DRAFT: 2020-2024 NEEA Business Plan & Budget

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SECOND DRAFT: 2020-2024 NEEA Business Plan & Budget

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EXECUTIVE SUMMARY

Organizational Purpose
More than 20 years ago, utilities around the region established the Northwest Energy Efficiency Alliance (NEEA), or the alliance, in a coordinated effort to transform markets for energy efficiency. Its purpose:

NEEA is an alliance of utilities[1] that pools resources and shares risks to transform the market for energy efficiency to the benefit of consumers in the Northwest.

Working together, the alliance drives market adoption of energy efficiency products, services and practices throughout the states of Idaho, Montana, Oregon and Washington. Since 1996, the alliance has cost-effectively realized more than 1,400 average Megawatts (aMW) of energy savings through market transformation.

The Value of the Alliance
Through collaboration and pooling of resources, the region's utilities and stakeholders harness their collective influence to drive market adoption of efficient products, services and practices for the benefit of utilities, consumers, and the region in ways that reduce risk for each individual funder, and deliver economies of scale for the Northwest. This Business Plan leverages the strategic investment in the alliance to help realize the full benefits of energy efficiency as the region's least-cost resource and drive sustained market change.

Stewardship of Resources
Energy efficiency delivered through the alliance continues to be a resource for funders in:

1. Providing cost effective energy resources for the region
2. Positioning themselves as a trusted energy advisor to customers
3. Addressing environmental stewardship policies

Value Delivery
By leveraging the market power of the Northwest, the alliance provides economies of scale and reduced risk for individual funders in delivering:

1. Sustained market changes leading to cost effective energy savings for funders and the region
2. New customer engagement opportunities for funders
3. Energy efficiency resources that complement funder resources

[1] Utilities are defined as including the NW region's natural gas and electric utilities as well as the Bonneville Power Administration and the Energy Trust of Oregon. These are NEEA's funders.

Additional Value
The 2020 - 2024 Business Plan will deliver energy efficiency opportunities that support the region in providing flexibility in how funders deliver reliable and affordable electricity and natural gas in a dynamic market. The work will facilitate energy efficiency opportunities that:

1. Enable demand management options in complementary and additive ways to the alliance's core energy efficiency work;
2. Alleviate energy and capacity constraints;
3. Provide opportunity for funders to meet regulatory and potential carbon reduction requirements; and
4. Offer diversification in funders' portfolios of energy resources.

2020 - 2024 Strategic Goals
NEEA will deliver on its purpose, guided by these two complementary strategic goals:

1. Transformation Goal: Sustain a portfolio of initiatives and support functions that enable more cost-effective efficiency to occur sooner, in larger amounts, and/or at lower cost than otherwise expected.

The primary strategies, as outlined in NEEA's 2020 - 2024 Strategic Plan, that the alliance will employ to meet this market transformation goal include:

- Emerging Technology: Routinely scan for, assess, and report on the potential for newly identified efficiency products, services, and practices and test the field performance of the most promising opportunities.
- Effective Portfolio Execution: Implement the prioritized portfolio of initiatives, routinely evaluate progress, and adapt as necessary to achieve accelerated and sustained market adoption.
- Codes and Standards: Influence development and support successful implementation of building codes and equipment efficiency standards and test methods to materially improve efficiency outcomes.
- Convene and Collaborate: Selectively support dialogue and coordinate activities among stakeholders interested in accelerating efficiency through market transformation in the Northwest.
- Market Intelligence: Research, analyze, and provide actionable insight to support identification and pursuit of efficiency opportunities and results reporting.

2. Operations Goal: Continuously improve organizational culture and performance efficacy, ensure accountability and transparency, and strive for innovation in service to the benefit of all stakeholders.

The primary strategies, as outlined in NEEA's 2020 - 2024 Strategic Plan, that the alliance will employ to meet this operational efficiency goal include:

- Optimized Resource Allocation: Engage funders and other qualified advisors to identify, develop, and sustain a portfolio of efficiency-enabling initiatives and activities that are consistent with the alliance's purpose.
- Prioritization Standards: Establish Board-determined policies to assure equitable allocation and appropriate prioritization of efforts.

Value and Success Metrics for this Plan

The activities outlined in this Business Plan will produce market changes leading to energy savings in the near and long-term as well as other value delivery to the region and funders. NEEA staff estimates that the region will benefit from 120-155- aMW of co-created and 365-505 aMW of total regional electric energy savings within the 2020-2024 funding cycle. Between 2020-2029 NEEA staff estimates the region will benefit from 215-330 aMW of co-created and 665-970 aMW of total regional savings. This includes savings from previous and current investment funding. This plan will also deliver an estimated range of 160-280 MW of total 5-year regional peak capacity savings across summer and winter as well as 438,000-565,000 Tons of avoided CO2. The Natural Gas energy savings forecast is XXX therms for the funding cycle. See Appendix 5 for more information on these metrics. Figure 1 summarizes the measurable pipeline, portfolio and operating metrics. Additional value delivery through increased customer engagement opportunities and energy efficiency resources will also result from this Business Plan and are outlined within each strategy in this plan.

Figure 1: Value and Success Metrics

2020 - 2024 NEEA SUCCESS METRICS

Emerging Technology (Electric)	**Target**
Portfolio Advancement	TBD
Market Advancement	TBD
Emerging Technology (Natural Gas))	**Target**
Portfolio Advancement	TBD
Market Advancement	TBD
Portfolio Execution (Electric and Natural Gas)	**Target**
Decreased Whole Building Energy Unit Intensity (EUI)	
20-year Portfolio Benefit Cost-Ratio	
Energy Savings – 2020 - 2024 Current Investments (aMW)	
5 -year aMW savings (2020 - 2024)	
Total Regional	TBD
Co-created	TBD
10-year aMW savings (2020 - 2034)	
Total Regional	TBD
Co-Created	TBD
Energy Savings – 2020 – 2024 Current Investments (Therms)	
5 -year Therm Savings	TBD
Regional Peak Capacity Savings (MW peak reduction)	
5 -year annual savings (2020 - 2024)	TBD
Avoided Carbon Emissions (Tons of CO2 avoided)	
5 -year annual savings (2020 - 2024)	TBD
Operations Metrics	**Target**
YTD Financial Metrics (All Funds)	
Current Quarter Expenses ($millions)	TBD
Full Year Expenses ($millions)	TBD

2020 - 2024 NEEA SUCCESS METRICS	
Administrative Percentage of Expenses (% of total expenses)	TBD
Operational Metrics	**Target**
Employee Retention (annualized %)	TBD

Budget Summary
Figure 2 highlights the budget required by key strategy to deliver on the activities outlined in the Business Plan. See the Budget section for more detail.

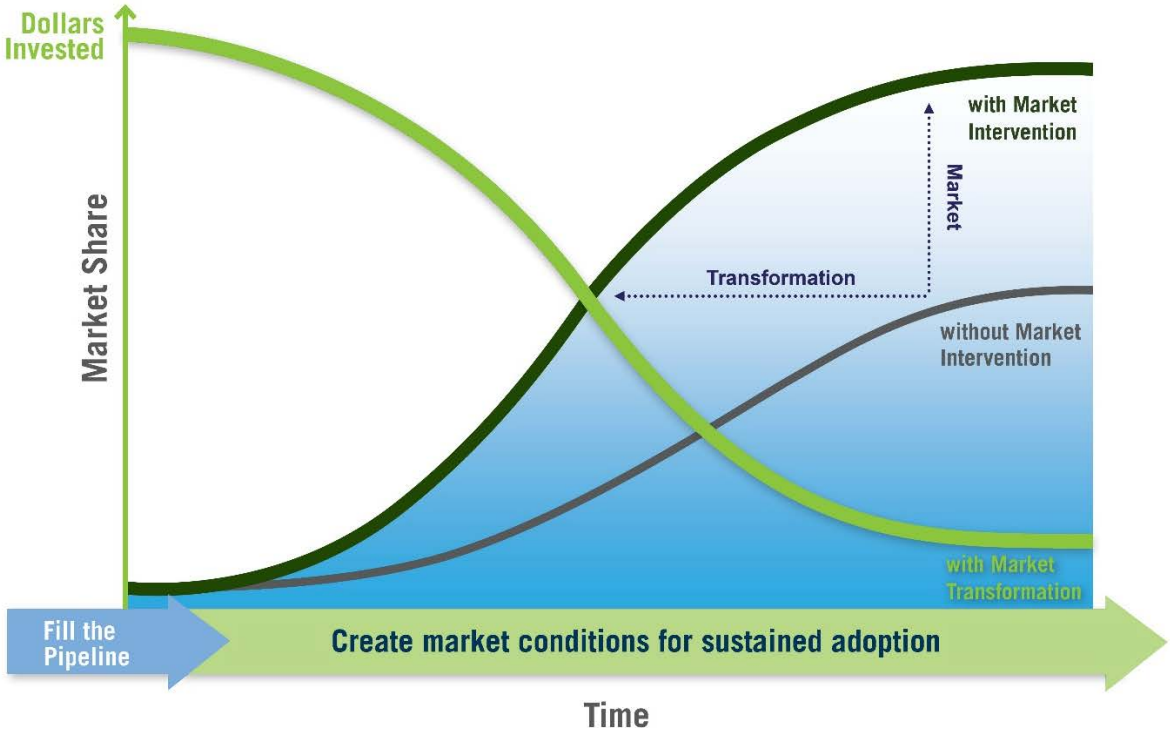
Figure 2: Proposed 5-Year Budget by Strategy

Primary Strategies (Direct costs and Salary & Benefits)	2020-2024 Budget ($ Thousands)	% of Budget
Emerging technology Includes scanning and product management directs and labor costs.	$14,976	8.3%
Effective Portfolio Execution Includes direct and labor costs associated with existing and new programs, including program implementation, marketing, planning, market research, evaluation, market intelligence and codes and standards. Note: Labor costs for codes and standards are incorporated in the codes and standards strategy.	$93,479	51.9%
Codes & Standards Includes direct and labor costs associated with work that crosses multiple programs.	$14,006	7.8%
Market Intelligence Includes direct and labor costs associated with market research, evaluation, planning and market intelligence work that crosses multiple programs.	$11,484	6.4%
Convene and Collaborate	$9,165	5.1%
Administration	$20,867	11.6%
Natural Gas		0.0%
Sub Total Core Activities	**$163,977**	
Optional MT Activities	$6,950	3.8%
Sub Total Electric Activities	**$170,910**	
End Use Load Research	$9,309	5.2%
Total	**$180,219**	

NEEA'S APPROACH TO MARKET TRANSFORMATION

Market Transformation Approach
NEEA's market transformation approach focuses on: identifying energy efficiency opportunities and the barriers that are preventing this opportunity from being realized; and developing and implementing market intervention strategies to remove barriers and exploit market opportunities that accelerate adoption of cost-effective energy efficiency and create lasting market change.

Figure 3: Market Adoption—With and Without Market Intervention



The alliance developed its approach to market transformation more than 20 years ago and has since been using this approach to transform markets to become increasingly energy efficient. Using this approach, the regional alliance has delivered 1,400 average megawatts (aMW) of electric energy efficiency savings to the Northwest, the equivalent of powering more than 985,000 homes each year.

Market interventions need to be deployed strategically, with the sequence and timing of the interventions and the audiences varying depending on the stage in the adoption curve and the specific identified barriers. Figure 3 illustrates this adoption curve and the effect market transformation has on accelerating market adoption of energy-efficient products, practices and services.

Key activities that the alliance will continue to pursue over the next five years as part of its market transformation approach include:

- Conducting market scanning and assessment to identify energy efficiency opportunities;
- Testing and readying new products and services;

- Designing innovative market strategies to accelerate energy efficiency;
- Executing market transformation programs to remove barriers and accelerate energy efficiency;
- Leveraging NEEA's well-established codes and standards expertise and relationships; and
- Facilitating regional coordination and planning.

To create long-term change in the market, interventions often influence the technology developed and brought to market as well as the behavior of both the supply and demand side market actors. NEEA's 2020 - 2024 Strategic Plan outlines numerous macro trends affecting the utility and energy industries. Additional market trends affecting the supply chain include the need to focus on energy efficiency solutions that could be applied across national and global markets. Market consolidation, alignment with state or national regulation, global competition and pressures for greater speed to market are the key drivers of this national and global focus. Supply chain interviewees also described customer demand for energy efficiency as one of several drivers of their investment in energy efficiency programs.

Complementary Skills and Competencies

NEEA is one of many organizations working toward improving energy efficiency in the Northwest. However, the alliance maximizes return on investment by focusing on areas that leverage its core competencies and unique strengths in ways that complement local energy efficiency programs. The characteristics that distinguish the alliance's role include:

- Aggregation of market resources: NEEA is the only alliance of both public and private utilities that represents the entire Northwest to national and global market partners. The aggregation of market resources will provide the region with greater potential to influence market actors, as well as greater economies of scale for the benefit of its regional stakeholders.

- Objective promotion of energy efficiency: The alliance focus will continue to be on energy efficiency. Because it has no product or service to sell or promote, it presents a credible, objective face to the market.

- Risk Pooling: The alliance continues to create a regional impact that delivers at a local level, complementing the efforts of every partner while mitigating individual risk to any one utility or organization.

- Long-term Orientation: The alliance's long-term focus identifies and develops emerging technologies that allow investment in riskier, long-term energy efficiency initiatives not typically undertaken by individual utilities. It also enables and strengthens partnerships with manufacturers, distributors, retailers and trade allies.

The alliance represents a unique mix of competencies and capabilities that has proven to move markets for efficiency, creating a collective impact that exceeds what any one organization could accomplish alone. The alliance will utilize these skills and key competencies in implementing the seven strategies that are part of its portfolio and business operations work.

PORTFOLIO (Electric)

Transformational Goal: Sustain a portfolio of programs and support functions that enable more cost-effective efficiency to occur sooner, in larger amounts, and/or at lower cost than otherwise expected.

Key Transformational Strategies

- Emerging Technology
- Effective Portfolio Execution
- Codes and Standards
- Convene and Collaborate
- Market Intelligence

STRATEGY 1: EMERGING TECHNOLOGY

Description: Emerging technologies and new efficiency measures offer new and significant energy efficiency and demand reduction potential for the region as documented in the 7th Power Plan.[2] Additionally, new innovations are coming to market faster than ever, driven in part by international clean energy investments in energy efficiency technologies that reached their highest level ever in 2017.[3] New opportunities are present in every sector and for every end use. Unit efficiencies are improving, and integrated intelligence is amplifying the benefits and savings. Along with increasing connectivity, these trends are creating new opportunities to embed flexible demand capability in energy-efficient products and services as additive value to existing energy efficiency-focused market transformation work.

Definitions

Emerging Technology: An energy-efficient product, service, or best practice that has the potential to improve in performance, expand to new markets, and/or bring new value to the market.

Pipeline: Emerging technologies at various levels of readiness: market, product and program.

Market Conditions and Assumptions Driving Emerging Technology Work

1. Energy efficiency emerging technology opportunities will continue to will continue to exist for the region through 2024.
2. While emerging energy efficiency technologies are plentiful, their complexity will continue to increase due to the common occurrence of integrated sensors and controls along with connectivity in new products.
3. Pay for performance and other performance-based energy measurement approaches will become more common due to the growth of products that are intelligent and connected, enabling performance adjustments and new features at a pace that virtually

[2] The Seventh Northwest Power Plan ("Plan") identified 4,300 average MegaWatts (37.7 million MWh per year) of energy efficiency potential in the Northwest by 2035. Approximately 50% of these savings are from new or emerging technologies. https://www.nwcouncil.org/energy/powerplan/7/plan/

[3] Bloomberg Clean Energy Investment Trends, 2017; Abraham Louw; Published January 16, 2018 - International investment in Clean Energy Technology, including energy efficiency, was up 3% in 2017 where it reached the second highest annual figure ever. While the leading investment area was solar, energy smart technologies was third, and at $49Bn the investment was the highest ever recorded. https://data.bloomberglp.com/bnef/sites/14/2018/01/BNEF-Clean-Energy-Investment-Investment-Trends-2017.pdf?elqTrackId=2e6e6b2aa1f946bca67cd74d9e20babb&elq=e127cb71783d4a818c06f279910f3ded&elqaid=10316&elqat=1&elqCampaignId=

negates traditional custom and prescriptive approaches to unit energy savings. This will add a layer of complexity to regional emerging technology and program efforts.

Objectives

1. Help the region achieve its long-term savings goals by tracking and assessing new measures identified in the power plans and by the Regional Technical Advisory Committee process.
2. Increase regional savings potential by scanning, tracking and assessing new technologies not captured in the power plan.
3. Advance the alliance's portfolio of market transformation programs by introducing new emerging technologies with the strongest market transformation potential.

Success Metrics

1. Portfolio Advancement: Total energy efficiency market potential[4] of emerging technologies advanced into the alliance's market transformation portfolio over the 5-year business cycle.
2. Market Advancement: Total energy efficiency market potential of emerging technologies readied for market development over the 5-year business cycle.

Key Activities to Provide Value to the Region

Within the alliance's portfolio of programs, a large portion of the work will focus on scanning for emerging technologies and advancing them through product management. These activities will address products relevant to the markets specific to those programs. Additional emerging technology efforts outside of programs will scan for new opportunities and will track and advance the readiness of those technologies to achieve the transformation goals. By leveraging the alliance's core strengths of market influence, economies of scale and risk pooling, the region can benefit from emerging technologies at a lower risk and cost than if each organization explored these technologies on their own.

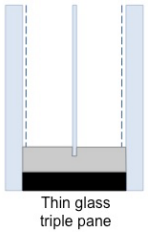
1. Scanning:
   The alliance scans for technologies through:
   - An open unsolicited proposal process;
   - Collaboration with national labs, APRA-e, and other organizations outside the Northwest; and
   - Discussions with manufacturers and other market actors.

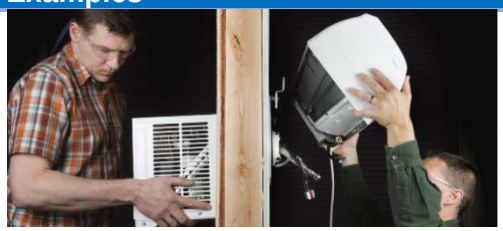
2. Tracking:
   In cooperation with members of the Regional Emerging Technology Advisory Committee (RETAC), NEEA staff developed a regional pipeline that includes emerging technologies and needed or active projects to assess these technologies. A common framework for the status (readiness) of the technologies along with a common taxonomy for categorizing the technologies enables anyone interested in or working on emerging technologies to see opportunities and add their contributions (See Emerging Technology Appendix 6). The regional pipeline has increased the effectiveness of regional coordination and encouraged out-of-region organizations to reference and build on the region's work. The regional pipeline, combined with regional and national collaboration, will continue to be core organizing elements in advancing emerging technologies in the 2020 - 2024 business cycle.

