

KICKING OFF 2022-2024 RESIDENTIAL PLANNING

Assessing Progress in Addressing Opportunities Identified in 2019-2021 Planning Cycle

▶ September 16, 2020

IT'S DÉJÀ VU ALL OVER AGAIN



• CONSULTANT TEAM

LIGHTING IMPACTS AND OTHER DRIVERS FOR RESIDENTIAL PROGRAM INNOVATION IN 2019-2021 AND BEYOND

Presentation to the Energy Efficiency
Advisory Council

September 20, 2017

RESIDENTIAL PROGRAMS ARE AT A TURNING POINT

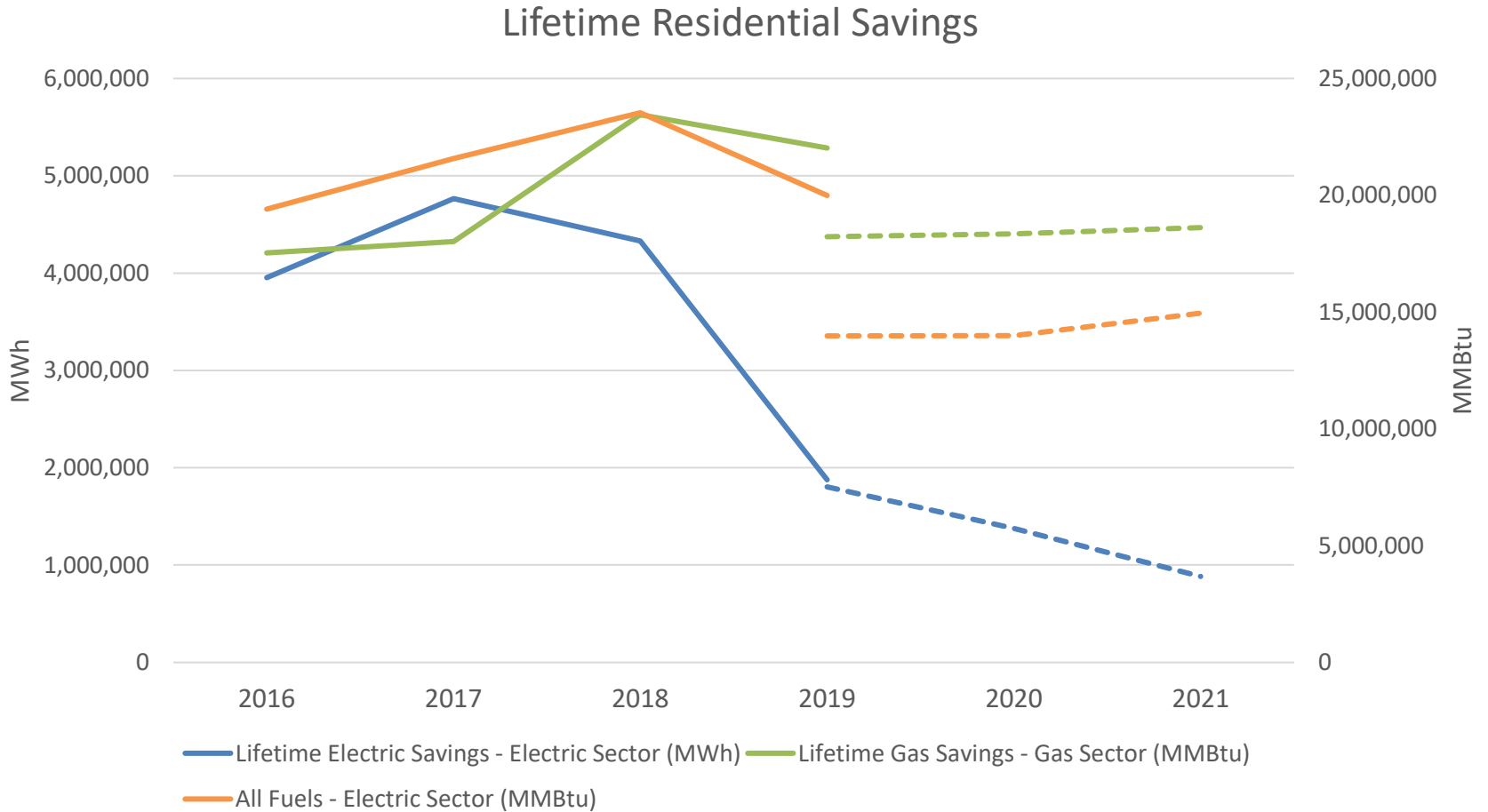


OR

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RESIDENTIAL LIFETIME SAVINGS 2016-2021



