

Annual and Three-Year Energy Efficiency Planning Process Updates to EERMC

August 20, 2020

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Agenda

- Plan Updates
 - Goals and Planning Process
 - Workforce
 - Equity

Planning process updates

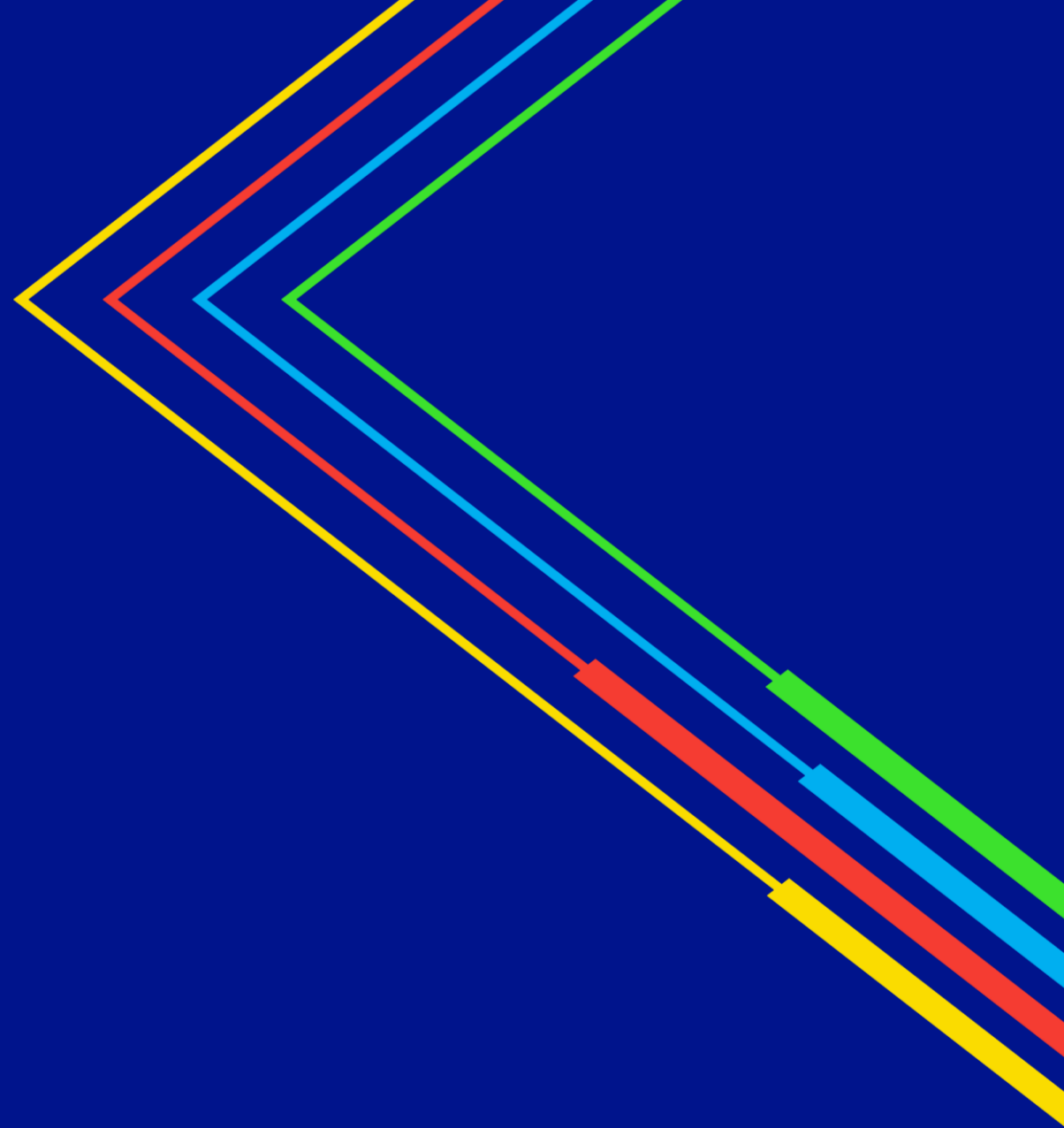
Goal and budget setting

- Significant differences remain between savings goals in each year of the three year plan and targets
- Goals remain subject to prudence requirements and therefore budget constrained
- 2021 COVID impacts continuing to be evaluated in light of current and projected economic, workforce, and customer conditions

Ongoing planning

- Continuing to work with consulting team to identify potential areas for goal expansion and cost efficiencies
- Continuing to evaluate non-budgetary barriers and developing programmatic approaches to reducing barriers through this draft and the final annual plan and three year plan
- Barrier mitigation approaches will continue beyond the planning process and continue through program implementation and delivery