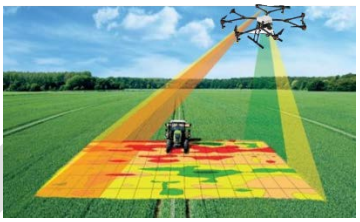
3. Product Management:
   Once technologies are identified and prioritized, the alliance works to translate the technologies into a product or measure that can be evaluated for energy savings, tracked in the market, and is useful in meeting the region's goals. Product management involves defining the product, considering the product's value based on opportunities and market barriers, developing and evaluating test methods, collaborating on performance specifications, testing commercially available products, planning for product evolution, and collaborating with manufacturers to adjust products to better meet the needs of the Northwest. Product management activities vary significantly between products, but they are more aligned within product groupings. The high-level product management activities are highlighted in the description of the product groups that follow in the Effective Portfolio Execution section.

Examples of Electric Emerging Technology Opportunities

These are some of the examples of technologies that the alliance is tracking that could provide value to the region.

End Use	Emerging Technology	Examples
Envelope	• Light weight triple pane windows • Surface applied window films with self-powered / dynamic control of solar gain and light bending for deeper day lighting and low emissivity for reduced solar gain.	
Lighting	• Lamps with twice the efficiency of today's LEDs • Integrated batteries in lamps, light fixtures and other products encourage highest efficiency and provide built in resiliency.	 
Motors and Drives	• Brushless motors with 5% or better efficiency improvement and greater longevity. • Motor systems with integrated sensors and controls insuring efficient operation across wide operating conditions.	

End Use	Emerging Technology	Examples
HVAC	• Heat pumps capable of remaining productive and efficient through low and high temperatures. Controls enable flexible load management. • Broader range of sizes to enable more applications.	
Water Heating	• Water heaters with improved heat pumps and flexible demand controls for energy storage and load shifting. Smaller form factors for multi-family water heating.	
Heat Pump Advances	• CO2 and other natural or low carbon refrigerants. • Variable capacity and control to efficiently heat and cool over a broader temperature range.	NATURAL REFRIGERANTS 
Consumer Products	• Level 2 battery chargers 5% more efficient and 15x faster than level 1 chargers. • Televisions and displays with higher resolution, brighter colors, and larger sizes without energy intensity gains. • Connected home devices that control lighting, HVAC, appliances and electronics, etc.	  
Compressed Air	• Intelligent valves that save compressed air, track usage, and provide alerts when something is wrong.	

End Use	Emerging Technology	Examples
	• Smart air nozzles that use 50% of the compressed air compared to other nozzles.	
Agriculture	• Data collection through drones and other sensors provide valuable feedback to better manage water, fertilizers, etc. to improve yields and lower costs.	

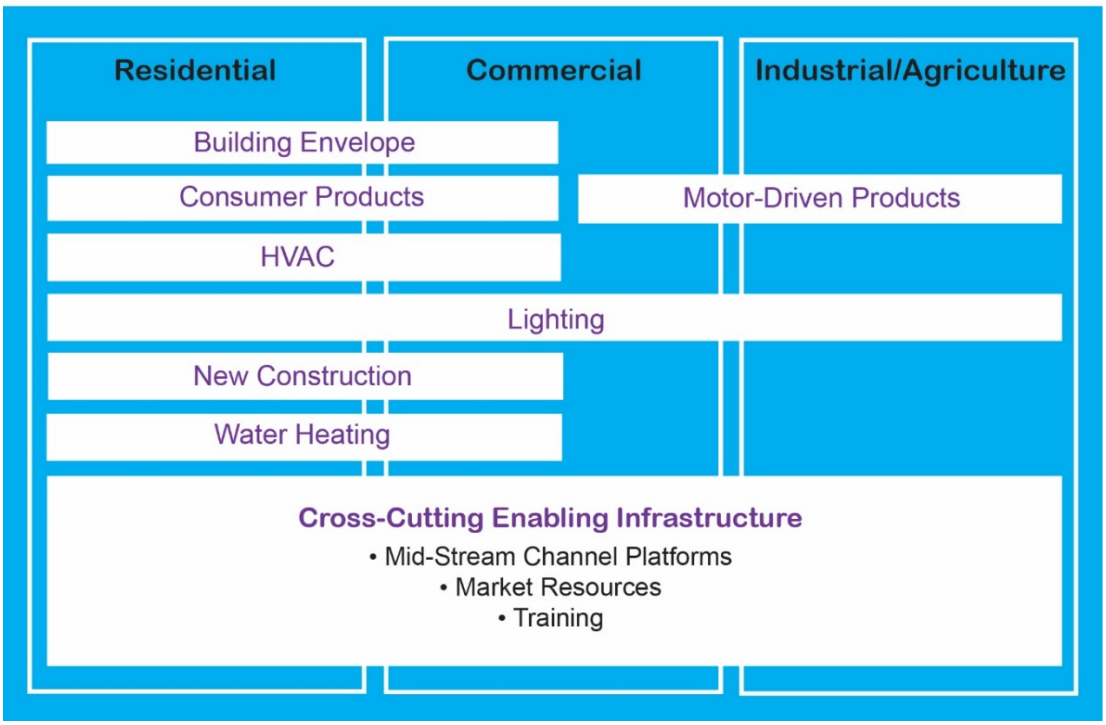
STRATEGY 2: EFFECTIVE PORTFOLIO EXECUTION

Description: Once a new energy efficiency opportunity is identified and proven to deliver reliable energy savings, the alliance develops and implements market transformation initiatives at a scale designed to accelerate adoption of these new opportunities. For 2020 - 2024, the alliance is proposing to operate a portfolio of market transformation programs that can be grouped into seven Cross-Sector Products.[5] Within each Cross-Sector Product category, the alliance is developing and implementing programs and enabling infrastructure activities that have the potential to deliver significant energy savings opportunities for the region, while transitioning out of programs with diminishing potential.

Cross-Sector Products Approach

NEEA's market transformation framework will continue to enable energy savings opportunities for the region by leveraging relationships and market channels to align with Cross-Sector Product opportunities. This creates efficiencies for the supply chain whose delivery channels and technology applications frequently target multiple customer sectors. The approach also creates greater leverage across alliance programs, resulting in increased operating efficiencies for the alliance. Figure 2 illustrates the categories of Cross-Sector Products the alliance will focus on, although additional categories may emerge. Each of these cross-sector products includes multiple programs and emerging technologies that share supply chain and market opportunities. Each Cross-Sector Product category also includes enabling infrastructure that is leveraged by multiple market transformation programs across sectors in building market capability, awareness and demand for energy-efficient products, services and practices or new customer engagement opportunities for funders.

Figure 4: Cross-Sector Products and Enabling Infrastructure



[5] Products as defined in this Business Plan refer to products, practices and services.

Increasing Northwest Market Leverage Through Extra-Regional Collaborations
The alliance will also investigate and pursue emerging technology opportunities within each Cross-Sector Product category. The alliance will seek to leverage its own efforts to increase market adoption through collaborations with extra-regional organizations that share the same goals and objectives. Traditional collaborators have included ENERGY STAR, Consortium for Energy Efficiency (CEE), American Council for an Energy-Efficient Economy (ACEEE), U.S. DOE, national laboratories and others. The alliance has also collaborated with extra-regional utilities in specific programs, and on codes and standards activities.

Partnerships with these entities have influenced efficient product designs and changed distribution and stocking strategies. NEEA staff has unique relationships with these market actors built on a long history of success in the Northwest. However, the alliance has limited ability to influence market demand for these products outside the Northwest; which national and global market actors require to fully support new, efficient technologies. To do that, the alliance works with extra-regional partners that can help build market demand outside the region in coordinated and consistent ways.

See Operations Efficiency section for more information on how the alliance will collaborate within the Northwest.

Embedding Flexible Demand Capability in Energy-Efficient Products and Services
Many of the technologies that generate energy efficiency have a secondary ability to control or modify the demand that these devices place on the system. If properly configured and connected, these technologies can provide both energy and capacity in support of the changing needs of the Northwest electric power system. This provides additive value to existing energy efficiency-focused market transformation work.that

- NEEA will work with market actors to make the necessary changes to enable efficient products to be capable of being exercised as flexible demand resources.
- NEEA will also work with standard setting organizations, utilities and manufacturers to move toward common technical specifications that the industry can adopt, resulting in economies of scale and further reductions in the incremental cost of this capability.

An example of this work is Heat Pump Water Heaters (HPWH)**.** HPWHs already include sensors, controls and connectivity options as part of the standard feature set for these products. Adding capability to be grid-enabled is primarily a matter of configuring the software and connectivity of the product. However, manufacturers need to know what protocols to design to before they are willing to make the investment to change their manufacturing processes. The alliance can leverage its strong position with manufacturers to ask for all HPWHs to have specific product capabilities that reflect a regional consensus on technical requirements.

Market Conditions and Assumptions
NEEA's 2020 - 2024 Strategic Plan outlines numerous macro trends affecting the utility and energy industries. Additional market trends affecting the supply chain and their work with the alliance emerged through interviews conducted with the supply chain. Key themes from these interviewed inform the following assumptions:

1. Market consolidation, alignment with state or national regulation, global competition and pressures for greater speed to market are increasing pressure for manufacturers to seek

solutions that cross regional territories. To maintain leverage with these market actors, the alliance must focus on energy efficiency solutions that can be applied across national and global markets and coordinate consistent delivery of these solutions across the nation.
2. Low commodity costs are making it more difficult to acquire energy efficiency cost-effectively and require new and different approaches to capitalize on synergies and reduce program costs.
3. The supply chain and the alliance assumes that increased customer loyalty can be achieved through energy efficiency programs.

Objectives

1. Implement market transformation initiatives that deliver sustained market change resulting in energy savings, capacity savings and avoided carbon emissions
2. Increase market channel leverage for funders and the region

Success Metrics

1. Energy Savings: Estimated Total Regional Savings[6] and Co-Created Savings[7] forecasts for the Alliance Portfolio. Five (2020-2024) and ten (2020-2029) year forecasts of the initiative investment portfolio will be provided.
2. Peak Capacity Savings: Annual achieved and 5-year estimated regional capacity savings forecast as a result of the total Co-Created savings forecast
3. Avoided Carbon Emissions: Annual achieved and 5-year estimated regional avoided carbon emissions as a result of the total Co-Created savings forecast
4. Benefit-Cost Ratio: The Portfolio benefit-cost ratio reflects the 20-year value of the regional investment in market transformation efforts.
5. Increased Whole Building Energy Unit Intensity: For all commercial buildings, NEEA will measure and report the change in site-based, weather normalized, metered EUI on an annual basis. A 2024 target will be set and annual progress will be tracked against the target EUI. This will drive a better understanding of how and when energy is being used, and provide progress toward actual efficiency goals.

Key Activities to Provide Value to the Region

1. Cross-Sector Products

Develop and implement market transformation programs by identifying and removing market barriers. See Appendix 1 for more information about each of these cross-sector products, the unique role the alliance will play in successfully implementing them in the market and how this will be done.

[6] Total Regional Savings: All savings calculated above the pre-intervention market starting point.
[7] Co-Created Savings: Savings above the naturally occurring market baseline that is established at the start of the program. This includes local utility program savings and the calculated remainder called Net Market Effects.

Figure 5: Cross-Sector Product Categories

Cross-Sector Products	Market Description	Objectives
Building Envelope	Includes the supply chain that manufactures, distributes and sells the physical separator between the interior and exterior of a building (aka the building envelope), which includes walls, fenestration, and roofs, and the end consumer who purchases them. NEEA's current focus is on window products because they are the weak link in the envelope. These products includes secondary glazing systems (SGS), low-e storm windows (LES), shades, and blinds.	1. Increase availability of certified and labeled window attachment products. 2. Drive awareness and sales of high-performing, energy-efficient window attachment products within the commercial sector, initially focusing on SGS and LES. 3. Create market transformation opportunities for other window attachment products, such as films and shades. 4. Identify and explore market transformation opportunities for new high performance primary windows and innovative lower cost wall systems.
Consumer Products	Includes the entire supply chain (manufacturers, distributors, retailers -physical and online- contractors and installers) that deliver consumer goods and services in high volume, as well as the end consumers who purchase them.	1. Improve DOE or EPA test protocols so that they accurately reflect real-world conditions and energy savings. 2. Influence ENERGY STAR specifications or federal standard updates.
Motor-Driven Products	Includes the supply chain that manufactures, distributes, specifies, designs and installs motor driven products such as pumps, fans, compressed air systems and high-performance motors as well as the decision makers who influence the purchase of these products.	1. Increase awareness, stocking and sales of efficient motor-driven products, initially focusing on pumps. 2. Create market transformation opportunities for other motor-driven products, such as fans, compressed air systems, and high performance motors. 3. Support procurement practices and standards to drive adoption of more efficient motor-driven products with integrated controls. 4. Eliminate inefficient products by influencing future DOE rulemakings on Pumps, Fans, Compressed Air, and Motors.

Cross-Sector Products	Market Description	Objectives
HVAC	Includes the supply chain that manufactures, distributes, specifies, designs and installs commercial and residential HVAC products and the end consumer who purchases them.	1. Transform the market so that unitary, inverter-driven, variable speed heat pumps (VSHP) are the affordable product of choice to replace electric forced-air-furnaces in single-family site-built and manufactured homes 2. Increase Northwest specifiers and installers skill in identifying, designing, sizing and configuring the most efficient HVAC system for each application. 3. Transform the market so that Very High Efficiency Dedicated Outside Air Systems (VHE DOAS) are common practice in applicable existing and new small to medium-sized commercial buildings 4. Influence the voluntary market to enable VHE DOAS to be required in International Energy Conservation Code, WA, OR, ID, and MT commercial building code.
Lighting	Includes the supply chain that manufactures, distributes, specifies, designs and installs lighting products, including lamps, ballasts, controls and fixtures as well as the end consumers who purchase these products.	1. Transform the market so that controls are a standard fixture feature for little to no additional cost. 2. Identify market transformation opportunities for advanced lighting control systems in space types not well suited for LLLC – retail is an especially significant opportunity. Also, identify efficiency opportunities for control systems that encompass lighting plus other building systems. 3. Identify market transformation opportunities to drive the market toward higher efficacy light sources. The Distributor Platform, as an existing mechanism for influencing distributor sales practices and tracking progress via sales data, offers a valuable market lever for this goal.

Cross-Sector Products	Market Description	Objectives
New Construction	Includes the supply chain that designs, builds, verifies and sells residential single-family site built new homes, commercial new construction and new manufactured homes built to the NEEM 2.0 specification, as well as the end consumer of these products.	1. Maximize energy efficiency opportunities for new buildings in Commercial and Residential new construction code requirements. 2. Influence developers and builders to incorporate advanced energy-efficient products and practices in new residential and commercial buildings. 3. Inform and enable code advancement through market adoption of energy-efficient products and practices. 4. Establish NEEM 2.0 as the primary above code manufactured home option.
Water Heating	Includes all tank type electric water heaters, including the supply chain that manufactures, distributes (wholesale and retail), specifies, designs and installs commercial water heaters and the end consumer who purchase these products.	1. Support the adoption and integration of the Consumer Technology Association communication protocol CTA 2045 as standard practice across all heat pump water heaters supplied to the Northwest. 2. Contribute to a 2023 federal standard requiring all electric water heaters be heat pump water heaters.

2. Marketing

Create and execute marketing strategies that support cross-sector products in successfully achieving market transformation goals.

Marketing is a key tool in removing barriers and capitalizing on opportunities to increase the adoption of energy-efficient technologies and practices. Barriers that marketing addresses include supply chain readiness, product availability, product quality, awareness, product acceptance and price.

NEEA staff are thoughtful and prudent in the use of marketing to support market transformation, and there is substantial coordination with funders on marketing activities. Marketing activities are conducted in concert with other program interventions to achieve the following outcomes:

- Upstream engagement
- Midstream engagement
- Understanding audiences
- Providing awareness and education to downstream audiences
- Supporting utility and market partner marketing efforts

Marketing activities vary based on program maturity and goals, product availability, and supply chain and market acceptance of the product. Marketing is commonly requested by upstream and midstream market actors as a way to amplify the impact of their activities and assist in building awareness of energy-efficient technologies in the region. Market research is undertaken to validate and provide clarity around barriers to product adoption. When the research indicates awareness or education about efficient technologies are a primary barrier, marketing activities are a vital strategy employed to address the barrier. A few examples:

- When a product is new to the market, marketing is often a key tool in engaging and demonstrating commitment and value to manufacturers.
- As more products enter the market, manufacturers request region-wide education and awareness building from an unbiased third party to augment their individual product marketing efforts.
- Marketing support motivates midstream audiences to complete trainings and to stock and prominently display products.
- Regional websites provide tools and resources in an internet-driven world to educate and inform downstream audiences and then drive them to utility or partner websites.

Alliance marketing activities are designed to work in concert with funder marketing activities. The alliance provides broad education about features, benefits and which customer demographics and climate zones are appropriate for the technology. Once the customer is aware of the technology and benefits, they often seek more information on cost and availability. Utility marketing support focuses on available incentives that make product pricing competitive and may also provide information on qualified installers. The combination of these two approaches effectively provides appropriate information to customers based on their level of awareness and interest in the product.

See Appendix 2 for more information about marketing, how it will be implemented and what the associated success metrics are for this work.

Figure 6: Alliance Marketing

	Description	Objectives
Marketing	Marketing activities accelerate market transformation by providing a clear understanding of the upstream, midstream and downstream target audiences and the best ways to influence them. Marketing directly addresses key market barriers prevalent across the portfolio including lack of awareness, differentiation of energy-efficient products, understanding of product benefits, and lack of supply chain support and investment. Alliance marketing strategies and activities are created and executed in close collaboration with Northwest utilities, extra-regional efficiency organizations, the supply chain and national partners.	1. Drive the adoption of the practices and technologies that the alliance supports through: • Awareness building and education • Partnerships with manufacturers, national/regional organizations • Uniform messaging and promotion to target audiences in the Northwest

3. **Cross-Cutting Enabling Infrastructure**

Develop and implement Cross-Cutting Enabling Infrastructure that builds market capability, awareness and demand for energy-efficient products, services and practices or new customer engagement opportunities for funders.