KEY THEMES FROM 2017 RES WORKSHOP BRIEFINGS



Filling the lighting gap will require new innovative approaches and full engagement of the market

Enhanced implementation only gets us so far. Broader changes are needed, including going beyond EE



Need to leverage all market opportunities and reconsider whole building approaches

Modernized data and information management is required to support enhanced customer capture, long-term engagement, expanded base



ENVISIONING THE FUTURE: NEW SAVINGS OPPORTUNITIES



Goal: Provide new measures and methods of realizing savings

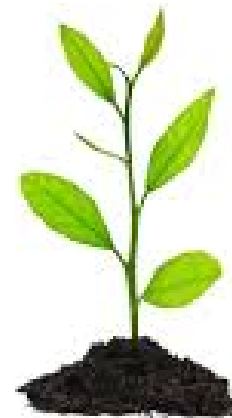
2017

Possible Future

- Prescriptive measures
- Some upstream measures

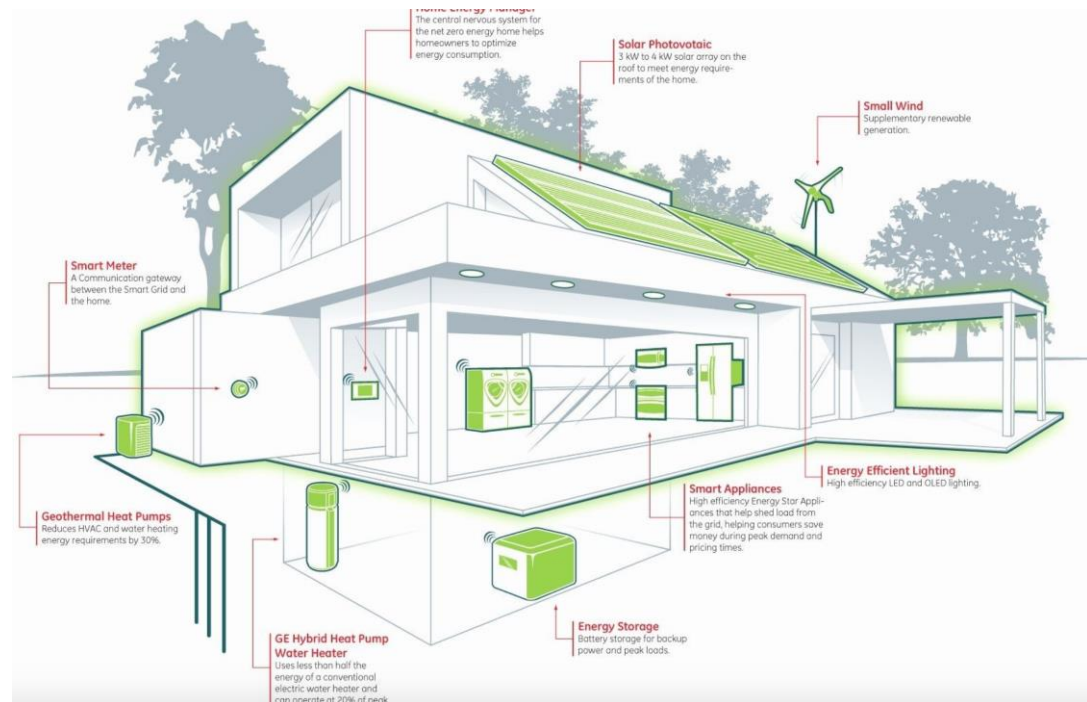


- Some prescriptive measures
- More upstream measures
- Renewables (PV), electric vehicles/charging, and storage
- Custom measures and packages
- Single measure, comprehensive, and staged improvement options
- Fuel switching
- Real-time monitoring and feedback
- Active demand management
- Pay for performance