Planning Process: Barriers to savings and mitigation approaches



Context

Potential Study and Plans

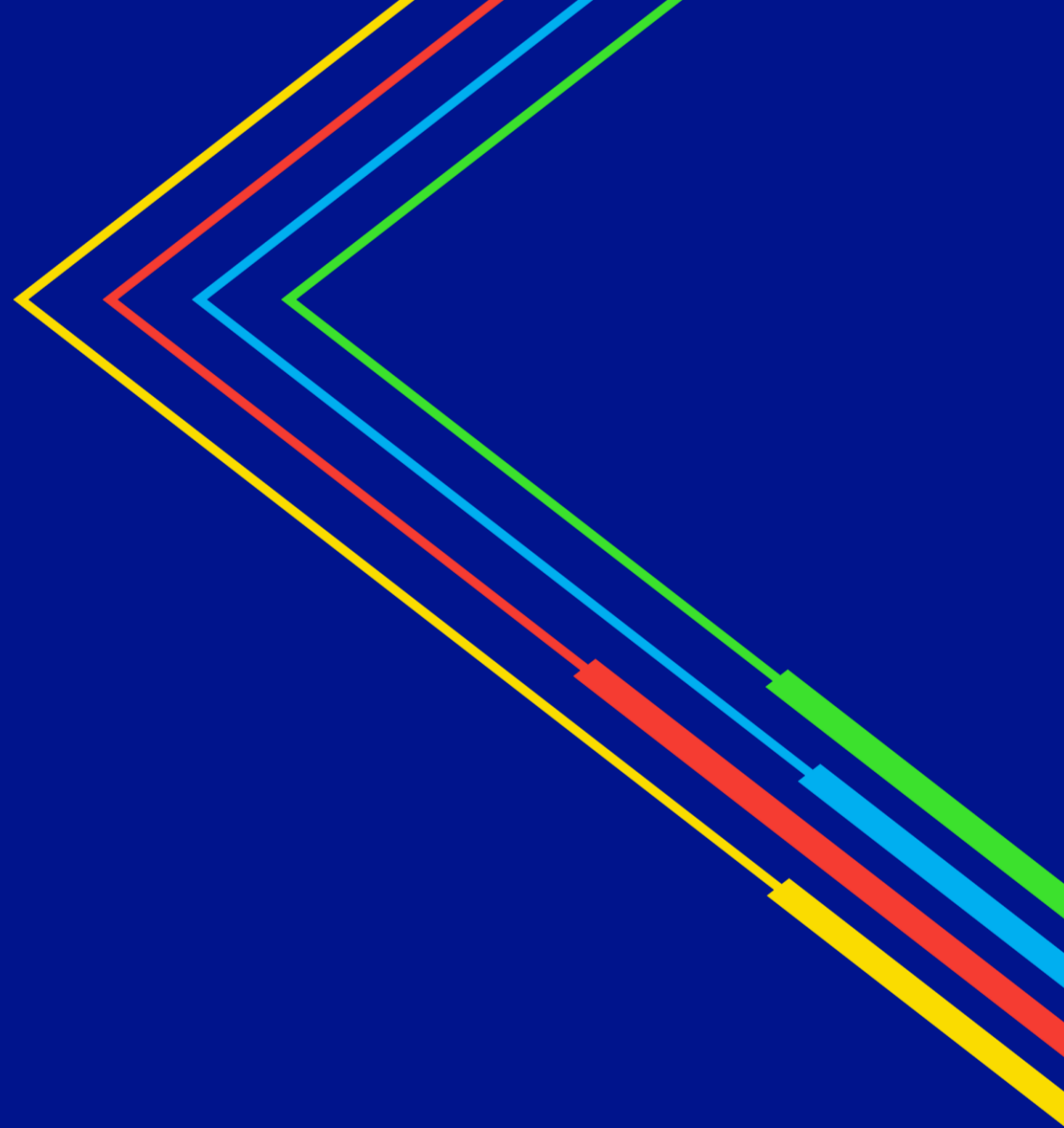
- Potential Study identified energy efficiency savings potential in the Rhode Island market, assuming:
 - 100% customer incentives in Max Scenario
 - Introduction of assumed programmatic improvements as path to reducing unspecified market adoption barriers
 - No COVID impacts
- Planning process is where National Grid translates the potential study into real-world, actionable program goals and strategies
 - Incumbent on company to identify programmatic strategies that mitigate adoption barriers
 - Barrier mitigation is a continuous process throughout the program lifecycle that will generate improvements, however considerations of prudence and budget constraint are the limiting factor at this point

Process to identify barriers and solutions

Barrier Research and Interviews

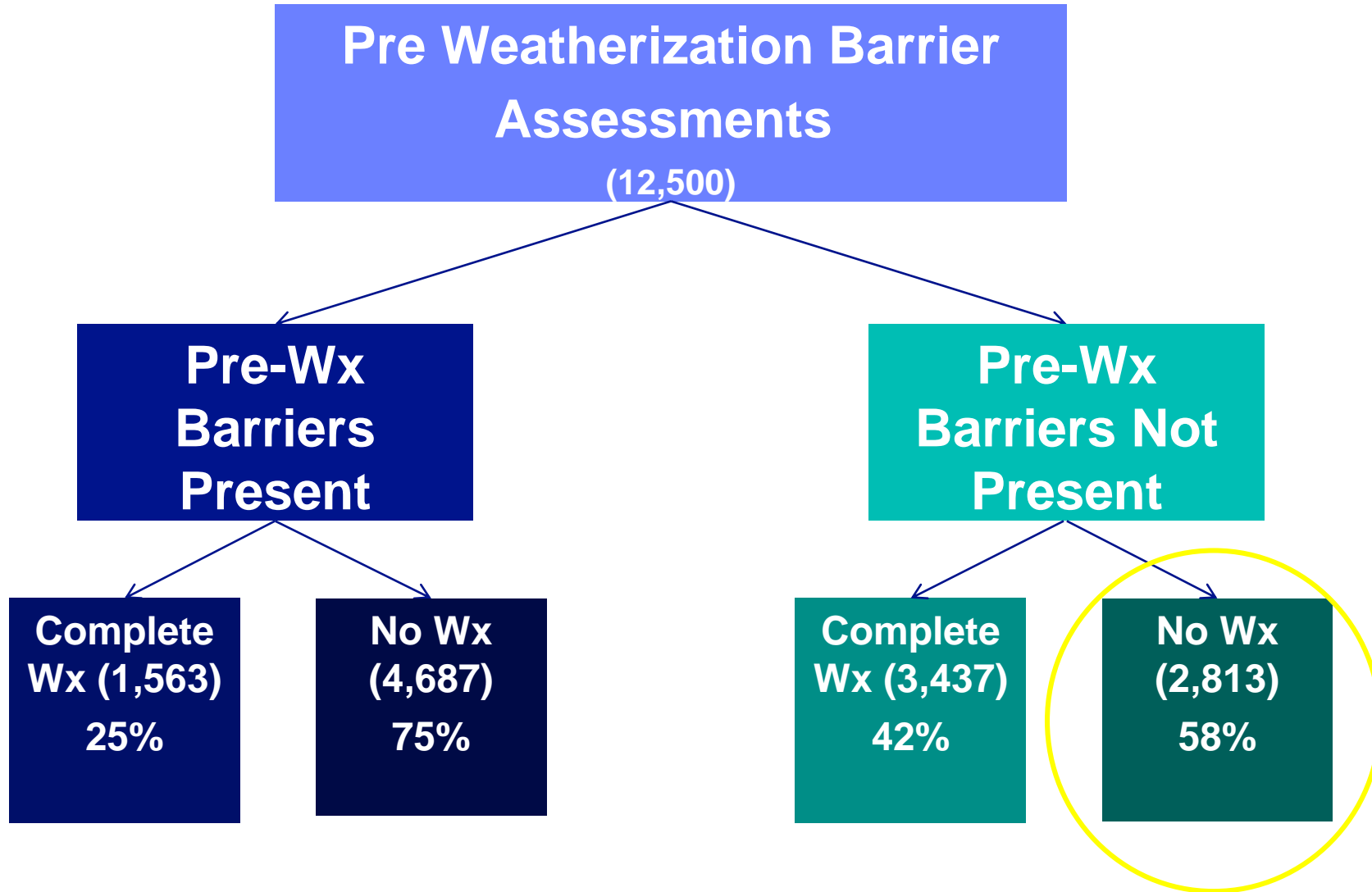
- Sought information from a broad set of perspectives
 - Interviews with technical staff and engineers
 - Interviews with vendors (especially important for Resi)
 - Interviews with sales staff
 - Inquiries with industry bodies including ESource, ACEEE, ASHRAE
 - Data on past projects
 - Consulting team suggestions, DPUC, OER, other stakeholders
 - Evaluation Measurement and Verification inputs