Figure 7: Cross-Cutting Enabling Infrastructure

Infrastructure	Description	Objectives
Midstream Channel Platforms		
Distributor Platform	This platform is comprised of key relationships, ongoing data collection activities and repeatable program processes developed through previous program work. The platform supports multiple programs for cross-sector products, including lighting, motor driven systems and water heaters.	1. Leverage the relationships, interventions and data capabilities of the distributor platform to achieve cost effective savings and new utility customer engagement opportunities across multiple product categories. 2. Foster mutually beneficial relationships between distributors and the alliance that: a. Motivate distributors to stock and sell targeted energy-efficient products.

Infrastructure	Description	Objectives
		b. Incentivize and facilitate secure delivery of branch-level sales data for targeted product categories.
Retail Platform	While primarily supporting the Retail Product Portfolio program, the Retail Platform is designed to support virtually any energy-efficient Consumer Product flowing through the retail channel. To date, the platform has resulted in deeper relationships with strategic national retailers and extra-regional partners, has provided access to full category sales data, and has given the region greater influence on the ENERGY STAR specification process. For retailers, the platform significantly reduces their costs associated with administration of efficiency programs by creating a consistent process for sharing data and transferring incentive payments.	1. Add additional products and retailers to the platform as needed to accelerate market transformation of consumer products 2. Leverage the platform to support funders' local midstream efforts as requested.
Market Resources		
BetterBricks	BetterBricks is a resource that supports the alliance's commercial and industrial programs by raising market awareness and capability for energy efficiency technologies and decision-making. The target audiences for this work include building owners, property managers, building facilities staff, architects, designers, engineers and contractors. The BetterBricks resource is supported by two main components: 1. The BetterBricks website, which provides information, tools and resources about efficient buildings 2. Market relationships	1. Position BetterBricks as a trusted resource for professionals who own, operate, and manage commercial buildings to learn about energy efficiency best practices and technologies. 2. Facilitate broader adoption of energy-efficient products and practices and higher utilization of utility programs and incentives for commercial buildings.

Infrastructure	Description	Objectives
C+I SEM (OPTIONAL FUNDING)	Strategic Energy Management (SEM) is recognized as a pathway to deeper energy efficiency within commercial and industrial programs, and is a foundation for deeper and more enduring customer relationships. Existing SEM infrastructure is the result of several years of regional investment and collaboration. The previous cycle's work established valuable SEM tools and resources on the online SEM Hub knowledge center, increased consensus on common SEM standards, and improved regional and national collaboration on SEM initiatives.	1. Enable Commercial and industrial customers to see value in SEM as a strategy for meeting their sustainability and energy performance goals. 2. Enable greater development and use of high-value SEM tools and resources by regional stakeholders to launch, grow, and sustain regional SEM programs. 3. Leverages the SEM Hub Energy Management Assessment (EMA) tool to measure baseline SEM practices and identify targeted savings opportunities. 4. Build regional and national consensus on SEM as a best practice or de facto standard.
Training	NEEA builds market infrastructure to support the training needs of the region, serving both regional and funder programs	1. Enable trade allies to effectively specify, design, sell and install the most efficient technology, in support of alliance initiatives and funder program goals.

Figure 8: Cross-Cutting Enabling Infrastructure

This Cross-Cutting Enabling Infrastructure enables existing and future market transformation programs. Figure 8 illustrates how each Cross-Sector Product leverages the infrastructure. See Appendix 4 for more information.

	Distributor Platform	Retail Platform	BetterBricks	C&I SEM (Optional)	Training
Building Envelope		x	x		
Consumer Products		x			
Motor Driven Products	x		x	x	x
HVAC	x		x	x	x
Lighting	x	x	x	x	x
New Construction			x		x
Water Heating	x	x			x

STRATEGY 3: CODES AND STANDARDS

Description: Building energy codes set minimum efficiency requirements for residential and commercial buildings for the design, materials and equipment used in new construction and major renovations. Energy codes present a unique opportunity to assure savings through efficient building design, technologies, and construction practices in a cost-effective way. The alliance supports regional stakeholders in energy code development and adoption, training and implementation.

Appliance and equipment standards specify the minimum energy and/or water efficiency levels of specific products including major home appliances such as clothes washers and refrigerators, commercial and industrial equipment such as motors and transformers, HVAC equipment, lighting, and electronics. Equipment standards are set by U.S. Department of Energy (DOE) through a public rulemaking process. NEEA staff serve as technical experts and providers of data in DOE's rulemakings to encourage the adoption of federal appliance and equipment efficiency standards.

Market Conditions and Assumptions Driving Codes and Standards Focus

1. The codes and standards landscape has evolved substantially over the course of the current business plan. The current federal administration has set aside DOE's federal standards and test and rating procedure rulemakings for an undetermined period. In response, the standards community has turned to state and regional forums to further this work. New partnerships will enable the development of new, more effective test and rating procedures that can be used in voluntary programs to promote the best-performing equipment and systems.
2. Codes and standards continue to be one the most cost-efficient ways to ensure adoption of efficiency measures and provide significant benefits to the consumers. The alliance will continue to work with emerging technologies, utility programs and market research to develop roadmaps and long-term goals for advancing codes and standards through strategic partnerships.

Objectives

1. Influence the development of and support for successful implementation of building energy codes in each of the four states in the region.
2. Continue to advance the equipment efficiency standards and improve the test rating methods and procedures.

Success Metrics

1. Count of new code proposals reducing regional energy intensity that are adopted each year.
2. Count of new product standards which reduce regional energy intensity that are adopted each year.

Key Activities to Provide Value to the Region

With its extensive background in product technologies of many types, and a growing catalog of field data, the alliance can be a leader in these collaborative efforts to advance progressively more efficient codes and standards. Several of the alliance programs and utility programs can leverage the new test and rating procedures to advance regional efficiency work. Later, this work can be leveraged to upgrade federal procedures. In the codes realm, the region has seen some notable achievements in energy code enhancement, especially in Washington State. The

adoption of new codes in all four states demonstrates the regional progress in constructing better buildings and acknowledges steady improvement in building and system technologies. Post-adoption education, training and technical support to local jurisdictions support high compliance rates that, in turn, optimize building performance and realize energy savings in a cost-effective way. Specific activities the alliance implements to support these efforts include:

1. Developing and supporting energy code development in individual states. In Idaho and Montana, this requires supporting code proposals in the national model code International Energy Conservation Code process. In Oregon and Washington, this means supporting code proposals in their respective state-specific code processes.
2. Providing codes education, training and technical support to individual states which will support the implementation of codes and achieve energy savings in buildings
3. Supporting the new test methods on several products and systems including:

    - heat pump and air conditioning systems;
    - packaged commercial HVAC equipment;
    - clothes dryers and clothes washers;
    - certain types of fans, pumps; and
    - several types of split-system hydronic heat pump and chilled water products.

4. Participating in the DOE equipment standards and test procedures rulemaking process by providing technical input, testing and market data and analysis.
5. Collaborating with Emerging Technology, utility programs and market research to develop roadmaps and long-term goals for advancing codes and standards through strategic partnerships.
6. Working with CTA, IEEE, DOE and state and local agencies to standardize requirements governing open standard protocols for flexible demand functionality as an integral component of efficient products and buildings.

STRATEGY 4: CONVENE AND COLLABORATE

Description: The alliance's Convene and Collaborate activities are overseen by the Stakeholder Relations and Corporate Communications functions at NEEA. They include internal and external activities that support effective and transparent regional collaboration and market transformation programs.

Assumptions Driving Convene and Collaborate Activities

1. Funders and stakeholders require communication and coordination on the plans for and results of alliance work through formal and informal channels. Existing channels include:
    - Workgroups: Alliance programs convene workgroups to inform program implementation strategies and activity coordination with funders and stakeholder programs. There are currently 10 workgroups.
    - Advisory committees: These are used to inform program design and market strategies. There are currently seven advisory committees.
    - Board committees: These provide Board oversight and governance of the organization. There are currently four standing and four ad-hoc Board committees.
2. Stakeholder coordination will be sized to align with available resources while balancing regional coordination needs.
3. NEEA staff must have adequate understanding of funder and key stakeholder business needs and how they relate to alliance programs to effectively and efficiently design and execute the alliance's portfolio of work.
4. The market partners and supply chain actors must understand the alliance and the value it brings them for successful execution of market transformation programs.
5. Regional collaboration (both online and in-person) drives market transformation success and brings value to funders and stakeholders.
6. Facilitation of regional collaboration is required to achieve regionally strategic goals identified by funders and stakeholders.

Objectives

1. Ensure all alliance stakeholders are heard and their viewpoints inform alliance work as it evolves by following established Rules of Engagement (See Strategy 6: Optimized Resource Allocation).
2. Convene the region to enable regional energy efficiency work that reflect the diverse needs of the region.
3. Bolster the alliance's market influence to maximize support for Market Transformation efforts.
4. Support organizational development and effectiveness of NEEA staff in understanding funder and regional business needs.

Success Metric

1. Positive funder and stakeholder satisfaction: Measure and maintain strong funder and stakeholder satisfaction through an annual satisfaction survey, and regular funder and stakeholder engagements.

Key Activities to Provide Value to the Region

1. **Board of Directors, Advisory Committees, and Workgroups meeting facilitation to foster:**

- Regional input and conversations that drive alliance work in ways that complement funders' and alliance programs.
- Board of Director leadership, oversight and governance of and advocacy for the organization, and contributions of insight and other support and value.
- Collaboration between market actors, researchers, funders and industry leaders to understand technology and market trends, opportunities, and pitfalls as well as advance energy efficiency opportunities.

2. **Funder Account Management** is implemented to understand and convene discussion on funder and regional perspectives on alliance initiatives, ensure funder coordination plans are implemented throughout every stage of the Initiative Lifecycle Process (see Operations Efficiency section) and that funders have the information and resources needed to collaborate effectively in alliance work.

3. **External Communications** that increase supply chain understanding of the alliance and the value it can provide market partners through its corporate website, program communications materials, and other strategic communications, including those related to Strategic and Business Planning. Corporate communications supports market transformation programs through recognition and celebration of market partner success and participation in alliance programs.

4. **Efficiency Exchange Conference** is an event provided for the benefit of staff from funding organizations and stakeholder organizations. The conference provides a forum for knowledge-sharing to help regional energy efficiency professionals achieve their goals as well as networking opportunities.

STRATEGY 5: MARKET INTELLIGENCE

Definition: Market Intelligence (MI) is defined as the systematic and objective identification, collection, analysis, and dissemination of data, information, and insight for assisting decision making to advance and report progress of energy efficiency and market transformation. This definition covers work in evaluation, research, regional studies, planning and market trend analysis.

Assumptions Driving Market Intelligence Focus

1. Market Research and Evaluation efforts:
    - The region will continue to value independent evaluations on all programs.
    - The number and complexity of programs will continue to increase over time.
    - The demand for information gathered through Market Research will continue to increase to support adaptive management and continual improvement on programs.

2. Large-scale Collection and Analyses Studies:
    - The region will continue to value Commercial Building Stock Assessments (CBSA) and Residential Building Stock Assessments (RBSA) in the region within this business cycle.
    - There is an emerging need for a Multi-Family Stock Assessment. Multifamily buildings are making up a large and increasing share of new construction in the region, with nearly a third (31%) of commercial building floor area since 2013 happening in these building types, including an increasing portion in Idaho and Montana.
    - The depth and number of codes that will be necessary to evaluate will increase
    - Large-scale collection and analysis studies will require the same level of Stakeholder Engagement.
    - A lack of awareness of existing data has led to expensive duplication of research, and enabling direct access to regionally-specific energy efficiency data would help streamline and enhance regional energy efficiency efforts.

3. Market Planning:
    - The region will continue to value the alliance's work to analyze, estimate, document, report and forecast the potential energy savings and other value metrics associated with the market transformation efforts of each measure and for the full portfolio, in accordance with current energy savings accounting practices.
    - Funders will continue to require reporting and forecast needs as is currently done.
    - Measure levels are increasing in complexity and volume. Alliance measures have grown from 2014 levels of 80 measures to a current volume in 2018 of 170+. The alliance expects the size and complexity of its portfolio to remain at this current level, if not increase due to the system integration overlap complexity of future measure work.
    - Granular data gathering efforts will continue to be needed to inform service territory performance.
    - Market data gathering above and beyond program data needs will be needed to support Northwest Power and Conservation Council data and planning needs.

4. Marketplace Trend Analytics:
    - An increase in requests for data analytics that target the customer types, buildings, or areas that are most likely to engage with specific technologies or activities will continue.
    - Many of the data sets, tools, and capabilities NEEA has organized for Marketplace Trend Analytics are done cost effectively, leveraging NEEA's nonprofit status.
    - Applying the findings of CBSA, RBSA, MFSA, and EULR to the region's building stock will continue to identify opportunities for improved performance and identify gaps in regional energy efficiency efforts.

Objectives

1. Ensure valuable and defensible evaluation, market progress tracking and energy savings accounting and estimating to assess results from market transformation efforts.
2. Provide research and market intelligence that lends value to program and business planning needs for internal and external partners.
3. Maintain data collection and housing best practices.

Success Metrics

1. Actionable information: Evaluations that provide valuable inputs for program planning and validated assumptions for best accuracy of savings and other value reporting
2. Customer service: Meet individual funder and Power Council needs for savings forecasting, reporting and other data or market intelligence needs in a timely, accurate manner
3. Actionable data: Increased and/or comprehensive access to data, data infrastructure, and analytics necessary to strategically influence the market toward measurable transformation

Key Activities

Through the MI work, NEEA enhances decision making and mitigates risk for the region for current programs, as well as for the next generation of resource planning and programs. When done on a regional scale, this work provides substantial economies of scale. Specific MI activities that support the alliance's market transformation work through the following areas of work include:

1. **Market Research and Evaluation** to inform market transformation efforts as well as formal evaluations of programs in market development. When possible, the alliance leverages secondary research first to inform program efforts. Primary market research in both quantitative and qualitative forms is used when secondary research is unavailable or inadequate for regional needs. Primary research provides:
    - **I**nsight into potential target market sizing and segmentation.
    - Market characterization efforts.
    - Baseline estimates that project adoption of energy-efficient products, services and practices.
    - Independent, third-party evaluations to assess the impact or processes of alliance- funded programs.

2. **Market Planning** to support the organization with analytical expertise responsible for forecasting and reporting cost effective, energy savings, and other value metrics. The department develops and manages cost effectiveness models, defensible methodologies to measure the effects of market interventions and other valuation tools to support alliance programs at various stages of the market transformation initiative's lifecycle. Market Planning is also responsible for the portfolio management system to ensure that the alliance is on track to meet its business plan goals.

3. **Marketplace Trend Analytics** delivers insights to alliance programs and regional stakeholders to assist in their strategic decision-making. NEEA creates, purchases, and compiles gigabytes of regional data to answer business questions through the blending of data sets. These analyses may be as simple as targeting households based on structure and demographic data for a single program to inform targeted outreach or as complex as identifying representative census blocks for building stock analysis research in the Northwest. This work will include development of an open data catalog which will enable secure sharing of data across the region easily among stakeholders and create interactive web-based views of building stock, demographics, business types, and other critical factors for program staff and stakeholders to consider while developing market transformation strategies.

Other Market Intelligence activities that support alliance and regional energy efficiency efforts include:

1. **Large-Scale Data Collection and Analysis Studies.** NEEA manages large-scale data collection and analysis studies, including:

   Stock Assessments

   Regional Building Stock Assessments (Commercial & Residential) that characterize the existing building stock to account for regional differences such as climate, building practices and fuel choices. The residential assessment will focus on single family homes. These stock assessments will also collect and analyze plug load data to help the region identify opportunities to manage plug load growth as well as for the residential single family study identify "the why" behind the energy trends of building stock and behavioral tendencies of occupants. This will improve the alliance's ability to understand the drivers of the data and influence energy efficiency efforts going forward.

   - **OPTIONAL ASSESSMENT: A Multi-Family Dwelling Stock Assessment Study.** To accurately characterize the Multi-Family Dwelling Unit building stock, sample design and data collection protocols need to be different from single family residential buildings and commercial buildings. By performing a Multi-Family Building Stock Assessment, the alliance will have a better understanding of the market which will support new energy efficiency opportunities.

   - **OPTIONAL ASSESSMENT: An Industrial Equipment Stock Assessment.** Instead of executing an Industrial Facilities Stock Assessment, NEEA will perform an assessment that characterizes energy consumption products used in industrial facilities, such as Pumps, Fans, Motors, etc.

Code Compliance Evaluations

- **State-Specific Code Compliance Evaluations (Commercial & Residential)** that measure the impact of code on energy consumption in residential & commercial new construction, identifying the most impactful code and performance opportunities for the region to address.

- This Business Plan proposes to conduct both commercial and residential studies in two states.

2. **Specially Funded Initiative: Northwest End-Use Load Research Study.** The alliance, in collaboration with organizations in the Northwest, is currently conducting a specially-funded Northwest End Use Load Research Study to determine how residential and commercial customers in the region are using electricity. To perform this Study, NEEA and its partners plan to meter electric circuits in 400 residences throughout the Northwest for five years at one-minute intervals. Energy use data for key residential end uses of electricity, including heat pumps, heat pump water heaters, forced air furnaces, central air conditioners, and electric baseboard heaters will be obtained. In the commercial sector, approximately 100 buildings are planned for metering. Having this information can help the region achieve its clean energy goals by providing a more accurate assessment of the contributions of energy efficiency technologies towards reducing peak demand, lowering energy resource costs, integrating renewable energy into the grid, displacing harmful air emissions, and maintaining reliability as the deployment of distributed generation and new end use technologies increases over time.

PORTFOLIO (GAS) – Section to be added in a later draft.

OPERATIONS EFFICIENCY

Operations Goal:
Continuously improve organizational culture and performance efficacy, ensure accountability and transparency, and strive for innovation in service to the benefit of all stakeholders.

Key Operational Strategies

- Optimized Resource Allocation: Engage funders and other qualified advisors to identify, develop, and sustain a portfolio of efficiency-enabling initiatives and activities that are consistent with the alliance's purpose.
- Prioritization Standards: Establish Board-determined policies to assure equitable allocation and appropriate prioritization of efforts.

The alliance has established a framework of collaboration, portfolio management processes, and internal staff organization that all work in combination to support this goal and related strategies.