BROADER APPROACHES TO ENERGY EFFICIENCY

- **Policymaker and consumer attitudes, supported by new products and services, are driving new ways to address energy management**



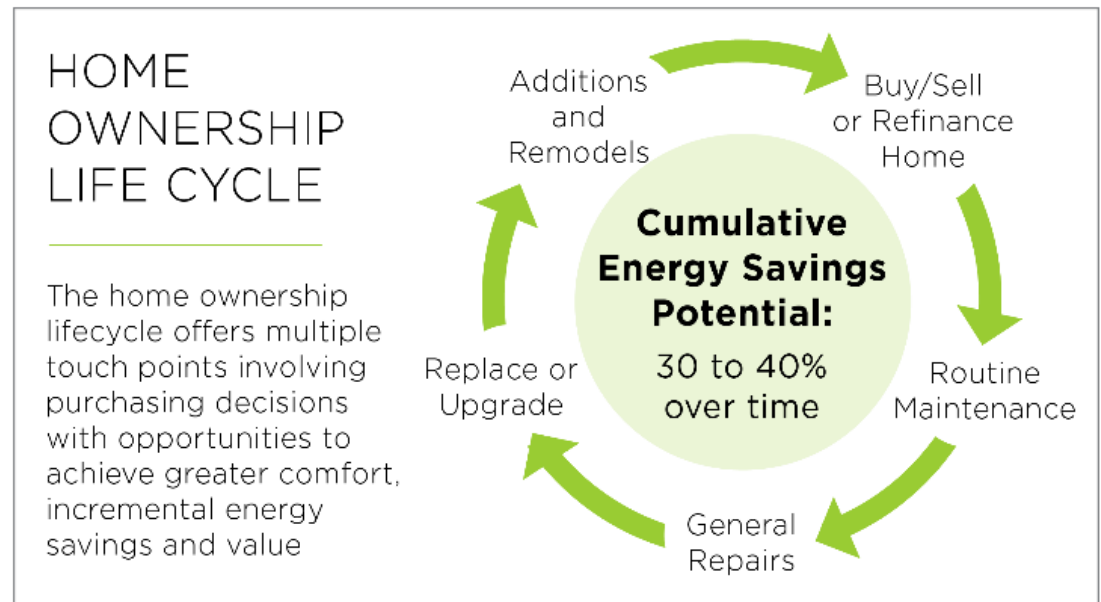
Trending Ideas

- ◆ Beneficial Fuel Switching ◆ Active Demand Management ◆ Energy Storage ◆ Renewable Generation ◆ Integrated Electric Vehicles ◆ Strategic Electrification ◆ Resiliency ◆

