's Manufactured Home Program Activities

- Transition MPER
- Updated modeled savings
- Transition memo – Q4 2023





Market Activities for 2023

- ENERGY STAR engagement to add points for certification
- Analysis support for NEEMs update to V3.0 of ENERGY STAR
- DOE engagement to encourage final rule
- Heat pump ready project with manufacturers



» **Thank you!**

Mark Rehley, Director – Codes, Standards, New Construction, Emerging Tech
MRehley@neea.org

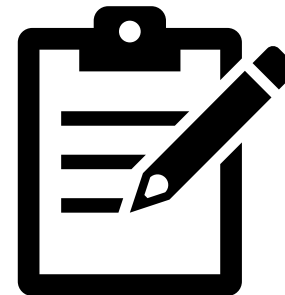


A piece of brown paper with a string tied in a bow. The string is a light brown, twisted cord. It is tied in a bow that is centered horizontally and slightly above the vertical center. The bow has two loops on the left and two on the right. The string extends horizontally across the paper, passing through the center of the bow. The background is a solid, textured brown paper.

Let's wrap it up!



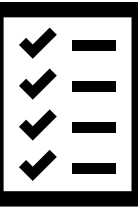
Action Items | Any Final Qs?



- Action Items
 - VSHP: Let Alisyn know ASAP if you/your team would like a 1:1 to discuss the upcoming vote
- Action Items



SURVEY



Meeting Feedback [Poll]



Market Transformation Refresher

- A brief review of market transformation basics and a chance to discuss topics for future RPAC sessions if desired.

Jeff Harris

Desired Outcome: Increased understanding of the fundamentals of market transformation.

Portfolio Update

- Review portfolio reforecast, highlights and composition.

Stephanie Rider

Desired Outcome: Committee informed on portfolio status and priorities.

Variable Speed Heat Pumps

- MT Program Overview
- Prep for planned Program Advancement milestone (Q3)

Emily Moore
Suzi Asmus

Desired Outcome: Committee updated on program development and primed on upcoming program milestone, and any initial questions/concerns identified.

Manufactured Homes Update

- Background on NEEA's Manufactured Home program
- Update on Federal standard, HUD code, and low income housing goals
- Review changes to ENERGY STAR specification
- Share status of manufactured home construction in region
- Discuss impact on regional programs

Mark Rehley

Desired Outcome: Committee updated on regulatory and market changes and planned next steps for NEEA's program.

Please select all that apply

- ✓ **Market Transformation Review was helpful**
- ✓ **Market Transformation Review left me with more questions**
- ✓ **Portfolio Update was helpful**
- ✓ **Portfolio Update left me with more questions**
- ✓ **VSHP Vote Prep was helpful**
- ✓ **VSHP Vote Prep left me with more questions**
- ✓ **Manufactured Homes Update was helpful**
- ✓ **Manufactured Homes Update left me with more questions**
- ✓ **Please contact me**



Public Comment?



Thank you, RPAC!

Q3 Meeting (virtual):

August 29, 2023