STRATEGY 6: OPTIMIZED RESOURCE ALLOCATION

Description
The Northwest has a rich history of successful collaboration in energy efficiency. Collaboration continues to be a central part of how the alliance advances regional market transformation.

NEEA takes a Complementary Approach[8] in its work, supporting utilities' local program activities, and in turn local program activities support regional work. NEEA recognizes the importance of the utility/customer relationships, and focuses on efforts that reduce and/or remove market barriers, primarily Upstream and Midstream and on readiness of market transforming energy efficiency for best overall value and sustained market change.

Objectives

1. Comply with processes and policies outlined in the Activities, Processes and Policies section.
2. Solicit feedback and continuously improve the process in consultation and collaboration with NEEA's Board governance process.

Success Metrics

1. TBD

[8] As defined in the Key Terms: The alliance supports utilities' local program activities, and in turn local program activities support regional work. NEEA recognizes the importance of the utility/customer relationships, and focuses on efforts that reduce and/or remove market barriers, primarily Upstream and Midstream and on readiness of market transforming Energy Efficiency for best overall value and sustained market change.

Activities, Process and Policies

1. Advisory Committees and Workgroups
   NEEA facilitates a set of advisory committees and working groups, focused on specific functions, industry sectors or programs to develop and sustain its market transformation portfolio. Working closely with the stakeholder and funder staff on each of these committees, NEEA staff solicits input on the market transformation theory and design associated with each initiative early in the process, to collaboratively design, plan and coordinate the market transformation strategy and implementation activities. This ongoing collaboration helps the alliance better leverage resources, add complementary value and avoid redundancies or conflicts between local and regional efforts. The figure below illustrates the committees that NEEA convenes in its market transformation work:

2. Funder Coordination
   To help ensure that the alliance invests in and operates programs with long-term goals that support funder goals and efforts, it provides detailed business case documentation to support ongoing collaboration with RPAC and advisory committee members. Key components of the business case include: progress and findings to date; planned activities for the next stage; investment rationale and proposed budget, including estimated energy savings; market transformation theory, including market drivers, barriers and intervention strategies; and a Funder Coordination Plan with detailed roles and responsibilities to clarify expectations for funders and for NEEA staff regarding the execution of and coordination on key program activities. In addition to the above process, there is a formal intervention process (i.e. the challenge flag), which allows funders to request changes and improvements if a funder believes a program is heading in a direction contrary to that agreed upon.

3. Standard Rules of Engagement

   Across all its work, NEEA staff acts in accordance with the following rules of engagement:

   1. NEEA will develop a local/regional Funder Coordination Plan and clearly defined roles and responsibilities in collaboration with funders as part of the program business case prior to each milestone decision;
   2. NEEA will NOT engage with market actors in a funding utilities' territory without approval as detailed in the approved program business case;
   3. NEEA will NOT engage with or market directly to utility customers unless the activities are approved as part of the program business case; and
   4. NEEA will ask local utilities to work with NEEA staff to identify potential areas of overlap with local market actors early in initiative planning/design to avoid conflict/surprises.

   NEEA's overall objective is to facilitate a high level of input and consensus, without increasing complexity or time needed to meet market transformation goals. NEEA staff is committed to continuous improvement, and will seek to streamline processes, use and exercise sound project/program management practices, and to adapt as conditions change moving forward.

4. Initiative Lifecycle (ILC)

   NEEA has established a portfolio management system which provides a clear framework for decision-making on market transformation program investments. Through the Regional Portfolio Advisory Committee (RPAC), NEEA staff actively manages the portfolio of activities to deliver value based on a range of criteria, including: energy savings, levelized cost of energy saved, regional equity, rural/ urban equity and risk.

   Each program within the alliance's market transformation portfolio goes through a consistent stage-gate development process called the Initiative Lifecycle, as illustrated below:

Figure 9: Alliance Initiative Lifecycle

   At two stages of this Initiative Lifecycle, a formal vote by the RPAC is taken for any market transformation program to advance. These two key decision points are: 1) prior to an initiative being adopted into the alliance market transformation program portfolio (i.e., Initiative Start); and 2) prior to an initiative being approved to scale-up its market activities (i.e., Scale-up Approval).

5. Portfolio Management Practices

   NEEA staff manages the portfolio to a set of portfolio metrics, developed by RPAC, that staff use to assess the health of the overall program portfolio, including short- and long-term savings, long-term equity factors, and short-term risk factors (detailed below.) The purpose of these metrics is to provide visibility to the nature of the regional investment portfolio and guide investment decisions.

   Within the market transformation portfolio, NEEA staff evaluates these five risk factors for each of its programs:

   - *Unproven market*: if engaging in an unfamiliar market, may have limited established relationships or information
   - *Unproven technology*: if working with technology that has not been proven in other markets or applications, will technology be a big disruptor to behavior expectations
   - *Late life savings*: Will the market transformation be a long slow ramp and so majority of savings potential is in the outer years

- *Measurability*: Will the data access or savings measurability be a challenge or straightforward
- *Cost effectiveness*: if there is a clear path to cost effectiveness or is there risk, large barriers such as price, or future growth that might affect cost effectiveness

Staff assesses each program on these five risk factors, and assigns a risk score for each factor. Each program, and the entire portfolio is aggregated based on these five factors. These factors are reassessed and re-scored with each initiative milestone to reflect program progress on risk mitigation and identify any persistent concerns within these five factors.

STRATEGY 7: PRIORITIZATION STANDARDS

Description: NEEA must act as a careful steward of utility customer funds as it is ultimately entrusted with delivering value to those customers on behalf of the utility. As such, NEEA will adhere to carefully crafted Board-determined policies to assure equitable allocation and appropriate prioritization of resources and efforts.

Objectives

1. Adhere to NEEA Board governance structure and policies
2. Deliver an annual operations plan to NEEA's Board that aligns with the approved 2020 – 2024 Business and Strategic Plans and outlines material deviations
3. Track and manage major organizational risks

Success Metrics

1. TBD

Activities, Process and Policies

1. Board of Directors Governance
   The alliance regularly engages its Board and other qualified advisors to identify, develop, and sustain a Portfolio of efficiency-enabling initiatives that support the funders' needs and are consistent with NEEA's purpose.

   NEEA is governed by a Board of Directors, comprised of energy experts, from Northwest utilities, public interest groups, energy service professionals and industry associations. The Board and Board committees provide overall guidance for the organization and oversee NEEA's organizational direction, budget, and progress. At the beginning of each five-year business cycle, the Board leads the process of identifying the starting portfolio of programs and activities; NEEA staff will report variances or updates on progress against the five-year business plan in each annual Operations Plan for Board review and approval.

2. Operations Planning
   Within its own operations, NEEA is committed to careful stewardship of the organizational resources it deploys to achieve regional energy efficiency goals cost-effectively. The organization maintains a high level of rigor in analytical processes including portfolio management; development, delivery and evaluation of programs; contractor management; and budget and expenditure controls. Staff provides a visibility to organizational assets and results, to ensure that an investment in the alliance is in the best interest of the region. NEEA conducts an annual financial audit, and Executive

Director presents a quarterly scorecard of Portfolio performance based upon success metrics identified in the Business Plan.

NEEA's Board of Directors approves the annual Operations Plan and budget, which links key strategies to specific initiatives, performance metrics and milestones and provides input to management systems to ensure delivery of the annual goals and objectives.

3. Organizational Risk Management Policies
   The alliance ensures that external and internal risks to the organization and business are reviewed, updated and communicated regularly. Risk management practices are integrated throughout the organizational structure and quarterly risk review and reporting processes are in place to make sure mitigation strategies progress appropriately. Examples of existing risk management processes and policies include:
   - An annual financial audit by a third party
   - Commercial Insurance coverage including General Liability and Umbrella coverage, Management Liability package, Property, Workers' Compensation, Cyber Liability, etc.
   - Quarterly review of defined organizational risks by designated risk owners. The executive team reviews summary information of mitigations that are outside of established tolerance and responds appropriately.
   - Legal and contractual risk and due diligence practices and guidelines are in place for potential higher risk contracts and activities.

4. Organizational Efficiency
   As part of its stewardship practices, NEEA actively looks to create efficiencies within its work to save time and costs, while achieving expected results.

   The Cross-Sector Product approach outlined in this Business Plan is an example of ways the alliance has maximized efficiencies in the way it delivers value to the region by looking at leverage points across sectors and product categories. Taking a platform approach, where resources, data and strategic partnerships are leveraged across an entire sector or set of programs like with the Retail Platform or the Distributor Platform, also provide efficiencies. And, through creating an internal Market Intelligence function, the alliance provides valuable services and financial savings each year by providing and analyzing stock assessment-related data, scraping existing data from websites and funneling to programs via platforms, as well as supporting more targeted and efficient outreach throughout the alliance's market research and evaluation efforts. This analytical work is many times repurposed across multiple programs, maximizing its value to the region.

ALLIANCE VALUE AND SUCCESS METRICS

Value metrics measure a portion of the value that the alliance delivers to the region as a result of the work outlined in the 2020-2024 Business Plan. The proposed value metrics scorecard in Figure 10 includes measurable metrics that are a balanced reflection of the value delivery achieved from the Business Plan's Transformation and Operations goals and associated seven strategies.

In contrast to the value metrics, success metrics are used by NEEA staff to track progress toward market or business objectives and help the alliance prioritize activities for each annual

operations plan. These success metrics are listed throughout the seven strategies in the business plan and will be tracked on a quarterly and annual basis.

Electric Energy Savings, Regional Peak Capacity and Avoided Carbon Emissions
The activities outlined in this Business Plan will result in energy savings in the near and long-term as well as other value delivery to the region and funders. NEEA staff estimates that the region will benefit from 120-155- aMW of co-created and 365-505 aMW of total regional electric energy savings within the 2020-2024 funding cycle. Between 2020-2029 NEEA staff estimates the region will benefit from 215-330 aMW of co-created and 665-970 aMW of total regional savings. This includes savings from previous and current investment funding. This plan will also deliver an estimated range of 160-280 MW of total 5-year regional peak capacity savings across summer and winter as well as 438,000-565,000 Tons of avoided CO2. The Natural Gas energy savings forecast is XXX therms for the funding cycle. See Appendix 5 for more information on these metrics.

Figure 10: Value and Success Metrics

2020 - 2024 ALLIANCE SUCCESS METRICS		
Emerging Technology (Electric)	**Target**	
Portfolio Advancement	TBD	
Market Advancement	TBD	
Emerging Technology (Natural Gas)	**Target**	
Portfolio Advancement	TBD	
Market Advancement	TBD	
Portfolio Execution (Electric and Natural Gas)	**Target**	
Decreased Whole Building Energy Unit Intensity (EUI)		
20-year Portfolio Benefit Cost-Ratio		
Energy Savings – 2020 - 2024 Current Investments (aMW)		
5 -year aMW savings (2020 - 2024)		
Total Regional	TBD	
Co-created	TBD	
10-year aMW savings (2020 - 2034)		
Total Regional	TBD	
Co-Created	TBD	
Energy Savings – 2020 – 2024 Current Investments (Therms)		
5 -year Therm Savings	TBD	
Regional Peak Capacity Savings (MW peak reduction)		
5 -year annual savings (2020 - 2024)	TBD	
Avoided Carbon Emissions (Tons of CO2 avoided)		
5 -year annual savings (2020 - 2024)	TBD	
Operations Metrics	**Target**	
YTD Financial Metrics (All Funds)		
Current Quarter Expenses ($millions)	TBD	
Full Year Expenses ($millions)	TBD	

2020 - 2024 ALLIANCE SUCCESS METRICS		
Administrative Percentage of Expenses (% of total expenses)	TBD	
Operational Metrics	**Target**	
Employee Retention (annualized %)	TBD	

OPERATIONS AND BUDGET

Administration
Business Administration focuses on the people, processes, and technology required by NEEA staff to effectively execute on the Business Plan goals. NEEA operates based the strength of the human capital of the alliance—both NEEA staff and the staff at funding and stakeholder organizations that collaborate to deliver on regional results. Having the right people, in the right place, at the right time allows the alliance to maximize results and be nimble with regional resources. Efficient, streamlined, and compliant processes allow NEEA as an organization to operate with proficiency and focus efforts on market transformation work. Technology right sized to needs enables business value with increased productivity, collaboration flexibility, quicker decision making, and business reliability. Activities within the Business Administration function includes:

1. Information Technology
2. Finance and Accounting
3. Contracts
4. Human Resources
5. Legal
6. Facilities Management

All parts of the organization work cross-functionally to drive and support market transformation efforts in service to the region.

Budget
For the past 21 years, both public and investor-owned utilities in the Northwest have funded the alliance. Although the details have varied slightly over this time, the basic approach has been proportional funding based on each participant's share of the overall regional power system. The philosophy behind this approach is that all the utilities receive long-term benefits—both from local energy savings and from the regional benefit of reduced demand on the regional power system.

In addition to the base funding provided by NEEA's funders, there may be additional activities or opportunities to advance the alliance's purpose that emerge throughout the course of the business plan from other sources of funding. NEEA has established business processes to segregate and account for additional funding and will ensure additional funding opportunities are reviewed by the Board through NEEA's New Strategic Opportunities Screening and Review Guidelines.

This business plan outlines a five-year budget broken out by strategies outlined in NEEA's 2020-2024 Strategic Plan. The proportion of funding attributed to each year will be reviewed and approved as part of NEEA's robust annual operations planning process.

Total 5-Year Budget by Primary Strategy

Primary Strategies (Direct Costs and Salary & Benefits)	2020-2024 Budget ($ Thousands)	% of Budget
Emerging technology Includes scanning and product management directs and labor costs.	$14,976	8.3%
Effective Portfolio Execution Includes direct and labor costs associated with existing and new programs, including program implementation, marketing, planning, market research, evaluation, market intelligence and codes and standards. Note: Labor costs for codes and standards are incorporated in the codes and standards strategy.	$93,479	51.9%
Codes & Standards Includes direct and labor costs associated with work that crosses multiple programs.	$14,006	7.8%
Market Intelligence Includes direct and labor costs associated with market research, evaluation, planning and market intelligence work that crosses multiple programs.	$11,484	6.4%
Convene and Collaborate	$9,165	5.1%
Administration	$20,867	11.6%
Natural Gas		0.0%
Sub Total Core Activities	**$163,977**	
Optional MT Activities	$6,950	3.8%
Sub Total Electric Activities	**$170,910**	
End Use Load Research	$9,309	5.2%
Total	**$180,219**	

2020 Budget by Primary Strategy and Cross-Sector Product

Primary Strategies (Direct Costs and Salary & Benefits)	2020	% of Budget
Emerging technology (Labor and G&A)	$1,454	3.9%
Emerging technology (Direct Expense)	$1,556	4.2%
Effective Portfolio Execution, Existing & New (Labor and G&A Expense)	$5,473	14.9%
Building Envelope (Direct Expense)	$501	1.4%
Consumer Products (Direct Expense)	$3,288	8.9%
HVAC (Direct Expense)	$1,940	5.3%
Lighting (Direct Expense)	$1,500	4.1%
Motor-Driven Systems (Direct Expense)	$1,151	3.1%
New Construction (Direct Expense)	$1,369	3.7%
Water Heating (Direct Expense)	$2,547	6.9%
Enabling Infrastructure (Direct Expense)	$914	2.5%
LTM&T Not Assigned to a Program (Direct Expense)	$375	1.0%
Codes & Standards (Labor and G&A)	$786	2.1%
Codes & Standards (Direct Expense)	$2,100	5.7%
Market Intelligence (Labor and G&A)	$994	2.7%
Market Intelligence (Direct Expense)	$717	1.9%
Convene and Collaborate (Labor and G&A)	$1,782	4.8%
Convene and Collaborate (Direct Expense)		0.0%
Administration (Labor)	$2,636	7.2%
Administration (Direct Expense)	$1,257	3.4%
Natural Gas	$0	0.0%
Total Core Activities	**$32,340**	
Optional MT Activities	$1,170	3.2%
Sub Total Electric Activities	**$33,510**	
End Use Load Research (Labor and G&A)	$300	0.8%
End Use Load Research (Direct Expense)	$3,023	8.2%
Total	**$36,833**	

2020 Effective Portfolio Execution Budget by Sector

	2020 Budget ($ Thousands)	% of Budget
Effective Portfolio Execution, Existing & New Programs (Labor and G&A Expense)	$5,473	14.9%
Residential	$8,085	22.0%
Commercial	$4,100	11.1%
Industrial & Agriculture	$800	2.2%
Enabling Infrastructure	$914	2.5%
LTM&T Not Assigned to a Program	$175	0.5%
Total	**$19,547**	

Natural Gas

This budget is TBD pending a first draft by the Ad Hoc Committee to Address the Natural Gas Mid-Cycle Review

	2020 Budget ($Thousands)	5-Year Budget ($Thousands)
Natural Gas	NA	NA

Functional Electric Expenses

	2020 Budget ($ Thousands)	Total 5-Year Budget ($ Thousands)
Salary and Benefits	$11,708	$60,588
G&A		
Professional services	$817	$3,891
Equipment & software	$414	$2,091
Travel, professional development	$712	$3,570
Corporate Communications	$298	$1,490
Depreciation	$274	$518
Facilities & Other	$159	$2,426
Project Expenses	$17,958	$89,403
Total Functional Expenses	**$32,340**	**$163,976**

Risk and Challenges

NEEA's success depends on several factors that may fluctuate within a rapidly-changing environment. There are significant risks inherent in these factors which could impact NEEA's

ability to achieve its strategic goals and fulfill its purpose.

Risks that NEEA has plans to mitigate:

Funding: The loss of one funder can create a domino effect resulting in an organization that does not have the leverage required for market transformation. Loss of funder(s) can also create inequity and issues of free ridership across the region. Funding could be in jeopardy if:

- NEEA does not achieve its goals;
- NEEA fails to deliver on its commitments cost-effectively; and/or
- NEEA is perceived by funders as not providing additional value; and/or
- NEEA does not equitably distribute benefits across the region (i.e., urban/rural).

NEEA mitigates this risk by clearly defining and delivering value to funders and by maintaining open, meaningful channels of communication to resolve issues and maximize the alliance's impact.

Different approaches to market transformation: Other parts of the country, including Illinois, New York and California, are actively investigating market transformation. Different approaches by large players in these states could create market confusion and lack of effective market influence for the Northwest.

NEEA mitigates this risk by establishing and maintaining relationships with key players in other geographies to influence and collaborate on market transformation programs.