EVOLVING CUSTOMER APPROACHES

▶ Customer approaches and engagement strategies are evolving

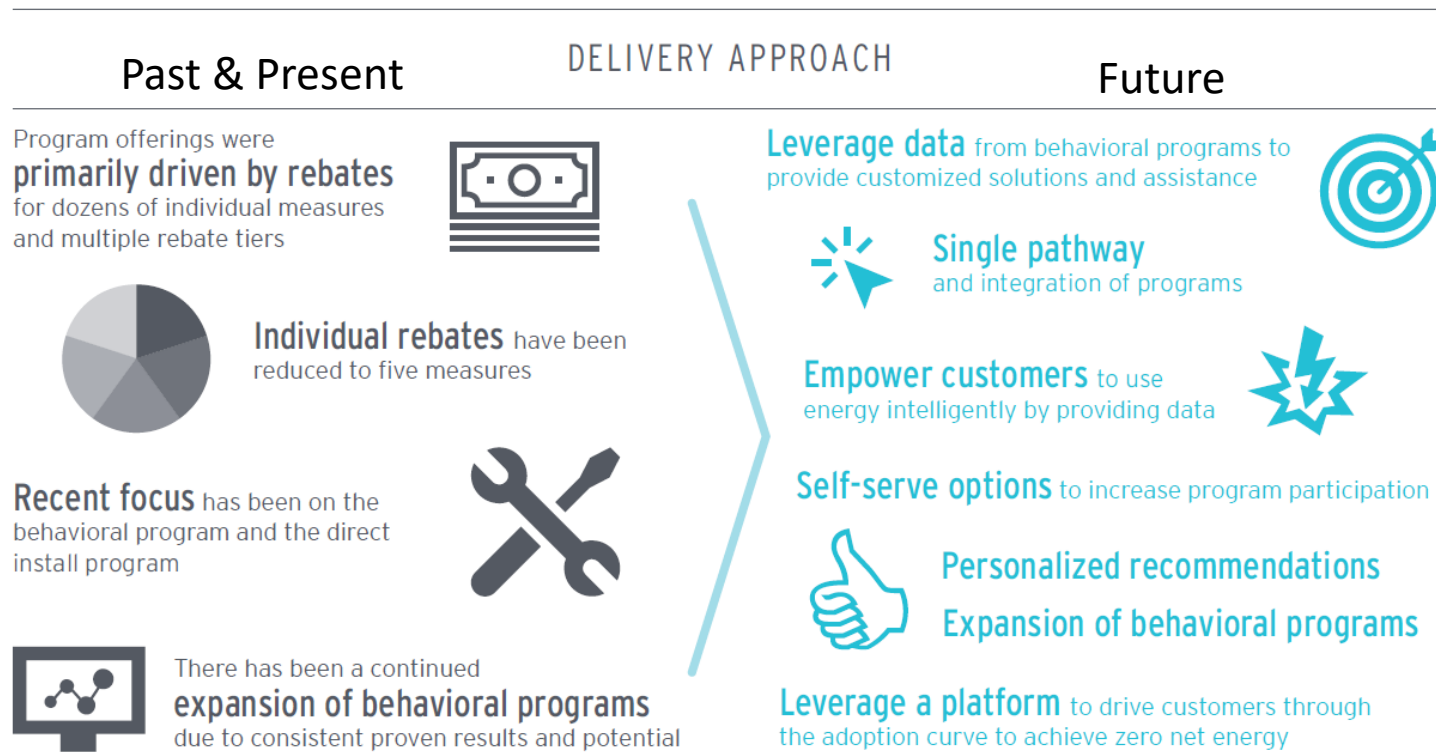
- Performance-based options (California, DOER)
- Enhanced market engagement over entire supply chain (Tennessee Valley Authority)
- Incremental and staged energy improvements



Example: U.S. DOE's Home Improvement Catalyst
www.energy.gov/hicat

TECHNOLOGY DRIVEN MARKET

- ▶ In today's marketplace, technology supports a culture where consumers count on 24/7, on-demand, self-service options



Example: SDG&E's Energy Efficiency Business Plan 2018-2025

https://docs.wixstatic.com/ugd/0c9650_52c02da4469c4213b0974b412b3f85ad.pdf

NEW MEASURES/STRATEGIES: FUEL SWITCHING

Consultants' 2017 recommendations

2020 status



Heat pumps

- Displace propane and maybe fuel oil
- Possible full replacement opportunities for furnaces
- Need to consider summer and winter peak impacts for both electric and gas



Heat pump water heaters

- Replace propane and oil domestic hot water



All electric package option for new construction



NEW MEASURES/STRATEGIES: ACTIVE DEMAND MANAGEMENT

Consultants' 2017 recommendations

2020 status



Wi-Fi thermostats

- Focus on cooling: Central AC and heat pumps
- Apply lessons learned to date from in-field PA demos and in-field programs across the country



Control of other loads

- Water heating, pool pumps, dehumidifiers and dryers
- Promotion of demand enabled HVAC and appliances