**Residential and Income
Eligible**

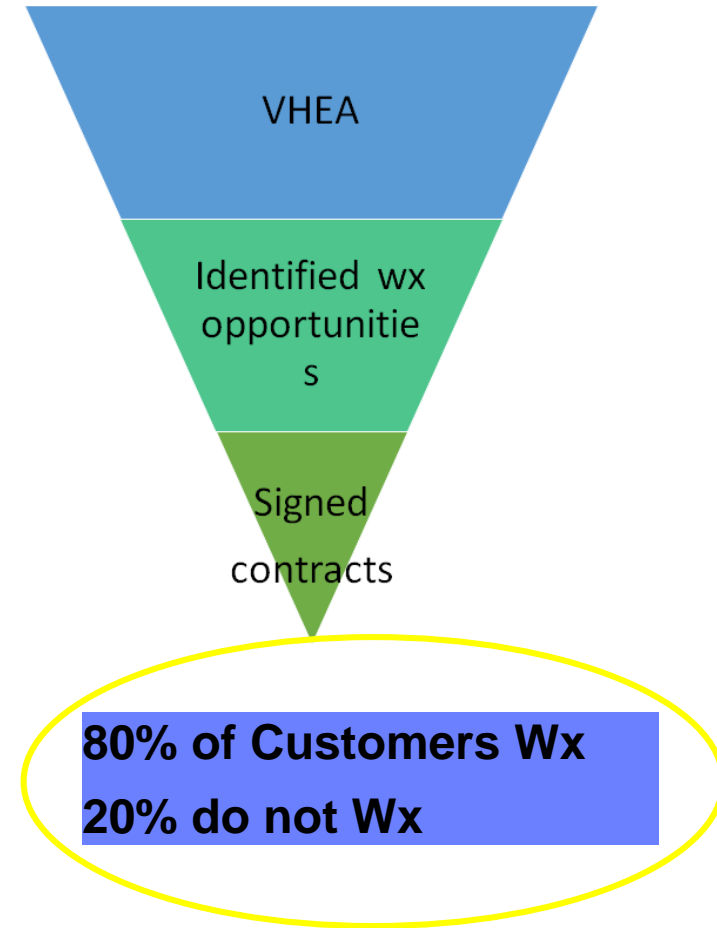


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Residential Envelope Barriers



2) Budget Barrier



Residential Envelope Barriers and Solutions

Barrier	Description	Solution
Financial	Pre-weatherization barriers - 45% + of homes with assessments have identified health & safety barrier	Market Rate - \$250 certification incentive, remediation on 0% heat loan Next: vermiculite fund, LeadSafe Homes, GHFI, continue research with other state resources Facilitate contractor network to streamline customer experience
	Gas wx budget \$20 mil in 2021. \$40 mil to reach max potential, Portfolio budget of \$35 mil	Finite resources. Focusing on enhanced incentives for equity and deeper savings with enhanced incentives.
Workforce	Aging workforce, fewer new entrants, loss of workforce during COVID	Mentor technical school students so they understand value of EE products – Energy Expo; National Grid CCRI relationship. Next: Survey with contractors, best sources for new employees. Gaps in training & education.
Policy	Investment does not increase appraised value of home	Work with realtor and new home-owners to realize investment value. Support building labeling where cost effective
Customer Information	Customer awareness / value of offering	Comprehensive marketing, program specific, paid search, social media, drive in movie, streaming media. 2021: Enhanced incentives. Next: Work with realtors and home inspectors so customers learn about EE opportunities upon new home purchase. More likely to realize investment. Customer awareness of EE at 67%.

Residential HVAC Barriers



Gas Households

234,143

Failure Rate of Systems

18 years



RI Annual Replacements Systems

13,008

Max Potential Estimated System Incentives

12,745



2019 Incentives Served

2,101

2021 Planned Incentives on Systems

2,800

HVAC	Max Potential Lifetime Savings (MMBTU)	% 2021 Plan Covers of Max	Components
HVAC Controls	36%	29%	Wi-Fi Thermostats
Boilers/Furnaces	50%	48%	Efficient boilers & furnaces
Misc Heating	14%	3%	Heat Recovery Ventilators & Duct Sealing

Residential HVAC Barriers and Solutions

Barrier	Description	Solution
Equity/Costs	Affordability of upgrading system – emergency expense - only 41% of Americans have savings to cover \$1,000 emergency	Working with Equity team to move qualified customers to income eligible rate. Heating system replacement no cost through income eligible program Enhanced incentive offering for deeper savings
	Rental properties with split incentive barriers	Increase funding for electric resistance heat conversion to electric air source heat pumps particularly on IES MF. 2021: Census of MF
	Wi-Fi Thermostats - Customer wiring for Wi-Fi thermostat and cost of premium product	EW provides installation of system at no cost. Customer copay for thermostat. 30% of homes lacking central wire to power Wi-Fi.
Workforce	Number of approved contractors for electric heat installation - 2018 – 30 firms; 2019 – 60 firms; 2020 – 24 firms. Total of 114 firms on approved list.	Continue training for electric heat qualification
	Contractor preference of product for installation	Mentor technical school students so they understand value of EE products – Energy Expo; National Grid CCRI relationship
Customer Information	Large capital cost ties into longevity in residence and realization of benefit	Work with realtors and home inspectors so customers learn about EE opportunities upon new home purchase. More likely to realize investment.
R&D	No new technology at this time	Work with innovation team to test less known technologies, ex: geothermal well systems

Residential Hot Water Barriers



Gas Hot Water consists of:

- Low Flow Fixtures
- Water Heaters



74% of Max Potential Annual Savings captured by low flow showerhead and faucet aerators; 53% of lifetime savings

- Max Potential identified 67,562 opportunities in 2021
- 2019 2,636 low flow fixtures received incentives
- 2021 3,688 low flow fixtures incentives planned
- Program redesign would be required but low flow fixtures being considered by codes and standards