Risks outside of NEEA's control that cannot be easily mitigated:

There are many ongoing risk factors in the market that are beyond NEEA's sphere of influence, including pressure for utilities to limit rate increases, combined with low load growth and potentially declining avoided costs. Other such risks include:

- Regulatory or governing body decisions that end or curtail investments in efficiency;
- Events or conditions that lead to a significant contraction of the economy;
- Federal government that is less active, or reduces funding for federal standards; and/or
- Significant changes or disintermediation that shift energy efficiency away from utilities.

NEEA regularly monitors activity and developments in the industry to identify potential impacts, and will work through its Board of Directors on specific mitigation, as the need arises. Additionally, NEEA staff uses these analyses to determine proactive mitigation strategies as part of its annual operations plan to ensure the alliance has options ready to address market shifts.

EMERGING BUSINESS OPPORTUNITIES: SPECIAL FUNDING

Section 2 of the Emerging Technology Boundary Condition details areas of opportunity the alliance can explore the business case for in the 2020-2024 Business Plan where energy efficiency isn't the only driving benefit. These are specially funded activities for interested parties since the focus of the work extends beyond energy efficiency. NEEA has outlined two such opportunities and the potential role the alliance could serve with each. These opportunities are available for interested parties and will be considered and funded separately from the regionally funded activities in the Business Plan.

For the past two decades, the alliance has focused its work on accelerating adoption of energy efficiency in support of the region's needs for energy resources. But the needs of the Northwest power system are changing, and capacity is now more of a near-term need than energy in many areas. The 7th Power Plan included a goal of acquiring 600 MW of demand response resources to help the Northwest meet its need for capacity. This goal was limited by availability of traditional demand response programs. Since the 7th Plan, new advancements in technology have the potential significantly increase the size and availability of these resources, and flexible demand and energy efficiency are both benefiting from advances in communication, controls and data collection technologies. As it has in energy efficiency, the alliance could play a significant role in helping the region accelerate adoption of new technologies in end-use devices that would enable a more flexible, efficient operation of the electric system. Since the technologies and interventions are largely common, the alliance could provide this value for significantly less cost than multiple, independent efforts.

Assumptions Driving New Business Opportunities

1. **Capacity is an increasingly important value.** Capacity to support both regional and local electric system reliability is now becoming a significant and potentially larger need than energy. Considering the near future, this need will likely increase as large amounts of traditional generating resources are expected to be retired from the system. While energy efficiency provides a significant, fixed capacity benefit to the system, the need for additional capacity from dispatchable demand that can respond to the needs of the electric system is becoming more apparent.

2. **Increasing need for flexibility in demand.** Increasing amounts of variable-output resources are making it harder for system operators to balance supply and demand. Flexibility in timing and use of energy to accommodate the variability of energy production will be increasingly important as more variable output resources are added to the grid. Energy storage on the customer side of the meter that can efficiently and flexibly support variable energy supply will be an important component of a more flexible electric system.

3. **Accelerating technology advancement in sensors, controls and communications is creating new opportunities for aggregated flexible demand resources behind the meter.** Accelerating developments in technology continue to lower the cost and increase the efficiency of sensors, controls and communications. These developments support the ability to aggregate and control a multitude of smaller end-use loads into significant flexible capacity resources.

4. **Manufacturers are using sensors and controls to establish proprietary relationships with their customers.** Google, Amazon, and Apple's home management

systems have the potential provide valuable information on how home owners use energy and unique methods to lower or shift energy use. Utilities may be able to meet their capacity and storage needs using services provided by these and many other companies, but the costs will likely be higher and the customer experience will be difficult to manage. An opportunity exists while standards are being developed to support open approaches that reduce complexity and increase value to the overall market.

Role of Market Transformation. Market transformation principles and practices can be applied to accelerate the adoption of new technologies that will enable increased flexibility in electricity demand on the customer side of the meter. If successful, the application of market transformation to these opportunities should accelerate adoption, reduce societal cost, and increase capacity for the system.

Role of NEEA. NEEA's core competencies in market transformation and existing partnerships with manufacturers, distributors and decision makers provide a highly-leveraged opportunity to accelerate adoption of new technologies and practices that will support a more flexible system. By leveraging existing energy efficiency market transformation work, NEEA can help the region capture these flexible demand opportunities at the lowest possible cost.

New Business Opportunity 1: Accelerating and Increasing Flexible Demand Resources in Baseline Efficient Products

As the alliance works to transform markets for energy-efficient products, services and practices, there will still be significant market share and sales of products that are not efficient. These areas represent a lost opportunity for both energy efficiency and flexible demand. For some of these products, the incremental effort to get a flexible, demand-enabled device is much lower than for a fully efficient product. For example, HPWHs are still only 10% of regional sales, meaning that 90% of purchases are neither efficient nor enabled for flexible demand. These electric resistance water heaters could include demand management controls at the time of manufacture for significantly less incremental cost than a HPWH. Market transformation practices could be used to accelerate adoption of demand management capability in all products sold into the region.

Barriers to adoption:

1. Lack of market demand: Unlike energy efficiency, manufacturers do not perceive any consumer demand for adding these features and have little or no motivation to spend additional resources to make them capable.
2. Lack of agreement on standards and specifications: Manufacturers do not perceive that the utility industry has aligned on a common specification for communications protocols or command structures. They are reluctant to make changes in their products if they feel that they cannot sell these products to a large enough market to make it worth the effort.

Role for NEEA:

1. NEEA can serve as an aggregator of regional utility demand for these products.
2. NEEA can leverage its existing strategic partnerships with manufacturers, codes and standards organizations and supply chain market to standardize and accelerate the adoption of flexible, demand-enabled features into "baseline-efficient" products.

Funding Model:

1. Support for acceleration of adoption of flexible, demand-enabled technologies would be provided through special funding models.

Example: Flexible Demand Electric Resistance Water Heating. This proposed program would influence electric water heaters (including conventional electric resistance water heaters) to include controls and communications capability that enables full participation as flexible demand resources. That includes the ability to shed load or to store excess renewable energy as needed to optimize grid operations without affecting consumer experience. This capability, if embedded as a standard feature in all water heaters, would build a 250 MWp flexible, demand-enabled resource for the region through the natural replacements of water heaters that fail every year.

New Business Opportunity 2: Integrated Energy Storage in Equipment and Buildings

As the need for more flexibility in the electric system grows, additional energy storage becomes necessary with larger shifts in timing of energy usage from the system. There are significant opportunities to incorporate incremental energy storage components into both equipment and buildings. However, these efforts come at a cost in energy use - due to losses between the charging and discharging cycles – that doesn't reflect as energy efficiency for the end-customer.

Barriers to Adoption:

1. Lack of market demand: Unlike energy efficiency, manufacturers do not perceive any consumer demand for adding these features and have little or no motivation to spend additional resources to make them capable.
2. Lack of agreement on standards and specifications: Manufacturers perceive that the utility industry has not aligned on a common specification for communications protocols or command structures. They are reluctant to make changes in their products without being able to sell these products to a large enough market to make it worth the effort.

Role for NEEA:

1. NEEA can aggregate regional utility interest in these features and work with manufacturers to make these changes that will enable devices to be capable of being exercised as storage resources.
2. NEEA can work with standard-setting organizations, utilities and manufacturers to move toward common technical specifications that the industry can adopt, resulting in economies of scale.

Funding Model:

1. Support for acceleration of Integrated Energy Storage would be provided through special funding models.

Examples:

1. **Enhanced Thermal Storage in Buildings:** By far one of the cheapest forms of integrated energy storage is using hot or cold-water tanks that can then serve heating or cooling needs. These technologies are not new, and costs for large-scale storage are relatively inexpensive. If these tanks are incorporated into the design or specifications at the time of manufacture or new construction for buildings, they can be even less expensive.
2. **Electric Storage:** With the dramatic reduction in cost in batteries, it is now possible to integrate some form of electric energy storage into systems and buildings in ways that increase power system flexibility as well as resiliency. Many buildings already require battery back-up for emergency lighting and critical services. These systems could be

expanded to cover more end-uses, and be connected as grid resources to support flexible capacity needs for the electric system.

APPENDICES

Appendix 1: Cross-Sector Products

Cross-Sector Products

BUILDING ENVELOPE

Market Definition: Includes the supply chain that manufactures, distributes and sells the physical separator between the interior and exterior of a building (aka the building envelope), which includes walls, fenestration, and roofs, and the end consumer who purchases them. The alliance's current focus is on window products, such as secondary glazing systems (SGS), low-e storm windows (LES), shades, and blinds within the commercial sector.

Long-Term Market Transformation Objectives

1. Increase availability of certified and labeled window attachment products.
2. Drive awareness and sales of high-performing, energy-efficient window attachment products, initially focusing on SGS and LES.
3. Create market transformation opportunities for other window attachment products, such as films and shades.

Market Conditions and Assumptions Driving the Market Transformation Opportunity

1. New product standards and labels for window attachment products will continue to create opportunity for differentiation and awareness of more efficient product options in the market.
2. National efforts for window attachment product certification and labeling will help address market barriers of product availability, differentiation, and awareness for the region.
3. Future opportunities for other window attachment products, including films and shades, exist.

Success Metrics

1. Increased adoption rates of labeled window attachment products

2. Increased measures and products to support funder program opportunities

Market Engagement and Activities

1. Engage with **manufacturers and distributors** to shift Northwest sales mix toward more efficient products.
2. Partner with **industry associations**, such as Attachments Energy Rating Council (AERC), on product labeling and broad-based energy efficiency education for distributors, installers and customers.
3. Engage **others in large markets**, such as Northeast and California utilities, to support AERC and increase product availability to reduce costs for the benefit of the Northwest.

4. Leverage **Distributor Platform** and **Retail Platform** to access midstream channel distribution of labeled products, simplify participation and analyze full category sales data.
5. Engage with U.S. Department of Energy (**DOE)** to increase federal standards over time.

Product Portfolio

Prior Investments Being Leveraged	Current Programs	Examples of Emerging Opportunities
N/A	Window Attachments: secondary glazing systems, low-e storm windows	Other window attachments including cellular shades, blinds, and surface applied films. High performance primary windows using alternative internal glazing (thin glass / suspended films) to maintain high performance without added weight and size. Dynamic glazing that adjusts to varying solar conditions while preserving visibility. Lower cost high performance wall systems for new construction or retrofit applications

Why NEEA?

1. NEEA has established relationships with codes and standards bodies, industry associations and manufacturers that can influence national efforts and labeling and increase product availability and market adoption in the Northwest.
2. The market for energy-efficient window attachments is still nascent in the Northwest, and awareness of window attachment products as an alternative to primary window replacement is very low. A region-wide effort, supported by new product certification and labeling, can help cost-effectively reach this market.

Prior Alliance Accomplishments to Build Upon:

1. Building on prior initiative and scanning work, NEEA identified a market transformation opportunity for high-performing, energy-efficient window attachments as an alternative to higher cost, primary window replacement. NEEA is developing a Window Attachments program, focused initially on SGS and LES windows. Currently these products have low market adoption in the region due to low awareness, lack of product differentiation, and limited product availability.
2. Since 2017, NEEA has partnered with AERC, as well as the EPA and Lawrence Berkeley National Lab, to develop new certification and labeling procedures and supply the market with new product labels. AERC and ENERGY STAR labels exist for low-e storm windows, and labels are in progress for secondary glazing systems.
3. NEEA also supports AERC to recruit manufacturers to label their products.

CONSUMER PRODUCTS

Market definition: Includes the entire supply chain (manufacturers, distributors, retailers - physical and online- contractors and installers) that deliver consumer goods and services in high volume, as well as the end consumers who purchase them.

Market Conditions and Assumptions Driving the Market Transformation Opportunity

1. This market will continue to represent 361 aMW of consumer product technical potential[9].
2. Faster commercialization of consumer products will be required to continue to drive purchases that currently result in 80 million individual products sold through this channel, representing annual energy consumption of roughly 500 aMW.
3. New standards and labels will result in an increased federal standard sometime between 2025-2030. These include clothes dryers, clothes washers, refrigerators, freezers, and room air conditioners.
4. Consumers will continue to have easy access to vast amounts of online product information, resulting in more people deciding what to purchase before (or if) they ever enter a store. This presents an opportunity and imperative to educate and influence consumers online.

The online channel is allowing market actors in the retail channel who currently compete in the traditional "products only" model to expand into the installation and services businesses (i.e. Amazon Professional Services, HomeAdvisor.com, etc.). This shift will bring price transparency and increase competition with the distribution channel. This will allow the alliance to leverage its supply chain engagement and training expertise to influence these new market actors.

Long-Term Market Transformation Objectives

1. Improve DOE or EPA test protocols so that they accurately reflect real-world conditions and energy savings.
2. Influence on ENERGY STAR specifications or federal standard updates.

Success Metrics

1. Increases or improvements to federal standards or ENERGY STAR specifications.
2. Energy savings based on increased market share of efficient products

Market Engagement and Activities

1. Work with national retail (physical and online) to capture sales data that helps the alliance understand the market and leverage retailers' position in market to influence manufacturers and consumers for the benefit of regional and local programs.
2. Partner with **industry associations such as the Consumer Technology Association (CTA)** and the **Association of Home Appliance Manufacturers (AHAM)** to understand market barriers to increasing energy-efficiency potential of consumer products.
3. Increase market influence with scale by partnering with **extra-regional energy efficiency sponsors in California, Canada**, and **other program sponsors** across the U.S.
4. Provide the **EPA** and **DOE** with data-driven recommendations on voluntary specifications, federal standards and testing procedures for consumer products.

[9] According to the Northwest Power and Conservation Council's 7th Power Plan.

Product Portfolio

Prior Investments Being Leveraged	Current Programs	Examples of Emerging Opportunities
Clothes Washers	RPP	Opportunities for efficiency improvements in top-loading Clothes Washers (Laundry) may be explored as part of RPP, or in conjunction with our Dryers initiative.
TV's	Super-Efficient Dryers	4k TV's offer an opportunity to re-engage with the TV market.
Dishwashers		Smart T-Stats offer an opportunity for regional alignment and leverage
Refrigerators		Connected Home will be monitored closely.
		Electric Vehicle Charging Equipment in Buildings is a growing market with substantial efficiency and flexible demand savings.

Why NEEA?

1. NEEA has strong relationships with retailers and manufacturers at the national level, allowing the alliance to leverage its regional scale to bring additional, cost-effective value to the Northwest.
2. The Retail Products Portfolio brings full category sales data that supports the federal standards process, increasing the data resolution and increasing the speed of availability.
3. NEEA brings the expertise and market relationships required to support and influence these government organizations to ensure Northwest consumers benefit from standard updates.

Prior Alliance Accomplishments to Build Upon

1. NEEA worked with ENERGY STAR, to drive higher specifications, and encouraged state and federal energy standards for energy-efficient televisions while increasing the availability of energy-efficient TV's on retail shelves. From 2010-2014, this effort resulted in 42.7aMW beyond what have occurred naturally in the market without intervention.
2. The Retail Platform launched in 2014 and has resulted in deeper relationships with strategic national retailers and extra-regional partners, providing access to full category sales data to help inform program opportunities for the alliance. It has also given the region greater influence on the ENERGY STAR specification process.
3. The Super-Efficient Dryer initiative has been successful supporting the introduction of super-efficient dryer technology into the U.S. market from multiple manufacturers.

HVAC

Market Definition: Includes the supply chain that manufactures, distributes, specifies, designs and installs commercial and residential HVAC products and the end consumer who purchases them.

Market Conditions and Assumptions Driving the Market Transformation Opportunity

1. The HVAC market is not currently optimized around cost and resiliency
2. There is substantial opportunity to support an integrated approach to the HVAC market that includes efficiency, intelligence, and use of refrigerants in its value proposition and market transformation goals.
3. Savings opportunities exist from market adoption of smart thermostats, multi-head ductless heat pumps (DHPs), sophisticated controls and other technology developments.

Long-Term Market Transformation Objectives

1. Transform the market so that unitary, inverter-driven, variable speed heat pumps (VSHP) are the affordable product of choice to replace electric forced-air-furnaces in single-family site-built and manufactured homes
2. Increase skill level of Northwest specifiers and installers in identifying, designing, sizing and configuring the most efficient HVAC system for each application.
3. Transform the market so that Very High Efficiency Dedicated Outside Air Systems (VHE DOAS) are common practice in applicable existing and new small to medium-sized commercial buildings
4. Influence the voluntary market to require VHE DOAS in International Energy Conservation Code (IECC), WA, OR, ID, and MT commercial building code.

Success Metrics

1. Increased adoption of 1:1 displacement in zonally heated single-family homes.
2. Increased conversions of single-family ducted electric furnaces to heat pump air handlers.
3. Heat pump technology represents the majority of HVAC market share.
4. Increased awareness, acceptance, adoption and technology expertise by HVAC supply chain, including contractors, design build firms, and engineering firms.
5. Increased VHE DOAS in conversions of existing and specified into new commercial buildings
6. New program opportunities for the region

Market Engagement and Activities

1. Engage with **manufacturers** to test and rate all heat pumps to the new procedure, encourage additional high efficiency heat recovery ventilation (HRV) product lines for VHE DOAS, develop supply chain trainings to identify the highest-efficiency application for their technologies and improve control settings.
2. Partner with **distributors** to increase stocking, training and support for high efficiency HVAC technologies.
3. Engage with **code and standard bodies** to advance adoption of new testing and rating procedure and adopt increased efficiency requirements.

Product Portfolio

Prior Investments Being Leveraged	Current Programs	Emerging Opportunities
	Ductless Heat Pump	Variable capacity low temperature heat pump technology common in ductless heat pumps is moving to central HVAC systems, Natural refrigerants are emerging and offer increased low temperature performance and greater efficiency.
	High-Performance HVAC (including VHE DOAS)	Advances in heat recovery systems are resulting in innovation in HVAC design for systems that separate heating / cooling from ventilation including VRF and hydronic systems.

Why NEEA?

1. The alliance has developed deep relationships with some of the largest HVAC manufacturers in the world, and has the opportunity to leverage these relationships to bring even greater benefit to the Northwest.
2. The alliance continues to foster innovative, new HVAC technologies in the Northwest. Ductless Heat Pumps have seen tremendous market growth over the last decade due to successful market interventions, and NEEA has been instrumental in bringing the components of Very High Efficiency Dedicated Outside Air Systems (VHE DOAS) to market and piloting the technology.
3. As new technologies and applications are adopted by the market, NEEA can provide a regional quality assurance feedback loop (trainings, specifications & best practices development, etc.) among manufacturers, installers, utility program managers and homeowners to support efficient, energy saving results and positive customer experience to transform the market.