Storage

- Significant public and private investment

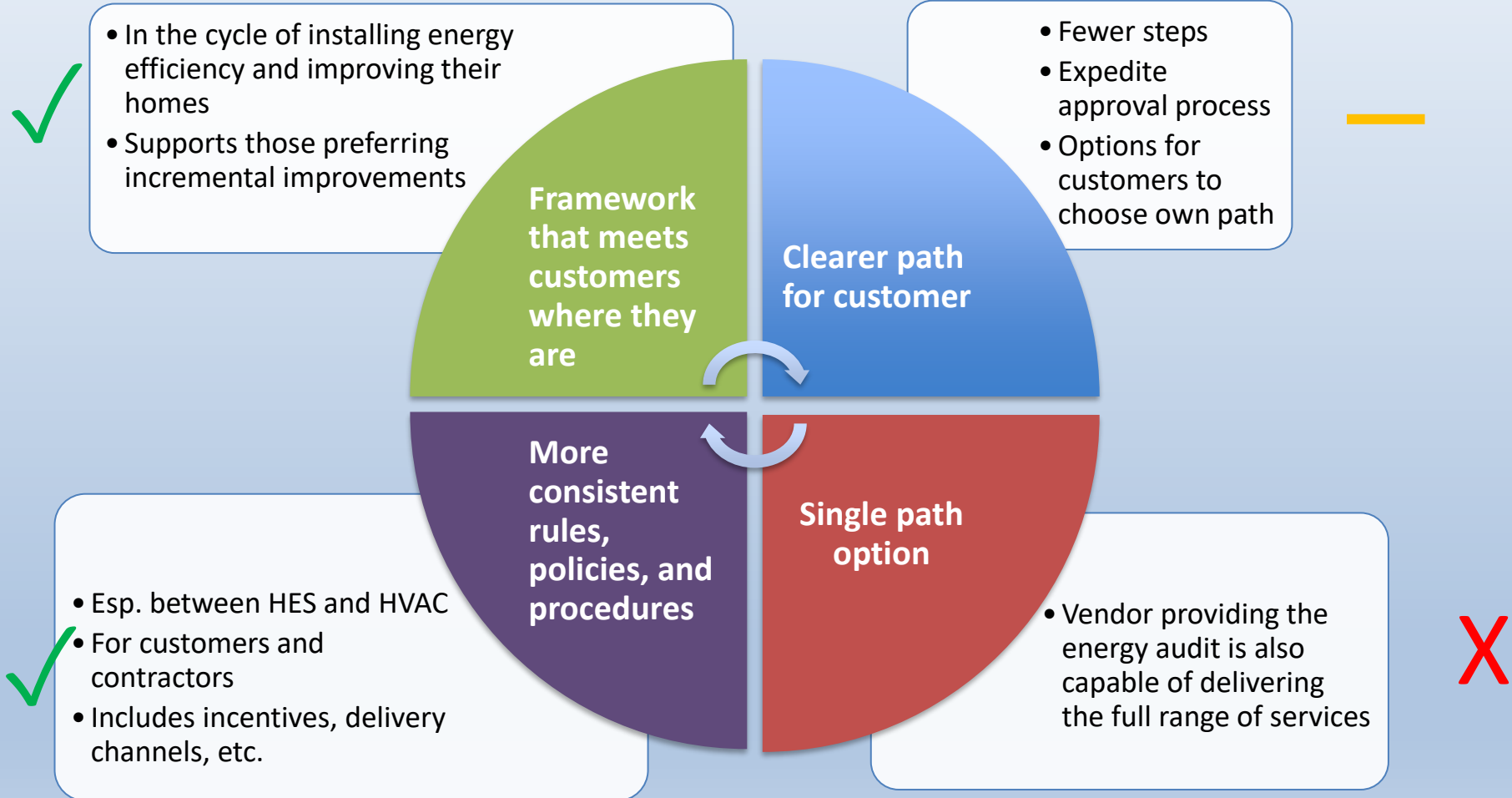


Electric Vehicles

- Represent a new load that is growing quickly



EVOLUTION OF WHOLE BUILDING APPROACHES



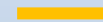
TECHNOLOGY PLATFORMS AND INTERFACE MODERNIZATION

Consultants' 2017 recommendations

2020 status



- Improve consistency in project and pipeline tracking
- Ease customer access to user-specific data and information
- Supply more self-service options to all end users
- Support targeted marketing and outreach
- Reduce administrative burden and costs



UNDERSERVED POPULATIONS

Consultants' 2017 recommendations

2020 status



- Implement stakeholder engagement process to reassess program design and improve participation in renter and moderate income customer initiatives



- Identify underserved demographic groups and develop new segmented approaches to serve them



- Increase outreach and partnerships with community-based organizations, municipalities, and other organizations



- Implement methods to increase access to and use of financing across all customer segments



NOTES TO TAKE INTO RES PLANNING WORKSHOPS

- ▶ **Key opportunities identified in 2017 are still priorities and have not been fully realized**
- ▶ **Advances in relevant policies, markets and technologies in the past three years increase ease of access to identified opportunities**
- ▶ **Customer needs and how the market meets them have evolved as a result of the pandemic**
- ▶ **New opportunities can and should be added for 2022-2024**
 - E.g., ground source heat pumps
 - More to come on these during fall workshops