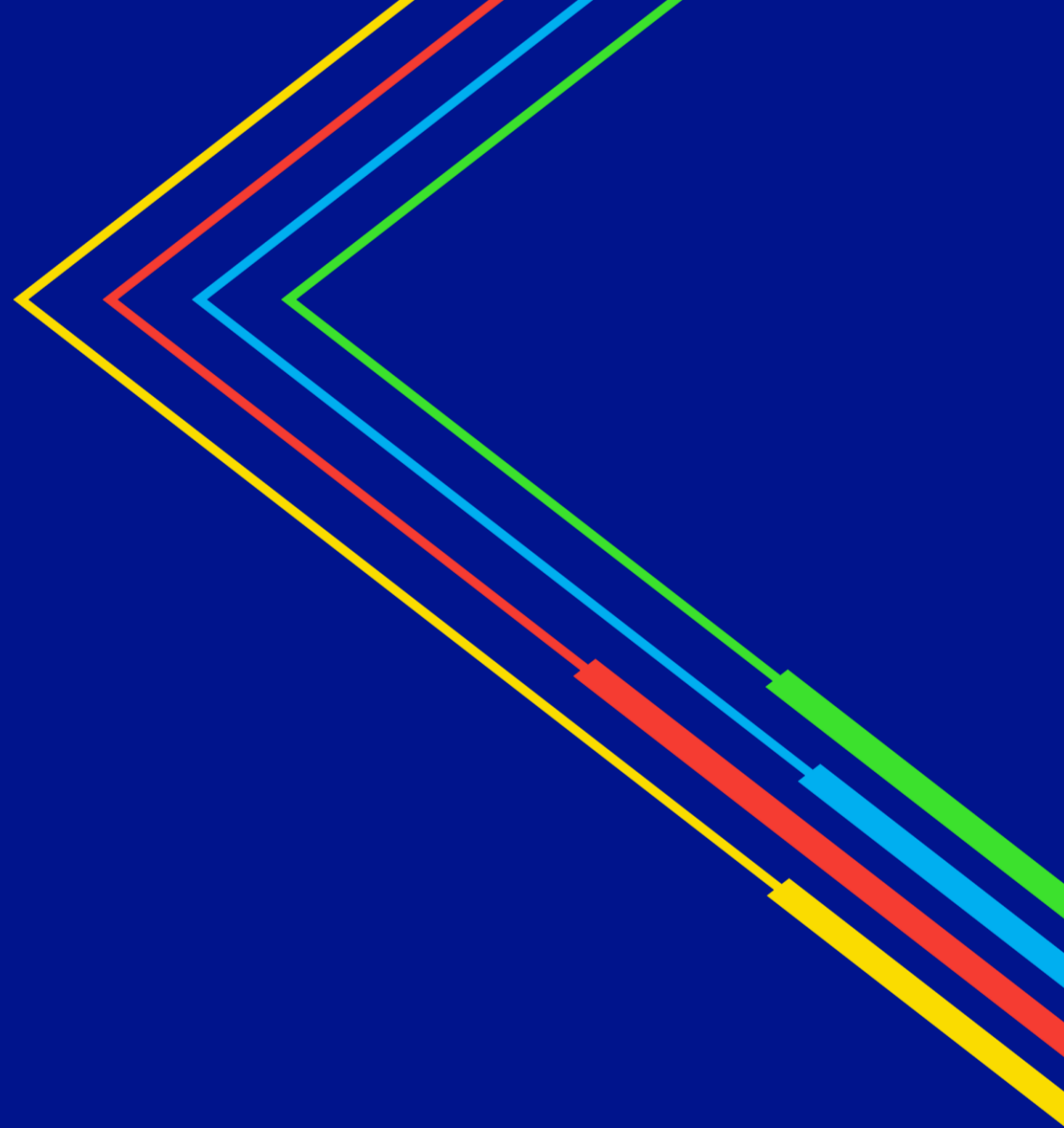


Program has traditionally placed greater emphasis on hot water heaters

Residential Hot Water Barriers and Solutions

Barrier	Description	Solution
Cost	Large portion of aerator and showerhead costs can be in labor for installation	Plumber outreach for bathroom/kitchen renovations
	More costly product	Education with realtors to realize benefits over longevity of home ownership
	Affordability of upgrading system – emergency expense - only 41% of Americans have savings to cover \$1,000 emergency	Working with Equity team to move qualified customers to income eligible rate. Heating system replacement no cost through income eligible program Enhanced incentive offering for deeper savings
Program Design	Redesign to promote low flow fixtures	Better application for codes and standards work. Is being investigated within this area.
Customer Information	Predominantly replace on failure outside of bathroom/kitchen renovation	Codes will also address renovation market.
Physical	Space requirements for heat pump water heaters (electric)	Education of contractors