Prior Alliance Accomplishments to Build Upon

1. The region has influenced more than 100,000 ductless heat pumps installed in the Northwest.
2. More than 1,500 DHP installers were oriented in the DHP program.
3. The alliance has worked with distributers in the Northwest to invest in opening regional, hands-on training centers to focus on the DHP installation process.
4. The first high efficiency HRV product line to North America was launched, and flagship VHE DOAS pilot projects in the Northwest were brought to market.

5. DOAS was incorporated in WA code for targeted building types which will lay the groundwork for VHE DOAS in later cycles.

LIGHTING

Market Definition: Includes the supply chain that manufactures, distributes, specifies, designs and installs lighting products, including lamps, ballasts, controls and fixtures as well as the end consumers who purchase these products.

Market Conditions and Assumptions Driving the Market Transformation Opportunity

1. The region is generating significant lighting savings due to prior investment in CFL and reduced wattage fluorescent products, current LED incentive programs and the popularity of LEDs. However, upgrades to LEDs will only capture part of the available energy savings.
2. Over a quarter of the potential savings will be left on the table unless the region aggressively decreases hours of use with controls and increases luminaire efficacy.
    - Less than 25% of the region's lighting load employs automated controls – less than 1% are advanced controls. Despite efforts to date, the region continues to see slow adoption of advanced controls. Department of Energy forecasts that it is technically feasible to double average luminaire efficacy in the coming 10 years.
3. The ability to cost effectively influence LEDs and controls is limited due to high cost of controls and a rising baseline, combined with falling prices of LED replacement lamps.
    - A primary objective of the Luminaire Level Lighting Control (LLLC) initiative is to bring down control costs so that programs can more effectively drive LLLC adoption.
    - There is an opportunity to leverage the Distributor Platform as a low-cost method of influencing LED efficacy and quality, while continuing to capture savings for the region and freeing up program time and budget for customer engagement on more comprehensive projects.

Long-Term Market Transformation Objectives

1. Transform the market so that controls are a standard fixture feature for little to no additional cost.
2. Identify market transformation opportunities for advanced lighting control systems in space types not well suited for LLLC – retail is an especially significant opportunity. Also, identify efficiency opportunities for control systems that encompass lighting plus other building systems.
3. Identify market transformation opportunities to drive the market toward higher efficacy light sources. The Distributor Platform, as an existing mechanism for influencing distributor sales practices and tracking progress via sales data, offers a crucial market lever for this goal.

Success Metrics

1. Increased adoption of LLLC
2. Increased average luminaire efficacy
3. Growing pool of trade allies who can support design and installation of advanced lighting control systems
4. Greater market insights to support program strategy and utility customer engagement
5. New program opportunities for the region

Market Engagement and Activities

1. Engage with **manufacturers** to increase availability of more luminaire and fixture types that meet LLLC specifications.
2. Partner with **efficiency organizations**, such as Department of Energy and Design Lights Consortium, to increase availability of high efficacy, high quality lighting.
3. Leverage **Distributor Platform** to continue market engagement and data collection at low cost, allowing the region to encourage greater efficacy, accurately track sales to understand market progress, and inform future program strategy and interventions.
4. Engage with **code and standard bodies** to advance codes - requiring lower lighting power density and promoting efficacy.

Product Portfolio

Prior Investments Being leveraged	Current Programs	Examples of Emerging Opportunities
Residential Lighting	Luminaire Level Lighting Controls	Advanced controls applications for space types not served well by LLLC and for multiple systems (lighting + HVAC, plug load, etc.)
Reduced Wattage Lamp Replacement		Leverage Distributor Platform as low cost, far reaching mechanism to promote efficacy and quality improvement in commodity lighting products
		Post Energy Independence and Securities Act (EISA) residential lighting opportunities

Why NEEA?

1. New lighting controls technologies will continue to emerge at a rapid pace. Thanks to national manufacturer and regional distributor relationships and influence, NEEA is in a unique position to monitor and influence emerging products that bring greatest value to the Northwest. An especially important role is engaging nationally to work toward ubiquitous adoption of leading controls technologies, which will drive cost effectiveness of controls.
2. Lighting efficacy is likely to offer small per-lamp savings, but significant savings when aggregated across the region over time. NEEA has a unique opportunity to engage in codes and standards processes, and leverage Regional Distributor Platform relationships and data to provide cost-effective mechanisms to influence the market and capture these savings.

Prior Alliance Accomplishments to Build Upon

1. The LLLC initiative laid the groundwork for regional adoption and customer engagement, playing a key role in developing a specification, qualified product list and deemed savings for an integrated lighting controls product.
2. NXT Level program and LLLC trainings are addressing key advanced control adoption barriers by raising awareness and skill level of the region's trade allies.
3. Reduced Wattage Lamp Replacement (RWLR) drove efficacy of fluorescents and established the Distributor Platform, which can be leveraged to continue to drive efficacy of LED lamps and luminaires.

NEEA facilitated engagement with code developers, the Design Lights Consortium and Consortium for Energy Efficiency (CEE), all of which continue to raise the bar for luminaire quality and efficacy.

MOTOR-DRIVEN PRODUCTS

Market Definition: Includes the supply chain that manufactures, distributes, specifies, designs and installs a variety of motor-driven products such as pumps, fans, compressed air systems and high- performance motors, as well as the decision makers who influence the purchase of these products.

Market Conditions and Assumptions Driving the Market Transformation Opportunity

1. Decisions on which product to select, especially with small motor-driven products, are not always given a lot of thought or engineering support. Shifting those pump decisions toward the most efficient options as a default choice can save significant energy.
2. New voluntary standards and labels will result in an increased federal standard sometime between 2025-2030.
    - NEEA's motor-driven products work begins with circulator pumps and pumps 50 horsepower and below, but significant future opportunities exist with fans and compressors.
    - The Hydraulic Institute's Energy Rating Label enables pump decision makers to quickly identify energy efficiency differences between models.

Long-Term Market Transformation Objectives

1. Increase awareness, stocking and sales of various efficient motor-driven products, initially focusing on pumps.
2. Create market transformation opportunities for other motor-driven products, such as fans, compressed air systems, and high performance motors.
3. Support procurement practices and standards to drive adoption of more efficient motor-driven products with integrated controls.
4. Eliminate inefficient products by influencing future DOE rulemakings on Pumps, Fans, Compressed Air, and Motors.

Success Metrics

1. Adoption rates of labeled, packaged pumps (includes motor, pump and control system sold together)and other motor driven products.
2. New program opportunities for the region.
3. Continuous review and improvement of DOE standards.
4. Market practices rely on Extended Motor Products (XMP) labeling to identify, specify and select products.

Market Engagement and Activities

1. Engage with **manufacturers and distributors** to shift Northwest sales mix of motor-driven products toward energy efficiency
2. Partner with **industry associations** such as Hydraulic Institute (HI), Air Movement & Controls Association (AMCA), Compressed Air and Gas Institute (CAGI), and National Electrical Manufacturers Association (NEMA) on **energy labeling** programs and broad-based energy efficiency education for customers, installers, sales staff, and equipment specifiers.

3. Leverage **distributor platform** to engage with distributors as well as access and analyze full category sales data. This will help the region identify additional barriers and opportunities.
4. Engage with the **Department of Energy** to increase federal standards over time.
5. Partner with **others in large markets** like California, National Grid, Xcel Energy and others to promote and influence XMP products and labels to increase product availability and reduce costs for the benefit of the Northwest.

Product Portfolio

Prior Investments Being Leveraged	Current Programs	Examples of Emerging Opportunities
Drive Power	Extended Motor Products: Pumps and circulator pumps up to 50 hp	Other variable control motor driven products including industrial fans / blowers and air compressors. New larger, cheaper and more efficient brushless Motors are coming to market thanks to electric vehicles Application of pumps and controls for pivot systems could lower system pressures and save water loss and energy.

Why NEEA?

1. NEEA has strong relationships with trade associations across manufacturers and distribution channels, and can leverage the existing Distributor Platform infrastructure (see Midstream Channel Platform section), relationships and experience
2. NEEA's relationships with distributors and access to aggregated distributor sales data provide unique market-level insights, and inform standards development.
3. Motor-driven products are sold in high volume in the Northwest each year. Yet, only a fraction of these transactions are for the most efficient products. Focusing upstream and midstream to influence the sales of pumps, fans and other motor-driven products is a cost-effective way for the region to capture this opportunity.

Prior Accomplishments to Build Upon

1. The U.S. DOE Rulemaking, covering 1 to 200 horse power clean-water pumps, takes effect in 2020 and increases efficiency of pumps and packaged pumpsat the lowest level of performance.
2. The Hydraulic Institute, in collaboration with NEEA, developed the Pump Energy Rating label, test methodology, independent lab certification process, online database, and energy performance calculation engine.
3. The U.S. DOE Rulemaking for circulator pumps and fans is in progress, but not yet enacted.

4. The Pump Efficiency Index (PEI) was developed collaboratively by the DOE, Hydraulic Institute, NEEA and industry.

NEW CONSTRUCTION

Market Definition: Includes the supply chain that designs, builds, verifies and sells residential single-family site built new homes, commercial new construction and new manufactured homes built to the NEEM 2.0 specification, as well as the end consumer of these products.

Market Conditions and Assumptions Driving the Market Transformation Opportunity

1. Greater insight is needed into what measures will be incorporated into code to inform utility and regional efficiency programs
2. The market, utility incentive programs and those developing, adopting and implementing code are not always aligned on long-term code goals
3. Voluntary market adoption of efficient new construction practices leads code changes.

Long-Term Market Transformation Objectives

1. Increase Commercial and Residential new construction code requirements to maximize energy efficiency opportunities in new buildings.
2. Engage developers and builders to incorporate advanced energy-efficient products and practices in new residential and commercial buildings.
3. Increase market adoption of energy-efficient products and practices informs and enables code advancements.
4. Establish NEEM 2.0 as the primary above code manufactured home option.

Success Metrics

1. Increase in adoption of alliance-supported code proposals.
2. New utility programs align with code road map.
3. Increased utility/market actor participation in code collaborative meetings and activities.
4. Increased market share of above code specifications and certification program participation.

Market Engagement and Activities

1. Engage with **residential home builders, home energy raters, manufactured home manufacturers, commercial building design professionals, and code stakeholders** to refine the value proposition for energy-efficient new construction buildings.
2. Partner with **residential and commercial certification programs, Integrated Design Labs, and other industry associations** to align technical specifications and increase the adoption of technology, practices and future code measures.
3. Leverage **local policies and regional and national trends** toward “Net Zero Ready” to create greater alignment between code, utility programs and market practice.
4. Engage with **HUD and key code stakeholders** to support code increases for manufactured homes over time.
5. Partner with **national code stakeholders** to influence International Energy Conservation Code (IECC) and HUD requirements and implementation.

Product Portfolio

Prior Investments in LTMT	Current Programs	Examples of Emerging Opportunities
Efficient Homes Initiative (Northwest ENERGY STAR Homes)	Next Step Home	Integration with alliance residential and commercial programs (DHP, HPWH, High Performance HVAC, etc.)
	Commercial Code Enhancement	Outcome based codes that encourage occupancy specific efficiencies (EUI), building system integration, and whole building incentive programs.
	Manufactured Homes (NEEM 2.0)	Integration of heat pumps for HVAC and water heating are emerging.

Why NEEA?

1. NEEA actively supports code development and adoption in all four states and has existing relationships with utilities and key code stakeholders that can be leveraged to create alignment on long-term goals.
2. NEEA's code work in all four Northwest states in addition to IECC can inform state code road maps, long term goals, and utility program planning.

Prior Alliance Accomplishments to Build Upon

1. NEEA has collaborated widely with the region to develop and support energy code proposals in individual states. The adoption of new codes in all four states reflects regional progress in building better buildings and acknowledges steady improvement in building and system technologies.
2. 20.12 aMW and 20.35 Therm savings from 2010-2016 *(including code savings).*
3. NEEA-developed energy modeling systems which enabled whole home utility incentives.
4. RTF approval of an upper tier new manufactured home specification (NEEM 2.0).
5. An established code collaborative in all four states to plan for upcoming code cycles. and increased coordination with the market, utilities, and code stakeholders.
6. BetterBricks and BetterBuiltNW regional resources providing tools to support integrated design and above code building strategies.
7. Established partnerships with Integrated Design Labs in all Northwest states.

WATER HEATING

Market definition: Includes all tank type electric water heaters, including the supply chain that manufactures, distributes (wholesale and retail), specifies, designs and installs commercial water heaters and the end consumer who purchases these products.

Market Conditions and Assumptions Driving the Market Transformation Opportunity

1. The 7th Power Plan potential identifies 600 aMW of 20-year savings potential for water heating
2. NAECA Standard revision set for 2025 which will influence all water heater efficiency requirements

Market Transformation Objectives

1. Support the adoption and integration of the Consumer Technology Association communication protocol CTA 2045 as standard practice across all heat pump water heaters supplied to the Northwest.
2. Contribute to a 2023 federal standard requiring all electric water heaters be heat pump water heaters.

Success Metrics

1. More national utilities offer HPWH programs, which will increase supply chain support and reduce technology and product costs, ensuring greater product availability for Northwest customers and reducing costs for end-customers and Northwest utilities
2. Sustainable communities promote HPWH technology
3. All HPWH are CTA 2045 demand response ready
4. ENERGY STAR aligns with Advanced Water Heater Specification (AWHS)
5. New program opportunities for the region

Market Engagement and Activities

1. Engage with **national and global manufacturers** to reduce costs, increase efficiency, increase awareness of HPWH product, and support Northwest consumer needs such as performance in the Northwest climate zones.
2. Partner with **industry associations** to support adoption of the Advanced Water Heater Specification (AWHS)
3. Leverage the alliance's **consumer and lab research** to increase HPWH sales nationally, increasing supply chain support and reducing technology and product costs. This will ensure greater product availability and reduced costs for Northwest customers
4. Engage with **DOE** to improve test procedures and support National Appliance Energy Conservation Act (NAECA) updates
5. Work with **manufacturers** and **standards organizations** to develop appropriate standards for "flexible demand management" and integrate into HPWHs as a standard feature.

Product Portfolio

Prior Investments Being Leveraged	Current Programs	Examples of Emerging Opportunities
	HPWH	Commercial Water Heating offers an additional manufacturer leverage point and regional savings opportunity.
	Split System HPWH	Leverage existing manufacturer relationships to enable out of the box Demand Response / Load Shifting / Storage capabilities in water heating equipment.

Why NEEA?

1. The alliance has developed deep relationships the three largest water heater manufacturers in the U.S., and has the opportunity to leverage these relationships to bring even greater benefit to the Northwest.
2. NEEA is positioned to build awareness of efficient water heating technologies across the region, building consumer demand to accelerate adoption.
3. Water heating distributors have locations spread across NEEA's entire region. NEEA has built relationships at the corporate level of these companies that can be leveraged for the benefit of the alliance and their consumers.

Prior Alliance Accomplishments to Build Upon

1. More than 30,000 residential electric heat pump water heaters sold in the region
2. National Appliance and Energy Conservation Act (NAECA) requiring all >55 electric water heaters to use heat pump water heater technology
3. The introduction of Tier 3 HPWH by the three largest water heater manufacturers
4. The adoption by national partners, such as CEE, of the alliance's Advanced Water Heater Specification (AWHS)

Appendix 2: Marketing

Description: The marketing function at NEEA accelerates market transformation by providing a clear understanding of the upstream, midstream, and downstream target audiences and the best ways to influence them. Marketing directly addresses key market barriers prevalent across the portfolio including lack of awareness, differentiation of energy-efficient products, understanding of product benefits, and supply chain support and investment.

Per the 2020-2024 Draft Strategic Plan's Effective Portfolio boundary condition, the alliance focuses on:

> "Efforts that reduce and/or remove market barriers, primarily Upstream and Midstream, and on readiness of market transforming Energy Efficiency for best overall value and sustained market change."

In compliance with this Boundary Condition, alliance activities described in this Branding Plan would be the same as they are in the current 2015-2019 Business Cycle.
NEEA's marketing strategies and activities are created and executed in close collaboration with Northwest utilities, extra-regional efficiency organizations and national partners, and they are targeted at specific audiences and surgical in their approach, rather than broad and general Whenever possible, the alliance leverages existing resources and tools in the market, such as EPA's ENERGY STAR program, and organizations such as Seattle 2030 and the Building Owner and Managers Association (BOMA) to optimize regional market transformation efforts and to help establish an infrastructure that sustains energy-efficient practices even after NEEA's intervention.

Market Conditions and Assumptions Driving Cross-Product Leverage
Through economies of scale enabled by pooling resources across the region, the alliance attracts and influences national and international organizations such as manufacturers and industry associations. Marketing is a key support function that NEEA provides its partners to increase the adoption of their energy-efficient products and practices. Key assumptions driving the regional marketing strategy include:

1. Effective market transformation requires influencing both the supply chain, the decision makers and end users of the technologies and practices.
2. Marketing efforts, when done in concert with manufacturers, distributors, funders and others to drive quicker adoption of products in the market, are a primary value and influence point of the alliance with the supply chain, and national and regional organizations.
3. Marketing strategies and tactics are more efficient when developed and deployed at scale.
4. Websites and other digital communications are a vital part of market transformation efforts. The proliferation of mobile devices and an established reliance on web searches for information across all markets provides an opportunity to educate and inform target audiences through websites and other digital media. Digital channels have become so ingrained in day-to-day business practices and consumer behavior that the absence of a digital strategy severely limits the impact of transformation efforts.
5. Websites provide an easy repository of resources for upstream and midstream actors, including fact sheets, video tutorials, and infographics, which they can tailor and share with their customers.

Objective

1. Drive the adoption of the practices and technologies that NEEA supports through:
   - Awareness building and education
   - Partnerships with manufacturers, national/regional organizations
   - Uniform messaging and promotion to target audiences in the Northwest region

Success Metrics

1. All marketing activities and campaigns are measured against established targets. Examples of key progress indicators include:
   a. Website traffic and engagement
   b. Newsletter opens and clicks
   c. Case study placement with market partners or in publications
   d. Campaign specific metrics such as impressions, clicks or downloads
   e. Attendees at promoted trainings
   f. Number of events where materials are distributed

Key Activities to Provide Value to the Region

Marketing activities are leveraged over the life of a program at different times, depending on the program strategy and barrier being addressed. These activities are implemented in close collaboration with funder staff as part of NEEA's funder coordination plans and complementary approach philosophy.