APPENDIX

Innovation opportunities identified by consultants and presented at residential workshops in 2019-2021 planning cycle

SUMMARY OF INNOVATION OPPORTUNITIES: RENEWABLE HEATING/FUEL SWITCHING

- ▶ **Propane and fuel oil space heating conversions to heat pumps**
- ▶ **Propane and fuel oil water heating conversions to heat pump water heaters**
- ▶ **Propane and fuel oil to natural gas conversions for water and space heating**
- ▶ **Development of an all-electric Residential New Construction package option and incentive**

SUMMARY OF INNOVATION OPPORTUNITIES: ACTIVE DEMAND MANAGEMENT AND STORAGE

- ▶ **Wi-Fi thermostat control of heating and cooling loads**
- ▶ **Control of additional equipment**
- ▶ **Storage and electric vehicles as described below**
- ▶ **Storage incentives for active demand management**
- ▶ **Preliminary storage (and PV) assessments during the HES home energy assessments**
- ▶ **A combined solar PV/storage offer in collaboration with MassCEC**
- ▶ **Storage as a custom measure in the multi-family initiative**
- ▶ **An all-electric RNC initiative offer integrating storage**

SUMMARY OF INNOVATION OPPORTUNITIES: ELECTRIC VEHICLES AND SOLAR PV

- ▶ **Incentives provided for EV infrastructure such as more efficient charging stations**
- ▶ **EV owners as a market segment for targeted promotion of energy efficiency services**
- ▶ **EVs and smart-charging strategies for active demand management**
- ▶ **An integrated PV/storage solution**
- ▶ **Co-delivery of energy efficiency services with PV installation**

SUMMARY OF INNOVATION OPPORTUNITIES

- ▶ **A clearer path for the customer requiring fewer steps, expediting approval processes, and offering single path and incremental options**
- ▶ **More consistent rules (incentives, delivery channels, etc.) between weatherization and HVAC work, helping customers take full advantage of program offers while meeting their own goals**
- ▶ **A sales-oriented model for HES contractors in which the audit is approached as a loss leader to generate more savings opportunities based on the customer's specific needs including customization and trade-offs**
- ▶ **Integration with the contractor's business model establishing business-friendly systems and incentive structures and rewarding innovative solutions that appropriately meet the customer's needs**

SUMMARY OF INNOVATION OPPORTUNITIES: TECHNOLOGY, DATA AND CUSTOMER MANAGEMENT

- ▶ **Stakeholder input on how and what use of technology could improve their experience with Mass Save**
- ▶ **Lessons learned from upgrade investments by National Grid and Eversource**
- ▶ **Best practices regarding use of technology from Tennessee Valley Authority, Arizona Public Service, and other PAs from outside Massachusetts**
- ▶ **Development and funding of comparable and consistent technology experiences for all Massachusetts ratepayers and PAs by completion of 2019-2021 plan period**

BARRIERS AND OPPORTUNITIES: UNDERSERVED POPULATIONS

Barrier

Program awareness and actual or perceived participation requirements

Opportunities

- **Assess revisions to offers to increase appeal to and uptake by target populations**
 - Consider changes prompted by decline in claimable lighting savings
- **Continue to boost promotion specifically to renters**
- **Fully assess and address income verification process as a potential barrier**
- **Implement forthcoming EM&V recommendations**
- **Address additional market segments**
- **Expand and target outreach to all hard to reach populations**
 - Bolster partnerships with community based organizations, municipalities, and other organizations

BARRIERS AND OPPORTUNITIES: UNDERSERVED POPULATIONS

Barrier

Access to financing

Opportunities

- **Simplify the application process and automate where possible**
- **Examine loan activity by geography/demography to assess opportunities to increase participation**
- **Develop additional financing strategies**
 - Further assess need
 - Especially for 13% of customers whose HEAT Loans were not approved: loan loss reserves, revised lending criteria by banks, other?
 - Address situations like replacement on failure, multi-stage projects, measure packages, etc.
- **Consider making HEAT loan a sliding-scale interest product**