Commercial and Industrial

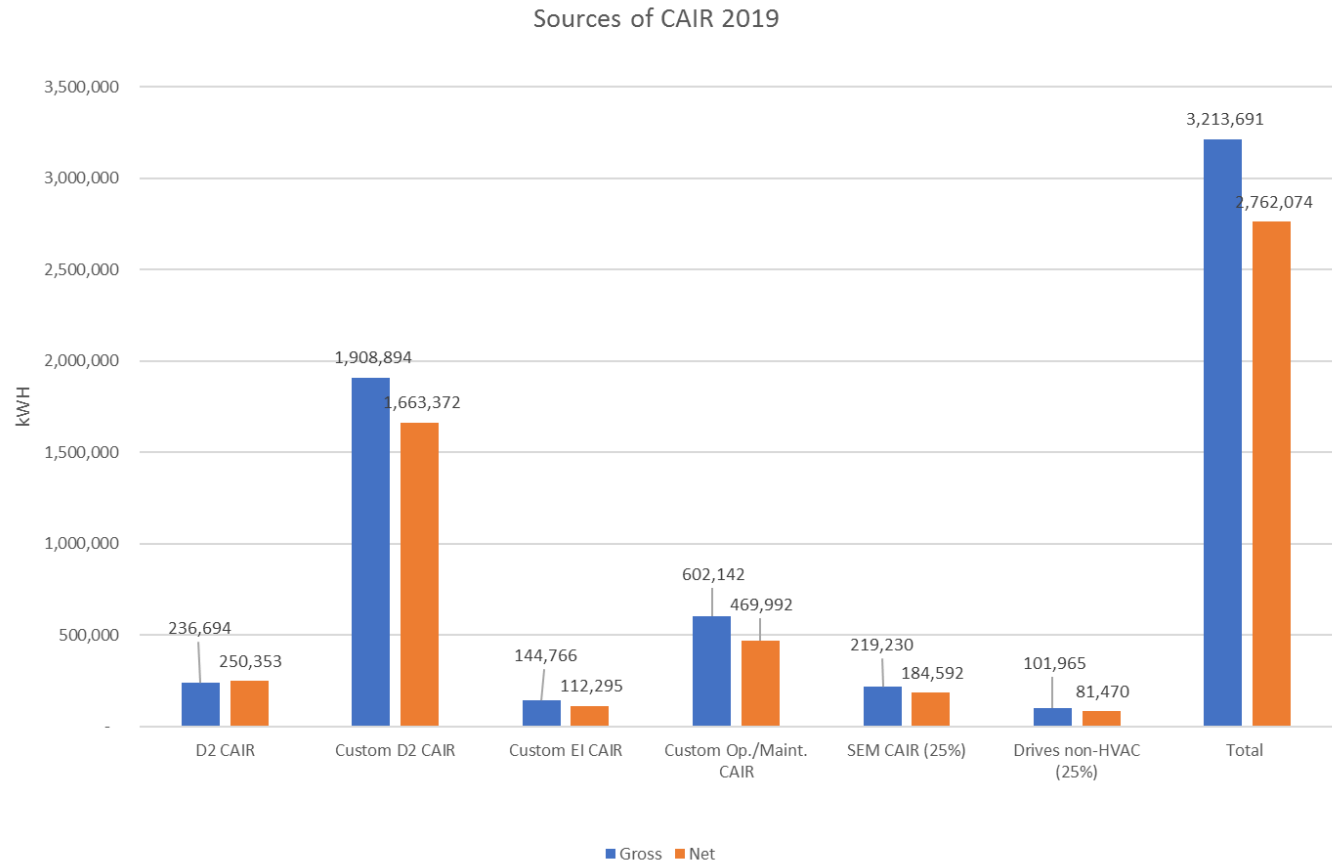


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C&I Planning Process

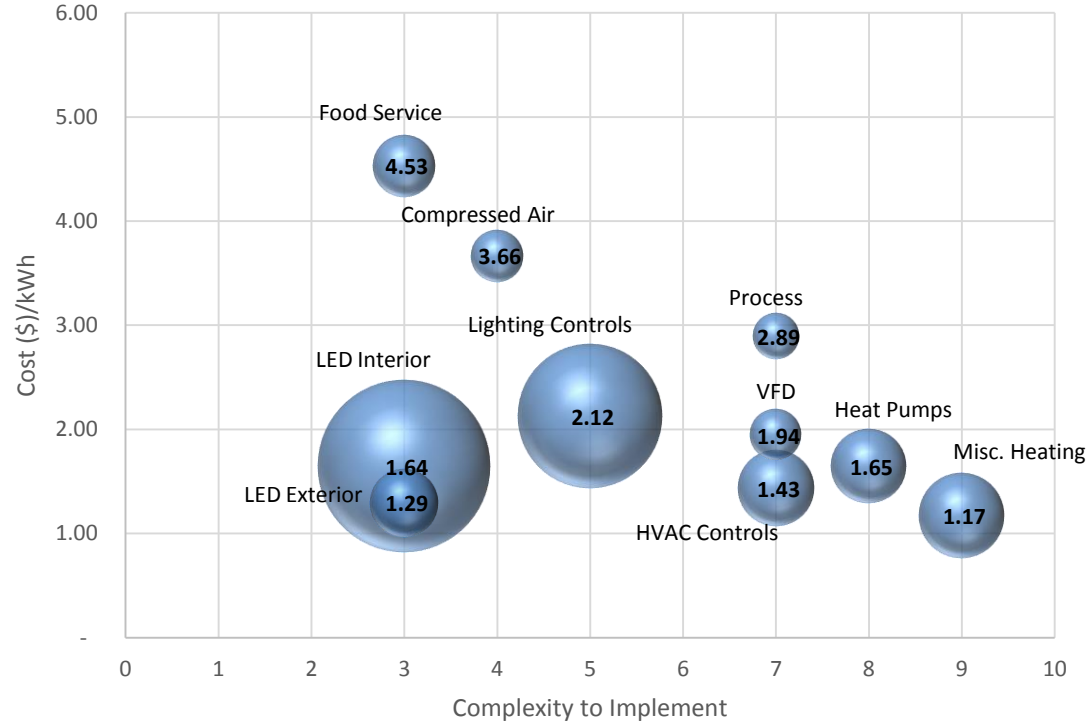
- Imperfect alignment between the potential study and planning process at the granular level
- C&I Strategy team is working towards developing details that will assist in determining ramp rates for top 10 measures in the potential study, in the 3 year plan

Compressed Air



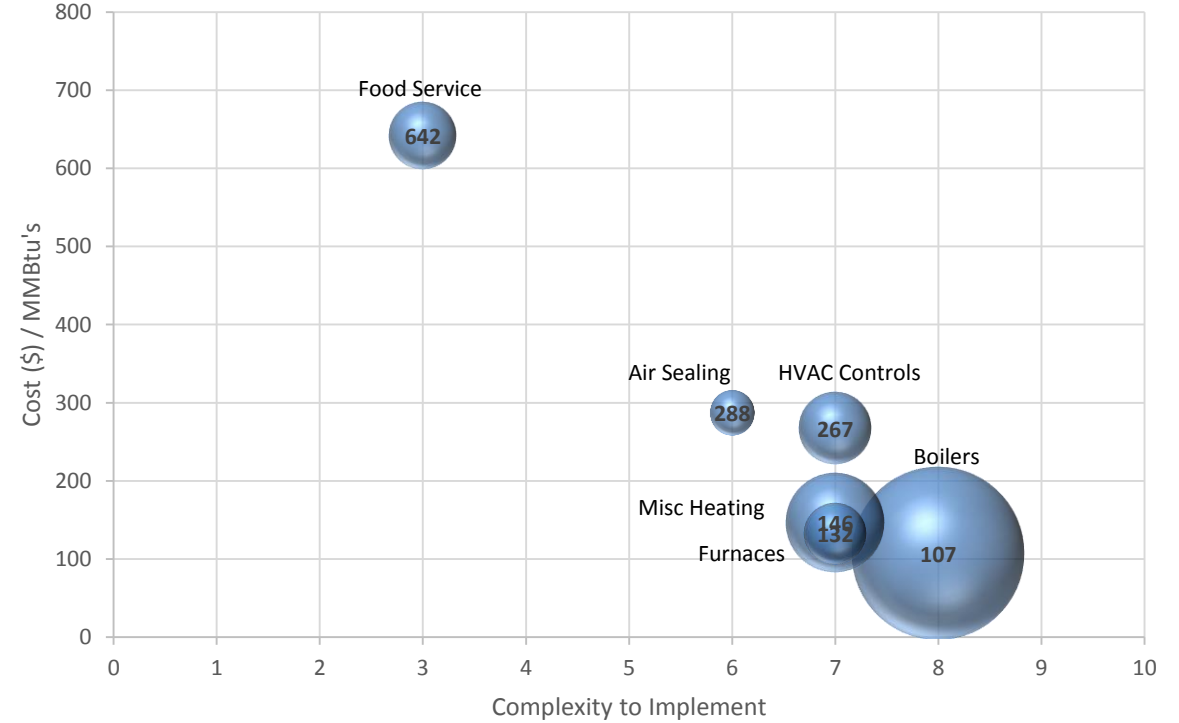
2021 C&I Measures Mix - Max. Scenario

Top 10 Electric Measures (Potential Study)



Top 10 electric measures account for 87% of savings in the 2021 Max. scenario

Top 6 Gas Measures (Potential Study)