Alliance marketing activities include:

1. Develop and execute downstream awareness and education building campaigns that showcase Northwest commitment to market partners and drive market acceptance
   - Coordinate and influence promotional opportunities with national/regional partners (e.g. ENERGY STAR, manufacturers, regional corporate buying groups)
   - Influence marketing plans and activities of supply side partners to incorporate the NW message in the promotion of their products, services, or practices in the NW
   - Conduct market research and strategy/message testing to understand target audiences
   - Develop and manage strategic market partnerships with key market actors (e.g., Building Operators and Managers Association (BOMA), green building organizations, Northwest Energy Efficiency Council)
   - Develop and maintain websites and other digital tools that inform and educate the supply and demand side audiences
   - Create and maintain market-facing brands to support the promotion of energy-efficient technologies
   - Plan and implement targeted, region-wide marketing campaigns to ensure engagement and support from the supply chain and address market awareness
2. Create resources to help market partners and utilities drive market acceptance
   - Create training materials/collateral to increase awareness and adoption (i.e. sales sheets, product brochures, training material)
   - Influence and develop retail signage incorporating initiative messaging (Home Depot/Ductless heat Pump)
   - Influence/coordinate POP (Point of Purchase) placement (Heat Pump Water Heater signage)
   - Develop technical resources for manufacturer partners leveraging Northwest experience with products to influence adoption, installations, etc.

- Use market research/intelligence to create infographics and other materials that can disseminate complex information or datasets in a digestible manner
- Create training and sales materials for both supply and demand side audiences
-
- Create templates, tools and materials that include a regional message to accelerate market adoption
- Develop case studies to showcase real life installation and use of the products, practices or services NEEA supports
- Create templates for utilities to use to support the NEEA programs with their customers
- Create and support marketing material for market partners

Calls to Action in Alliance Marketing

Downstream marketing tactics are designed to provide audiences with enough information to motivate them to learn more. A call to action directs a targeted audience to a website that provides product or technology information and additional resources and tools. Some marketing activities direct the audience to an upstream or midstream partner website. Other activities direct the audience to an alliance website. In addition to providing information about the technology or product, alliance websites drive visitors to utility websites for incentive information and some websites provide information about qualified installers and retailers that carry products or direct consumers to utility websites that provide this more detailed information. Because downstream marketing tactics can only deliver limited information, the call to action is necessary to direct the audience to a website with more detail – to accomplish the intended tactical purpose of raising awareness and educating the consumer about the new product or technology. The call to action directs traffic to one place, which is also critical for measuring the effectiveness of the tactic.

Appendix 3: NEEA Branding Plan

NEEA's Unique Role and Supply Chain Audiences

To accelerate the adoption of energy-efficient products and practices, the alliance partners with - and influences - a variety of audiences. The audiences that are addressed vary by program and lifecycle stage and include upstream, midstream and downstream audiences (see glossary of Key Terms for definitions of these audiences). In all cases, marketing is a key tool that helps deliver on:

1. Sales commitments to upstream actors, which is the rationale for their collaboration with the alliance; and
2. Savings commitments to funders, which is the rationale for their investments in the alliance.

Per the 2020-2024 Draft Strategic Plan's Effective Portfolio boundary condition, the alliance focuses on:

> "Efforts that reduce and/or remove market barriers, primarily Upstream and Midstream, and on readiness of market transforming Energy Efficiency for best overall value and sustained market change."

In compliance with this Boundary Condition, alliance activities described in this Branding Plan would be the same as they are in the current 2015-2019 Business Cycle.

How these upstream and midstream barriers are addressed varies, depending on the stage in the product lifecycle.

When the product is new to market and its availability and utility incentives are limited, the alliance focuses on influencing upstream and midstream audiences. In this stage, the alliance's emphasis is on ensuring a viable product that meets an efficient specification is in the market and engaging the supply chain and providing education and awareness to the market. This step is necessary to ensure these audiences know the appropriate use cases for the product, make the product available and understand how to sell and install it. Many times, the midstream and upstream actors request assistance influencing downstream audiences. Early adopters validate product effectiveness, demonstrate the market demand to the supply chain and act as case studies, testimonials or other leverage points for awareness and education of downstream audiences about the product benefits.

Once one or more products are introduced in the market, the alliance works to ensure these products gain enough traction to keep the entire supply chain engaged. As funder incentives become more widely available, alliance efforts focus on accelerating increased adoption addressing lack of awareness and education barriers. This is done by coordinating and aligning activities across upstream, midstream, funder and partner programs as well as implementing direct-to-market support and providing information to downstream audiences as necessary to meet regional and upstream adoption targets.

Branding Approach

NEEA Brand

NEEA maintains a corporate brand that exists to consistently represent the impact and efforts of the diverse alliance of Northwest utilities and energy efficiency organizations working together to drive market transformation.

The goals of NEEA's corporate brand are to support alliance market transformation goals by ensuring that funders, stakeholders and the market are aware of and understand the opportunity associated with alliance initiatives. NEEA does this by establishing credibility and engagement from funders, stakeholders and the market by:

1. Communicating the alliance's work by accurately representing its opportunity, market progress and collective impact; and
2. Telling a compelling story of the value that the alliance creates throughout the Northwest.

NEEA's corporate brand is most commonly used with utilities, efficiency organizations and other entities who have long-term relationships with the alliance across programs and sectors. NEEA produces documents such as annual reports and newsletters to inform utilities, efficiency organizations, and other partners of market transformation progress and opportunities for collaboration.

The NEEA brand is used primarily with upstream audiences to ensure the alliance has a relationship with manufacturers across multiple programs and/or sectors. For example, GE manufactures both consumer products and commercial lighting products. The alliance works with GE across a variety of programs currently, and is likely to do so in the future. Using a

partner (i.e. ENERGY STAR) or product-specific market-facing brand (i.e. Hot Water Solutions) with GE would cause confusion and potentially hinder the relationship.

Per Board direction, NEEA's corporate brand strategy is a business-to-business one, meaning that the alliance is not attempting to maintain or build a consumer-facing corporate brand. Between 2008-2013 NEEA staff pursued more robust brand-building activities of the NEEA brand. These Those types of consumer brand activities are not currently part of the NEEA corporate brand, and are not intended to be moving forward.

Usage of the NEEA Brand by Audience
Upstream: Regular usage due to relationships with manufacturers across programs and sectors. Usage includes name, logo and, whenever possible, NEEA's "lock-up" which is its logo combined with funding utility logos on presentations and other materials used in conversations with manufacturers.

Midstream: Limited usage, the alliance typically utilizes partner or market facing brands with midstream audiences to limit the use of the NEEA brand in the market and to encourage cobranding opportunities with funders and partners. However, when the alliance is working with larger distributors or other entities with a national presence, relationships often cross programs and sectors making the NEEA brand a less confusing option.

Downstream: Very limited usage to avoid competing with funders' end-customer relationships (see NEEA market facing brands). Downstream marketing efforts are conducted using partner brands or market-facing brands. The only time the NEEA brand is used with downstream audiences is when there is no market facing or partner brand and there is limited need for some sort of attribution to a NEEA staff member or program. Examples include a press release in partnership with a manufacturer about a new product launch before utilities are supporting the product or an article that quotes a NEEA staff member and calls out their place of work. In these instances, NEEA staff always coordinates with funders through alliance workgroups to offer them the opportunity to be the face of the quote or press release. Often, funders do not want to be associated with press releases or new articles on early-stage products if they don't have a program, deem the product too early to associate their brand with, or want to avoid the appearance of being associated with a specific manufacturer or product.

<u>Market Partner Brands</u>
When it is possible and beneficial, the alliance leverages established market partner brands to influence, educate and inform audiences about a product. For example, the super-efficient dryers program worked with ENERGY STAR to create the ENERGY STAR Most Efficient rating for heat pump dryers. This labeling is used in retail to differentiate these products from less efficient dryers.

Usage of Market Partner Brands by Audience
Upstream: Limited usage. Communications using market partner brands are targeted to midstream and downstream market actors but manufacturers are aware of them because their products are being promoted.

Midstream: Regular usage. Examples include the ENERGY STAR brand with retailers and installers.

Downstream: Regular Usage. The alliance works with national manufacturers like LG and

Whirlpool and other partners to develop and implement media campaigns on their behalf leveraging manufacturer brands.

Market-Facing Brands

Whenever possible, NEEA attempts to leverage market partner brands to influence downstream audiences. Because the NEEA Corporate Brand is not used with downstream audiences and when a market partner brand is not available to use, different product-specific brands are created for specific programs (i.e. Hot Water Solutions). Co-branding with market partners or utilities is pursued whenever possible and customizable templates are created and disseminated to encourage uniform messaging to downstream audiences. Using these market-facing brands for these activities serves two purposes: 1) It provides an unbiased, third-party entity to educate and inform midstream and downstream audiences and enables co-branding by market partners and utilities when they choose; 2) It prevents the NEEA brand from being a consumer-facing brand which creates competition with funders' brands and their communications to their end-use customers. 3) it creates a standalone product-oriented, efficiency focused—rather than entity focused—brand that is not associated with any utility unless that utility desires the association.

Hot Water Solutions is an example of a market facing brand that is used in trainings with water heater installers and has a website that is used to educate downstream audiences. It holds information about water heater product benefits and provides access to utility rebates and resources, and lists of trained installers.

Usage of Market Facing Brands by Audience

Upstream: Limited usage. Communications using market-facing brands are targeted to midstream and downstream market actors but manufacturers are aware of them because their products are being promoted.

Midstream: Regular usage. Examples include trainings for the supply chain, listings of trained installers on program websites, distribution of customizable templates and other email communications.

Downstream: Regular usage. Examples include customer-facing websites and communications to build awareness, educate and drive traffic to funder and supply chain partners incentives and offers.

Examples

The table below demonstrates NEEA's branding approach for Heat Pump Water Heaters (HPWH) and Next Step Homes (NSH):

	HPWH	NSH
Brand used with Manufacturers	NEEA	NEEA
Brand used with Installers/Retailers/Builders/Raters	Hot Water Solutions	BetterBuiltNW
Brand used with End-Use Customers	Hot Water Solutions	Market Partner Brands of Various Green Building Programs such as Earth Advantage and Built Green

Marketing Coordination Process
The alliance has a defined coordination process for soliciting funder input and addressing concerns regarding brands and marketing activities. NEEA staff encourages input from the Board regarding changes to the coordination process that will improve visibility and provide the opportunity for input about marketing activities to key funder staff.

When the NEEA brand is going to be used in a market-facing communication, NEEA staff consults the funder work group(s) and marketing contacts for the program that is being represented to ensure there are no concerns.

Work Group and Advisory Committees
NEEA staff consult utility program work groups and sector advisory committees when the use of a market partner brand is proposed. The work group and sector advisory committee members are also consulted before NEEA creates a market-facing brand and, often, a marketing workgroup comprised of utility program and marketing staff is convened to provide guidance throughout the brand creation process.

NEEA staff present planned marketing activities throughout the year to utility program workgroups and marketing contacts for feedback. Creative concepts are provided to the workgroup for review and input after any feedback on the activities is addressed. After the activities are completed, results are presented to the workgroup.

ILC Coordination
Marketing Strategic Plans are part of the alliance's Initiative Lifecycle (ILC) documentation. The plans provide an overview of the target audiences and the strategies for influencing them. NEEA staff provide the ILC documents to members of the Regional Portfolio Advisory Committee when the programs go through the Initiative Start and Scale Up milestones. Marketing coordination is an element of every Funder Coordination Plan, which is approved by the relevant Sector Advisory Committee and the Regional Portfolio Advisory Committee.

Annual Coordination
NEEA staff call out marketing activities that support the program goals for the year in the annual operations plans that are shared with all funder advisory committees.

NEEA staff present proposed annual marketing activities for each program to the marketing contacts at each funder's organization at in-person meetings during Q4 of the preceding year and Q1 of the current year, depending on schedules. Prior to these meetings, the marketing contacts are encouraged to invite key staff that may include interested work group and advisory committee members to the meeting. During these meetings, a high-level description of the planned alliance marketing activity for each program is shared for discussion and feedback. NEEA staff then provide follow-up communications summarizing the key takeaways from the meeting and any proposed changes to the meeting participants.

NEEA staff present a summary of annual marketing activities by program to the Residential Advisory Committee at the Q1 meeting. NEEA staff also distributes marketing newsletters quarterly to all funder marketing contacts and program contacts who have requested to receive the newsletters. The newsletters provide information on assets available for use, research conducted and upcoming marketing activities. They also include the annual media plan for all programs.

Ad Hoc Coordination
NEEA staff create temporary marketing workgroups composed of funder marketing and program staff to advise on large projects. A marketing workgroup was created to provide guidance on the redesign of the BetterBricks website.

Appendix 4: Cross-Cutting Enabling Infrastructure

Cross-Cutting Enabling Infrastructure

MIDSTREAM CHANNEL PLATFORMS

Distributor Platform

Description: This platform is comprised of key market relationships, ongoing data collection activities and repeatable program processes developed through the Reduced Wattage Lamp Replacement program. The platform supports multiple programs for cross-sector products, including lighting, motor driven systems and water heaters.

Market Conditions and Assumptions Driving Cross-Product Leverage

1. There are products that may be challenging for traditional programs to influence cost-effectively.
2. Sales of efficient products can be influenced and tracked via regional distributor relationships and market sales data gathered through the platform.
3. Sales data derived from the platform allows savings tracking for alliance programs, and enables market insights that can be leveraged to inform NEEA, funder and distributor decision making.
4. The regional sales data that is derived from the platform can be utilized by codes and standards work to support the public comment process at the national level.

Objectives

1. Leverage the relationships, interventions and data capabilities of the distributor platform to achieve cost effective savings and new utility customer engagement opportunities across multiple product categories.
2. Foster mutually beneficial relationships between distributors and the alliance that:
    a. Motivate distributors to stock and sell targeted energy-efficient products; and
    b. Incentivize and facilitate secure delivery of branch-level sales data for targeted product categories.

Success Metrics

1. NEEA and funder program utilization of the platform.
2. Total market share represented by distributors enrolled in the platform.
3. Number of product categories for which NEEA collects sales data.
4. Ever increasing market share of efficient products.
5. Codes and standards influenced by distributor platform data.

Key Activities that Provide Value to the Region

1. Enables greater market transformation by influencing stocking and sales

2. Ensures access to market data and insights that can inform program strategies.
3. Supports utilities with cost-effective savings (utilities can utilize the Platform to capture savings that are too small or costly to be captured through traditional, downstream incentive programs).
4. Increases Funder program impact by engaging distributors via the Platform to enhance results of downstream programs.
5. Creates new Funder and regional midstream engagement opportunities that complement and offer new pathways for the region's programs.

Retail Platform

Description: Since the High-Efficiency TVs program that launched in 2009, NEEA has been carefully building and cultivating strategic partnerships with national retailers and the manufacturers that sell through them. These efforts have gradually become more formalized and are now fully integrated into the Retail Platform that was launched in 2014 to support the region's Retail Product Portfolio (RPP) initiative. While primarily supporting RPP, the Retail Platform is designed to support virtually any energy-efficient Consumer Product flowing through the retail channel. To date, the platform has resulted in deeper relationships with strategic national retailers and extra-regional partners, has provided access to full category sales data, and has given the region greater influence on the ENERGY STAR specification process. For retailers, the platform significantly reduces their costs associated with administration of efficiency programs by creating a consistent process for sharing data and transferring incentive payments.

Market Conditions and Assumptions Driving Cross-Product Leverage

1. There are products that may be challenging for traditional programs to influence cost effectively.

2. Major national retail (physical and online) is a key distribution channel. The Retail Platform will support regional midstream efforts across any product category sold by retail partners including residential and small commercial HVAC, lighting, water heating, consumer products, and windows.

3. To satisfy consumers, retailers are required to stay abreast of technological and market changes across all the product categories they merchandise. Retail partnerships will become more valuable as the speed of product commercialization continues.

4. The regional sales data that is derived from the platform will inform alliance intervention strategies and funder program strategies, provide market insights and can be utilized by codes and standards work to support public comment process at the national level

Objectives

1. Add additional products and retailers to the platform as needed to accelerate market transformation of consumer products
2. Leverage the platform to support funders' local midstream efforts as requested.

Success Metrics

1. Increase alliance program use of the Retail Platform
2. Formalize the use of knowledge gained through analysis of the data continued in the portal.

Key Activities that Provide Value to the Region
The Retail Platform is a critical infrastructure to engage national retailers to enable greater volume of efficient products, and expand regional data collection and analytics. This work creates efficiencies and provide an essential foundation that any local or regional program can take advantage of, at a lower risk and cost than if done on their own.

MARKET RESOURCES

BetterBricks

Description: BetterBricks is a resource that supports the alliance's commercial and industrial programs by raising market awareness and capability for energy efficiency technologies and decision-making. The brand was launched in 1999 and became a trusted resource for building professionals. In an online survey of 272 building professionals across the region, 95% were familiar with the BetterBricks brand. The target audiences for this work include building owners, property managers, building facilities staff, architects, designers, engineers and contractors. The BetterBricks resource is supported by two main components:

1. The BetterBricks website, which provides information, tools and resources about efficient buildings
2. Market relationships with organizations such as Northwest Energy Efficiency Council (NEEC), Building Operators and Managers Association (BOMA), International Facility Management Association (IFMA), Seattle 2030, Lloyd Eco-district, American Institute of Architects (AIA), American Society of Heating, Refrigeration and Air-conditioning (ASHRAE), New Buildings Institute (NBI), Better Buildings, and building specific management organizations (Oregon School Facilities Management Association (OFSMA), and Washington State Society for Healthcare Engineering (WSSHE), etc.)

Leveraging the BetterBricks brand to promote the alliance's commercial programs allows for a uniform market presence with trade organizations and building side audiences across the region without having to create separate market facing brands to promote new products as they enter the alliance's portfolio.

Market Conditions and Assumptions Driving Cross-Product Leverage
1. The target audiences in commercial buildings are overwhelmed by the number of resources available. They are seeking a non-biased, third party resource to help them find the best solutions for their buildings.
2. The BetterBricks brand has a high level of awareness in market and is a trusted resource about efficiency in buildings.

Objectives
1. Position BetterBricks as a trusted resource for professionals who own, operate, and manage commercial buildings to learn about energy efficiency best practices and technologies.
2. Facilitate broader adoption of energy-efficient products and practices and higher utilization of utility programs and incentives for commercial buildings.