Top 6 gas measures account for 98% of savings in the 2021 Max. scenario

Categories of Barriers, Solutions, Next Steps

Barrier	Description	Solution and Next Steps
Financial	<ul style="list-style-type: none"> Costs: Project economics. – Capital Investment, pay back period 	<ul style="list-style-type: none"> Finance options for customers Present finance options such as “cash flow” benefits of finance
	<ul style="list-style-type: none"> Additional maintenance costs Resource costs for additional maintenance and operations 	<ul style="list-style-type: none"> Incentives for behavior change to sustain energy savings Incentives for post occupancy verification (NC program)
Workforce	<ul style="list-style-type: none"> Top 10 measures in the potential study have measures that are increasingly complex to design, deliver and maintain and sustain energy savings 	<ul style="list-style-type: none"> Training and education – Design and implementation Training and education – Maintenance and operations
Customer	<ul style="list-style-type: none"> Awareness, priorities, value, time 	<ul style="list-style-type: none"> Create customer awareness of benefits of complex EE solutions (Marketing and Education)
Program/Market Barriers	<ul style="list-style-type: none"> Incentives for complex measures are not transparent Difficulty identifying ideal customer for measures/ technology Unclear costs of solutions/measure/technology 	<ul style="list-style-type: none"> Simplify incentive structure (NC and Retrofit program) Energy Information Platform to provide customer intelligence (launch 2021) Market Sector Approach - to implement curated technologies specific to a market e.g. Telecom, Lodging, restaurants etc. (launch 2021)

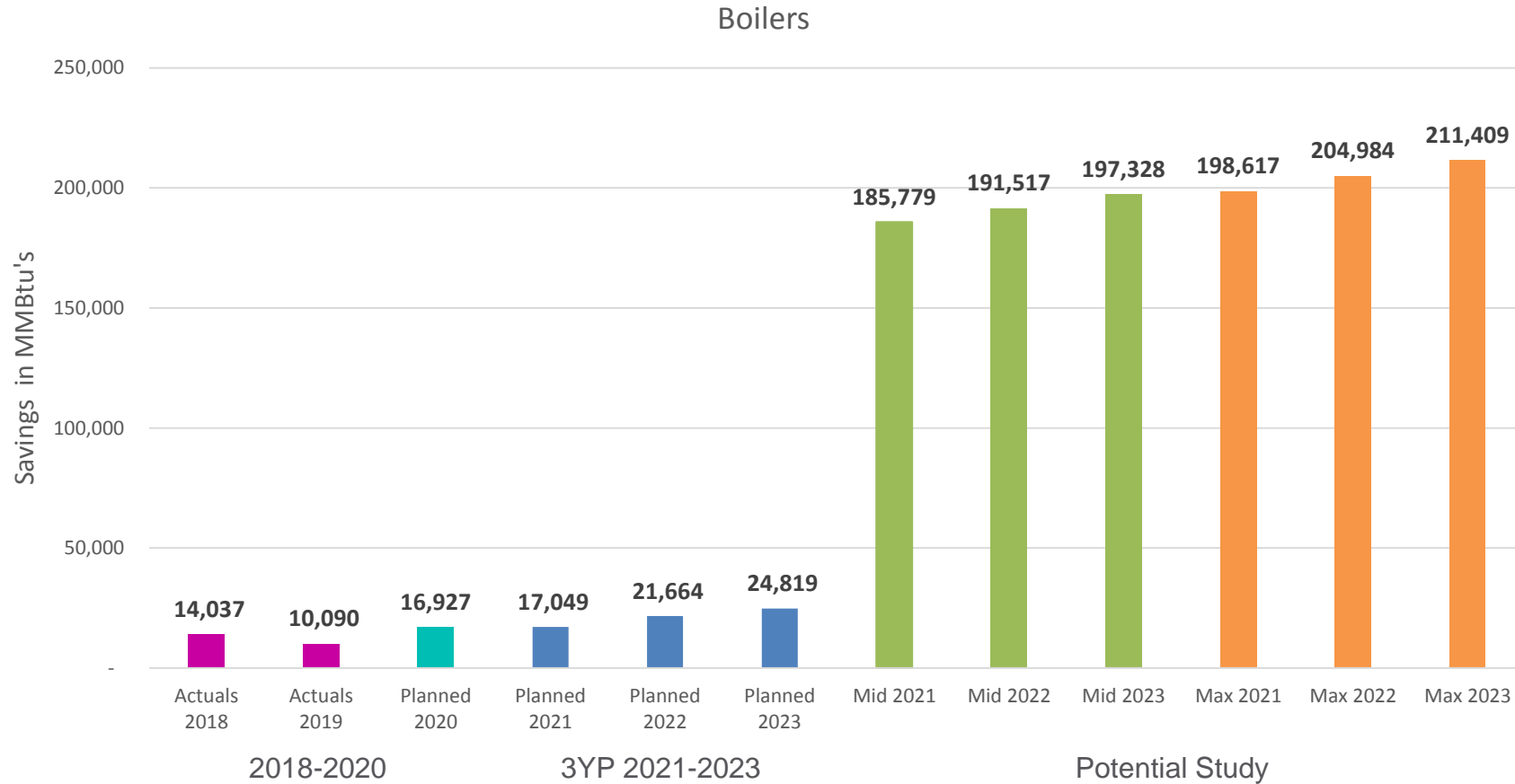
C&I Electric Barriers and Solutions Process

Measures	Barriers	Description	Solution and Next Steps
HVAC Controls: EMS Systems	Customer	<ul style="list-style-type: none"> Financial /Cost/Payback System Maintenance Maintenance on failure 	<ul style="list-style-type: none"> Education and training of maintenance staff
	Workforce	<ul style="list-style-type: none"> Technical expertise to design and deliver solutions 	<ul style="list-style-type: none"> Training opportunities
	Program/ Market Delivery	<ul style="list-style-type: none"> Identify solution for appropriate customer Unclear incentive structure 	<ul style="list-style-type: none"> Customer information (Energy Information Platform) Transparent incentive structure Incentivize maintenance Integrate solution with market sector approach e.g. SEMP's
Ozone Laundry	Customer	<ul style="list-style-type: none"> Awareness of technology Knowledge about technology 	<ul style="list-style-type: none"> Education and awareness via targeted marketing Integrating solution with market sector approach (Lodging Initiative)
	Market Barriers	<ul style="list-style-type: none"> Cost of technology varies by manufacturers 	

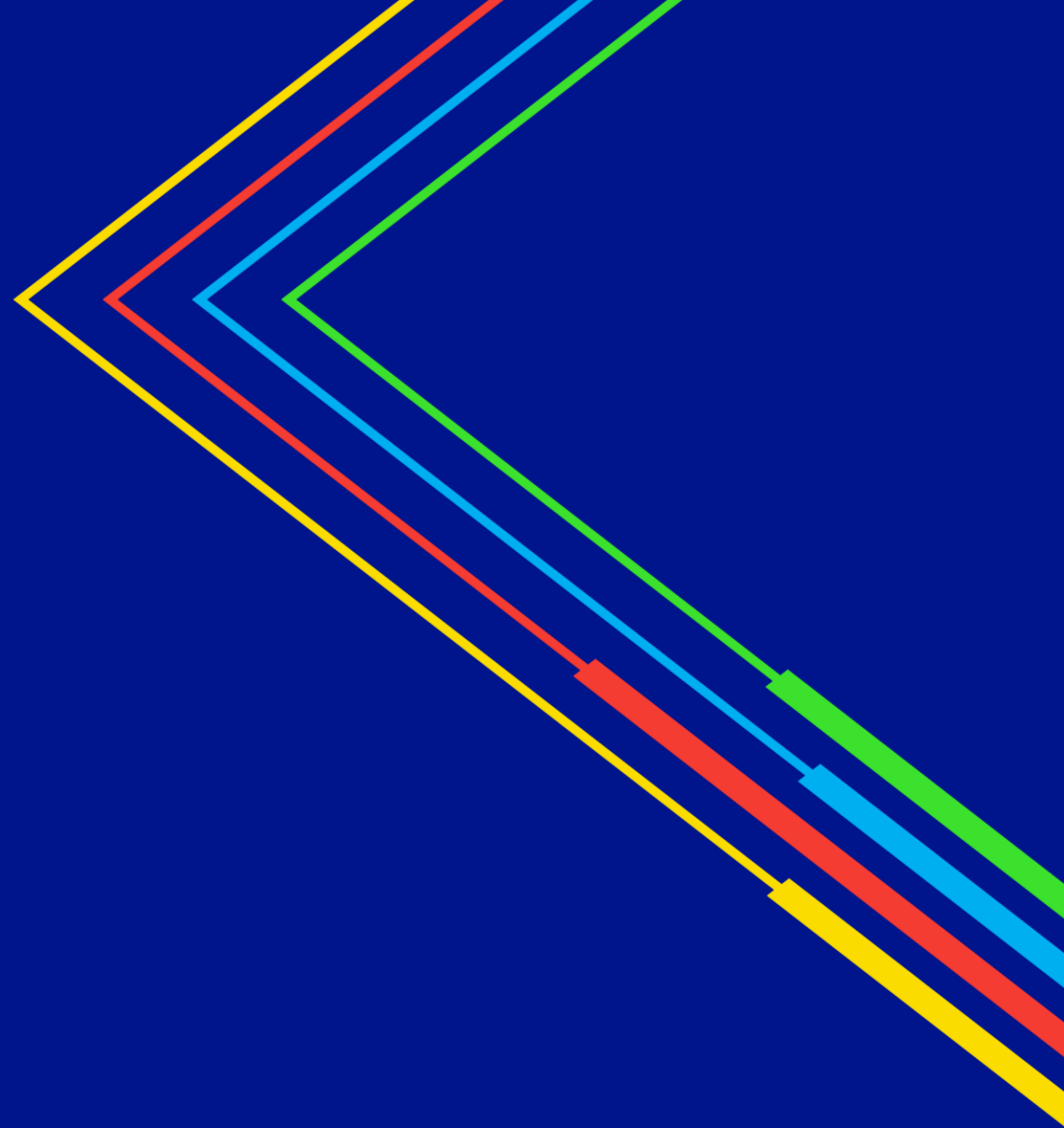
C&I Gas Barriers and Solutions Process

Measures	Barriers	Description	Solution and Next Steps
Condensing Makeup Air Unit	Customer	<ul style="list-style-type: none"> • Site Conditions • Existing system requirements • Complexity of solution for retrofit 	
	Workforce		
	Program/ Market Delivery	<ul style="list-style-type: none"> • Identify solution for appropriate customer 	<ul style="list-style-type: none"> • Customer information (Energy Information Platform) • Integrate solution with market sector approach e.g. schools, hospitals, big box stores
Boiler Reset Control	Customer	<ul style="list-style-type: none"> • Operations and Maintenance 	<ul style="list-style-type: none"> • Education and service contractor training
	Program Barriers	<ul style="list-style-type: none"> • Incentive structure does not address market conditions • Go-to market strategy to scale solution does not exist 	<ul style="list-style-type: none"> • Modify incentive structure • Determine go-to market strategy to scale solution