Success Metrics
1. Web traffic, resource downloads, newsletter engagement, and survey feedback
2. Program evaluations are used to measure specific market progress indicators for programs that leverage BetterBricks.

Key Activities that Provide Value to the Region

1. Provide resources and information that are relevant to market actors across building types via BetterBricks, making it an efficient way to inform and educate commercial building audiences about the technologies and practices in the alliance portfolio.
2. Drive target audiences to utilities and efficiency organizations for more information about incentives and programs.
3. Building upon previous regional investment in programs and resources that target the commercial real estate audience, the CREHub, a tool on BetterBricks, provides a direct channel to this key audience to inform and educate the commercial real estate audience about the technologies and practices in the alliance portfolio and the local utility programs that incentivize them.
4. Educate and inform the members of industry associations that are partners of BetterBricks about the technologies and practices in the alliance portfolio and relevant utility and energy efficiency organization programs.

OPTIONAL FUNDING: C+I SEM (Commercial and Industrial Strategic Energy Management)

Description: Strategic Energy Management (SEM) is recognized as a pathway to deeper energy efficiency within commercial and industrial programs, and is a foundation for deeper and more enduring customer relationships. Existing SEM infrastructure is the result of several years of regional investment and collaboration. The previous cycle's work established valuable SEM tools and resources on the online SEM Hub knowledge center, increased consensus on common SEM standards, and improved regional and national collaboration on SEM initiatives.

Market Conditions and Assumptions Driving Cross-Product Leverage

1. Needs vary by customer and utility, but all SEM practitioners face common challenges.
2. Robust collaboration between SEM programs, convened by NEEA since 2011, improves the efficiency and effectiveness of SEM programs through shared inquiry, innovation, and knowledge transfer.
3. The SEM Hub and SEM Collaborative enable the targeted application of technology and problem solving to the challenges facing SEM practitioners and participants.

Objectives

1. Commercial and industrial customers see value in SEM as a strategy for meeting their sustainability and energy performance goals.
2. Enable greater development and use of high-value SEM tools and resources by regional stakeholders to launch, grow, and sustain regional SEM programs.
3. The region leverages the SEM Hub Energy Management Assessment (EMA) tool to measure baseline SEM practices and identify targeted savings opportunities.
4. Build regional and national consensus on SEM as a best practice or de facto standard.

Success Metrics

1. Further adoption of SEM in the NW region.
2. Increased number of NEEA funders using SEM Hub tools and resources to enhance their SEM program implementation and customer engagement.
3. Increased participation in the NW SEM Collaborative and hosted events.

Key Activities to Provide Value to the Region

1. Provide a resource for utilities in promoting and utilizing SEM as a fundamental customer engagement tool through the SEM Hub (SEMHub.com). Customized portals can be used directly for SEM program implementation.
2. Convene the community of SEM practitioners around shared challenges and solutions to enhance the efficiency and effectiveness of SEM programs.
3. New opportunities for SEM infrastructure could include:
    - Small-medium company SEM
    - Supporting the nascent North American SEM Collaborative
    - Creating new white-label online tools for SEM savings tracking
    - Supporting next generation manufacturing clusters and energy efficiency opportunities within the American Jobs Project.

Training

Description: NEEA builds market infrastructure to support the training needs of the region, serving both regional and funder programs. NEEA approaches this by:

1. Partnering with an existing organization, such as Refrigeration Engineering and Technicians Association (RETA), to develop and offer new curriculum to existing membership.
2. Establishing original training if no existing organization exists until the market can successfully take over adoption of the training. An example of previous efforts that were adopted by the market is the Building Operator Certification, which is now led by NEEC.

Market Conditions and Assumptions Driving Cross-Product Leverage

1. Top barriers common to almost all market transformation programs are low awareness and lack of trade ally skills to support new technologies.
2. In addition to being essential to the alliance's market transformation work, trained trade allies are an ongoing need for the region's programs, and are seen as critical to program success and customer satisfaction.
3. NEEA's NXT Level training for utility lighting trade allies will continue to engage market partners to help it grow and continue to serve the comprehensive retrofit training needs of the region.
4. Funder trade ally programs will work hand-in-hand with NEEA to offer relevant and timely content.
5. Training is a need the region shares, yet can be expensive to execute.

Objective

Trained trade allies effectively specify, design, sell and install the most efficient technology, in support of alliance initiatives and funder program goals.

Success Metrics

Trends in trade ally specification, design and sales of technologies being promoted by initiatives and programs.

Key Activities to Provide Value to Region

1. Ensure training designations/certifications continue to offer funder programs opportunities to direct customers to qualified trade ally lists and extend exclusive benefits to qualified allies, such as award eligibility or fast-track program applications.

2. Develop and support regionally consistent training that offers economies of scale and consistency for trade allies and customers, especially those who span multiple funder territories
3. Raise trade ally skill level and break down barriers for customers to initiate comprehensive projects.
4. Leverage NEEA's learning management system for small-scale training needs on specific topics (i.e. Lighting Basics an online training for lighting contractors available through the Northwest Lighting Network website)

Appendix 5: Electric Energy Savings, Avoided Carbon Emissions and Peak Capacity Value

Electric Energy Savings

Energy savings are an output resulting from changes in markets that the alliance is working to transform or has transformed through collaborative local and regional efforts.
The best way to measure the results of the alliance efforts is the collective achievement of market adoption and the resulting energy savings in the market above what would have occurred otherwise, otherwise known as the market baseline.

As new investment programs move through the development lifecycle, the energy savings potential is forecast. The development process of moving a program from the early phase of product assessment to full scale market development can take 3-5 years or longer, with energy savings ramping over the following five years. A portion of funding from this Business Plan will be used to seed these early program investments and the estimated energy savings may not be recognized until future funding cycles.

Definition of Alliance Electric Energy Savings
Total Regional Savings: Savings associated with all market changes.

Baseline Savings: Savings from naturally occurring market change without utility, NEEA, Bonneville Power Administration, and Energy Trust of Oregon funded intervention.

Local Programs (See Key Terms for Definitions): Savings claimed through local utility, Bonneville Power Administration, and Energy Trust of Oregon activities.

Net Market Effects: Savings associated with market change that are not counted as Baseline or Local Programs. (Total Regional Savings less Baseline less Local Programs)

Co-Created Savings: Total Regional Savings less Baseline.

Figure 1: Alliance Energy Savings (aMW)

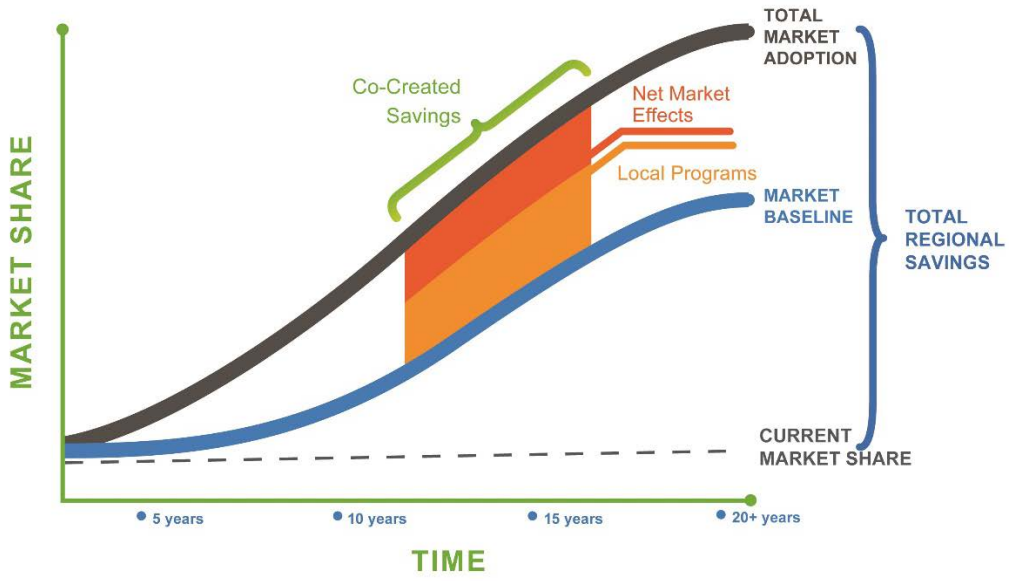


Figure 2: Co-Created Savings Trends (aMW)

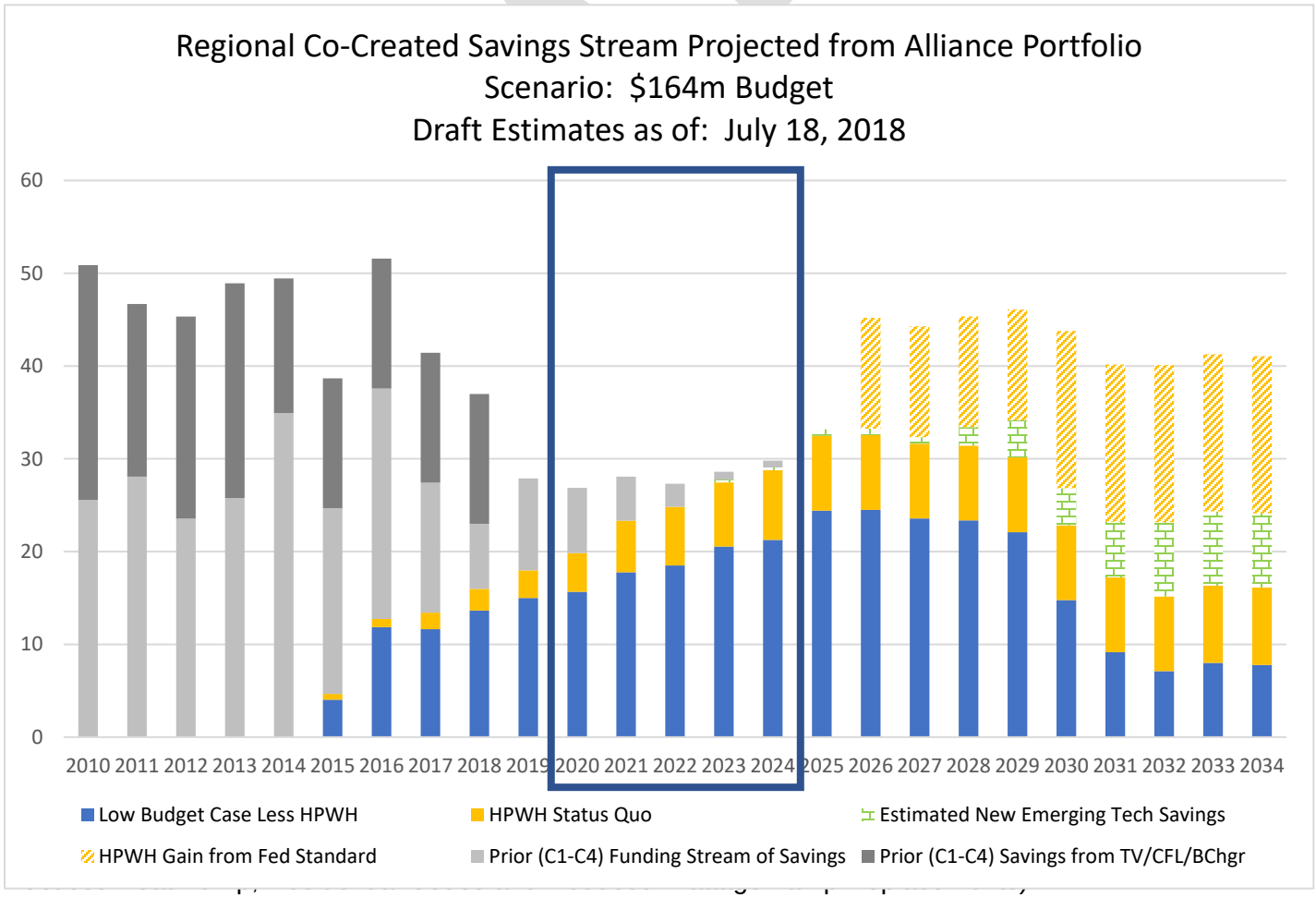


Figure 3: Co-Created Alliance Savings

CO-CREATED SAVINGS	2015-2019 Savings Range (aMW)	2020-2024 Savings Range (aMW)	2020-2029 Savings Range (aMW)
Previously Funded Investments	120-130	75-90	100-125
Current Investments	60-65	45-65	115-205
All Investments	180-195	120-155	215-330

Figure 4: Total Regional Alliance Savings

TOTAL REGIONAL SAVINGS	2015-2019 Savings Range (aMW)	2020-2024 Savings Range (aMW)	2020-2029 Savings Range (aMW)
Previously Funded Investments	510-525	300-400	500-700
Current Investments	140-150	65-105	165-270
All Investments	650-670	365-505	665-970

Regional Peak Capacity and Avoided Carbon Emissions

NEEA is able to now estimate additional value derived as a result of these efforts and resulting savings in the market in the form of Regional Peak Capacity savings and Avoided Carbon Emissions.

Figure 5: The total regional value of these in the 2020-2024 Business Plan.

	Low CC Forecast	High CC Forecast	
Summer	162	209	MW peak reduction
Winter	219	283	MW peak reduction
Carbon	438,000	565,000	Tons of CO2 avoided

5-Year Projection Assumptions:

- Forecast reflects best available information as of July 2018. NEEA updates business progress and reflective savings forecast every September and April.
- All initiatives in the current portfolio as of July 2018 are expected to continue to deliver savings for the region and are forecast as such.
- Previous Investments represent savings from new installations in the market above baseline. Majority of savings are from Residential CFL and TV, which are nearing baseline and will no longer produce new savings for the region after 2018. Cycle 6
- The alliance has added 3 new initiatives that are still in early stages of development and savings forecast potential in preliminary stages of development: Window Attachments, Commercial HVAC (Dedicated Outdoor Air System), and Extended Motor Product Label.
- Near term (2020-2024) savings are majority generated by two primary programs that are in development: Retail Product Portfolio and Heat Pump Water Heaters.
- Chart above assumes Heat Pump Water Heater can reach a federal standard by 2025. There is risk in achieving this date, and a significant portion of savings will be delayed if the standard date is moved out
- The Long term (2025-2029 and 2030-2034) are highly dependent upon investment to ramp up new initiatives in the market, this will both diversify the risk in the expectations of majority of savings in two primary programs as well as ensure future stream of savings for the region

10-Year Projection Assumptions

The alliance works in the market for sustained change which is best reflected in a longer time horizon. The 10-year energy savings estimates resulting from the alliance's investment in the portfolio include large Variability Factors reflected in ranges, including:

1. Risks (delay in approval and/or consumer adoption) in new Small Tank Fed Standard for Heat Pump Water Heaters
2. Risks in long term potential of new programs currently in development (e.g., Luminaire Level Lighting Controls, Retail Product Portfolio)

Appendix 6: Product Taxonomy

A Product taxonomy provides a common classification scheme by energy system and sub-system. The taxonomy is based on prior work in the Northwest (Northwest Power and Conservation Council, 2016; E3T Program). Each Product in the Database can be assigned one or more energy systems and subsystems for classification purposes. The taxonomy enables users to quickly determine emerging technology activities in specific application areas, for example, HVAC/Heat Pumps, or Lighting/Sensors & Controls. See Table 1 below for a complete description of the Product taxonomy.

Table 1. RETAC 2.0 Product taxonomy

Energy System	**Subsystem**
Building Envelope	Walls, Roof, Floors
	Windows and Skylights
Electronics	Information Technology, Other Devices
	Commissioning, Sensors and Controls
HVAC	Air and Fluid Distribution, Heat Pumps
	Heat Recovery, Other HVAC systems
	Rooftop Units and Air Handling Units
	Sensors and Controls, Commissioning
Irrigation	Irrigation Systems, Commissioning
Lighting	Sensors and Controls, Design
	Fixtures: Indoor, Outdoor
	Lamps and Ballasts, Commissioning
Motors and Drives	Drives, Motors
Whole Building/Meter Level	Design, Assessments, Commission
	Energy Management, Behavior
Power Systems	Backup Power, Building Power Distribution
	Metering, Power Generation, Transformers
Process Loads and Appliances	Commercial and Residential Appliances
	Industrial Processes, Municipal Processes
Refrigeration	Sensors and Controls, Refrigeration Systems
	Refrigerated Cases, Waste Heat Recovery
	Commissioning
Transportation	Electric Vehicles
	Electric Vehicle Supply Equipment
	Elevators and Escalators, Block Heaters
Water Heating	Heat Recovery, Water Heaters
	Water Conservation, Sensors and Controls

Appendix 7: Product Readiness

The Northwest Power and Conservation Act (Pacific Northwest Electric Power Planning and Conservation Act, 1980) establishes the foundation for energy efficiency measure (or "product") readiness in the Northwest, identifying reliability, availability, and cost-effectiveness as key requirements for consideration as a savings measure. Following this lead, the newly created RETAC 2.0 readiness framework comprises three readiness components: 1) Product Performance, 2) Market/Commercial, and 3) Program. See Figure below for an overview of the entire readiness framework. The three readiness components are designed to operate independently, such that a given energy efficiency opportunity may rate very high on market/commercial readiness, but very low on product performance and program readiness, for example. The initial release of the readiness framework does not include technology readiness[10] because of the focus on commercially available products, although this could be easily added to the framework in the future.

The Product Performance readiness component, based on a previously established 6-level metric (Energy Efficiency Emerging Technology Program), focuses on energy savings reliability across a range of intended applications. The readiness levels cover a spectrum of validation methods including engineering calculations, lab tests, field tests, and endorsement of savings by a regional or national body.

While it may be obvious that Market/Commercial readiness is distinct from technical readiness, there is no widely-accepted commercial readiness index (CRI). The Australian government has recognized this gap and developed a CRI to support the demonstration and deployment of new renewable energy technology (Australian Renewable Energy Agency, 2014). RETAC 2.0 expands the CRI concept to include both supply chain maturity as well as progress towards overall market transformation via removal of barriers impeding widespread availability and adoption.

The third readiness component, Program, tracks progress towards inclusion in energy efficiency programs from utilities and similar organizations. Overall cost effectiveness, progress in program design, and risk assessments are incorporated into this readiness component.

[10] The Technology Readiness Level (TRL) index (U.S DOE, 2015) provides a widely-accepted method to manage the development of new technology across a wide variety of sectors, including energy.

Figure 1: Pipeline Readiness Levels