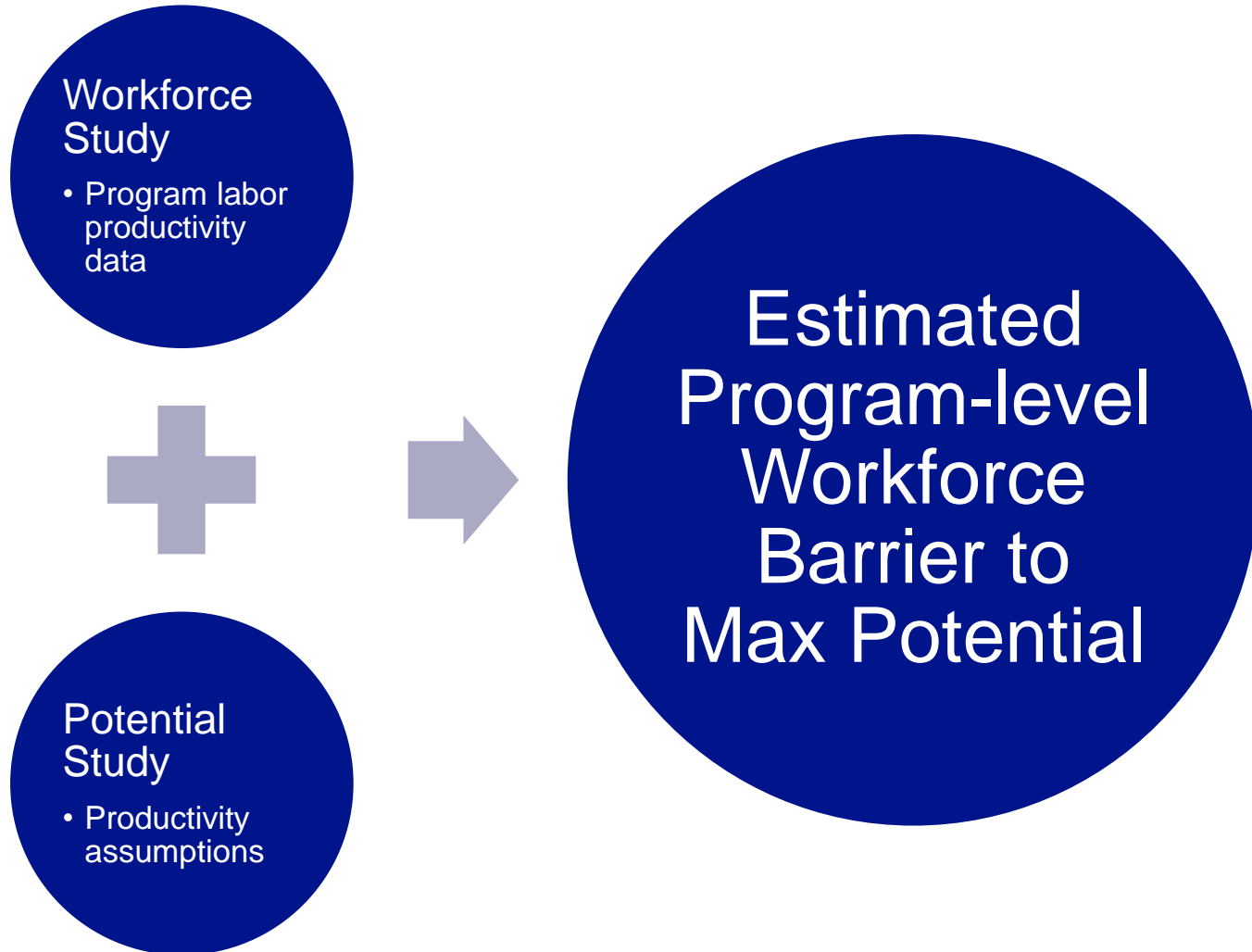
Example of Ramp Rates for Boilers



Workforce Development in the Annual and Three-Year Plans



Addressing the Workforce Barrier



- **Prioritize activities with high potential savings and high confidence of impact**
- **Define focus areas to clarify where other actors may best engage**

Strategy and Tactics

Improve Labor Market Intelligence

- Quantify current and future workforce gaps
- Build capacity for agility amidst economic uncertainty

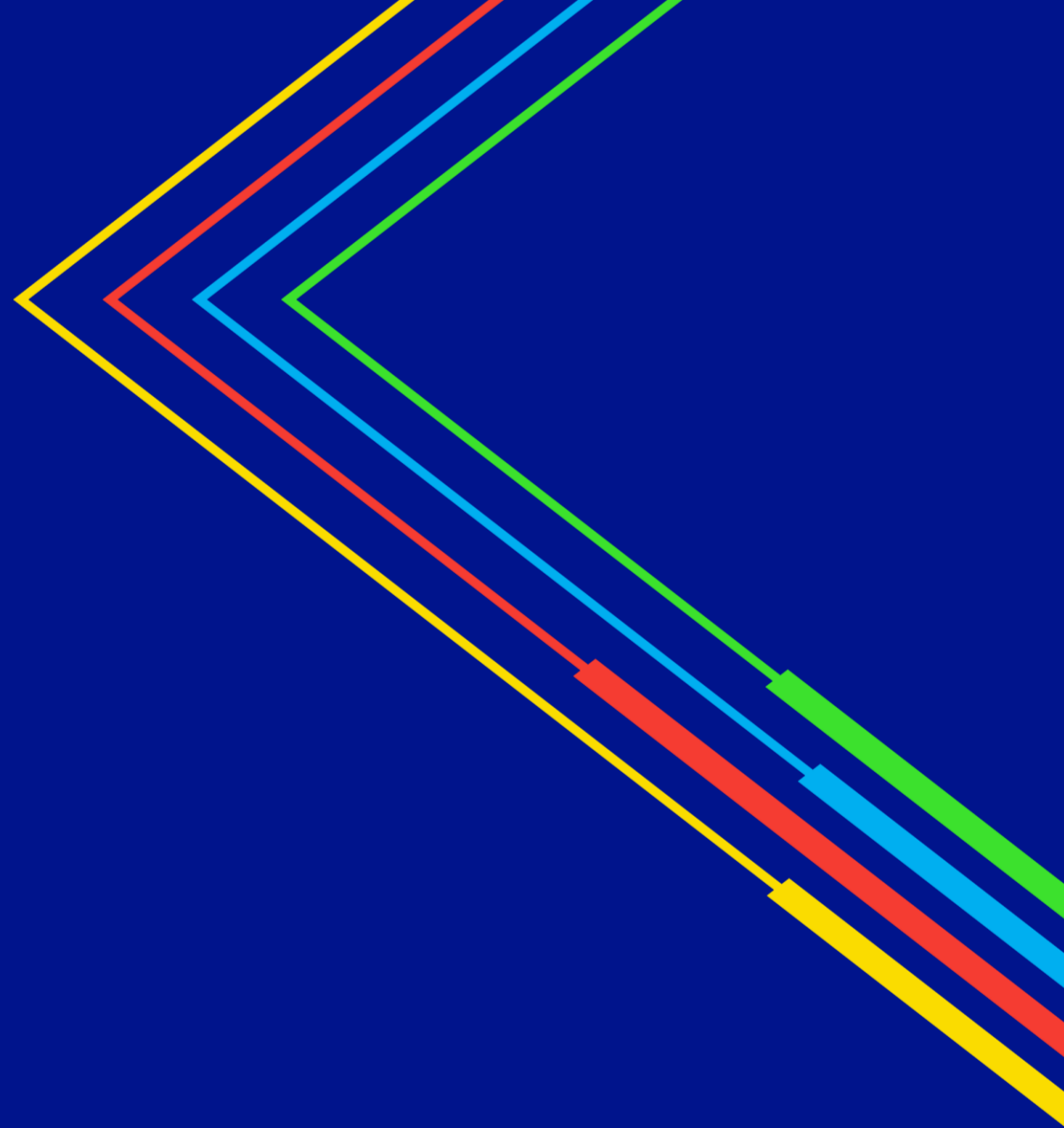
Upsize and Upskill the EE Workforce

- Promote hands-on learning, increased awareness
- Facilitate training targeted to high-priority markets

Build Sustainable, Equitable Pipeline

- Partner with schools, community groups, etc.
- Connect market entrants to employer mentors

Equity in the Annual and Three-Year Plans



Proposed dual-track approach to addressing equity

Programmatic

2020: Ensure consistent rental unit data collection across programs

2020: With OER, initiate Equity Working Group using learnings from MA non-participant study and RI stakeholder input

2020-1: Identify, prioritize and expand current program elements to better meet the needs of priority customers segments

2022: Task equity working group with developing data driven priorities and direction based on study

2022: In 2023 plan, consider PIM equity adjustments based on findings from non-participant study

Evaluation and Analysis

2020-2021: Scope and initiate a residential non-participant study based on the scope and approach in the Massachusetts non-participant study

2022: Complete non-participant study and begin process of applying lessons learned to program design and delivery

MA Non-Participant Studies - Reference

MA Non-Participant Studies:

- http://ma-eeac.org/wordpress/wp-content/uploads/MA19R04-A-NP-Nonpart-MarketBarriersStudy_Final.pdf
- http://ma-eeac.org/wordpress/wp-content/uploads/MA19X06-B-RESNONPART_Report_FINAL_v20200228.pdf

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