

Discussion of Proposed Building Electrification Work Plan for 2020-2021

Utilities Advisory Commission

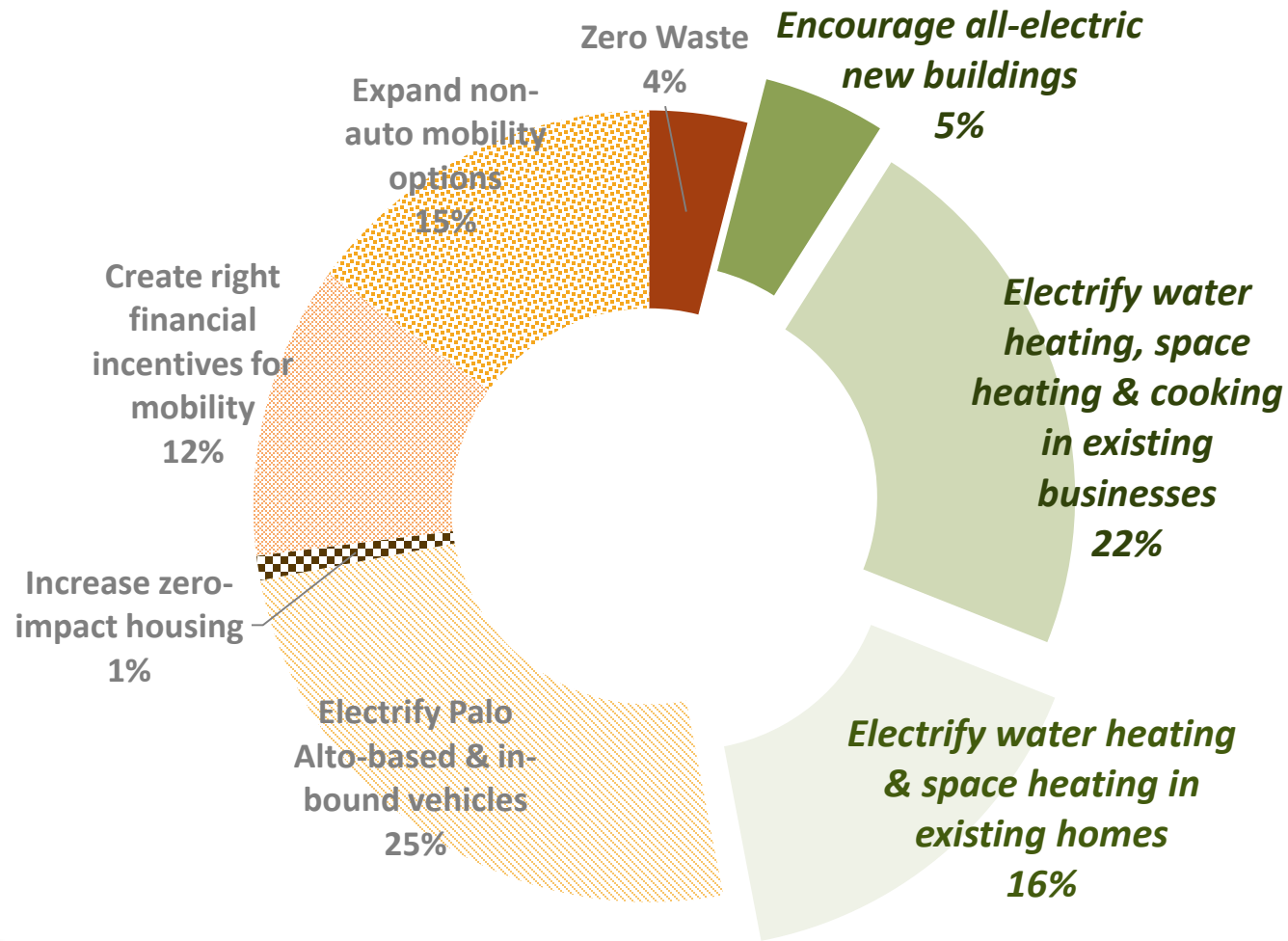
March 5, 2020

Discussion Outline

- **Energy Goals in Current S/CAP Framework**
- **Barriers to Building Electrification**
- **Objectives of the proposed 2020-21 Building Electrification Work Plan**
 - **New customer programs to encourage electrification**
 - **Proposed Analyses to evaluate electrification impact**
- **Staffing & Budget Impact**

Role of Building Electrification in Palo Alto's current S/CAP

Building electrification is a key strategy to meeting the City's GHG emission reduction goal.



The 2016 S/CAP Framework assumes building electrification to account for **43%** of the GHG emissions by 2030.

Barriers to Building Electrification

Low Consumer Awareness

➔ Marketing campaigns, customer outreach events

High Upfront Costs

➔ Customer incentives, financing options

Lack Contractor Engagement

➔ Contractor incentives & training

Lack Funding Support

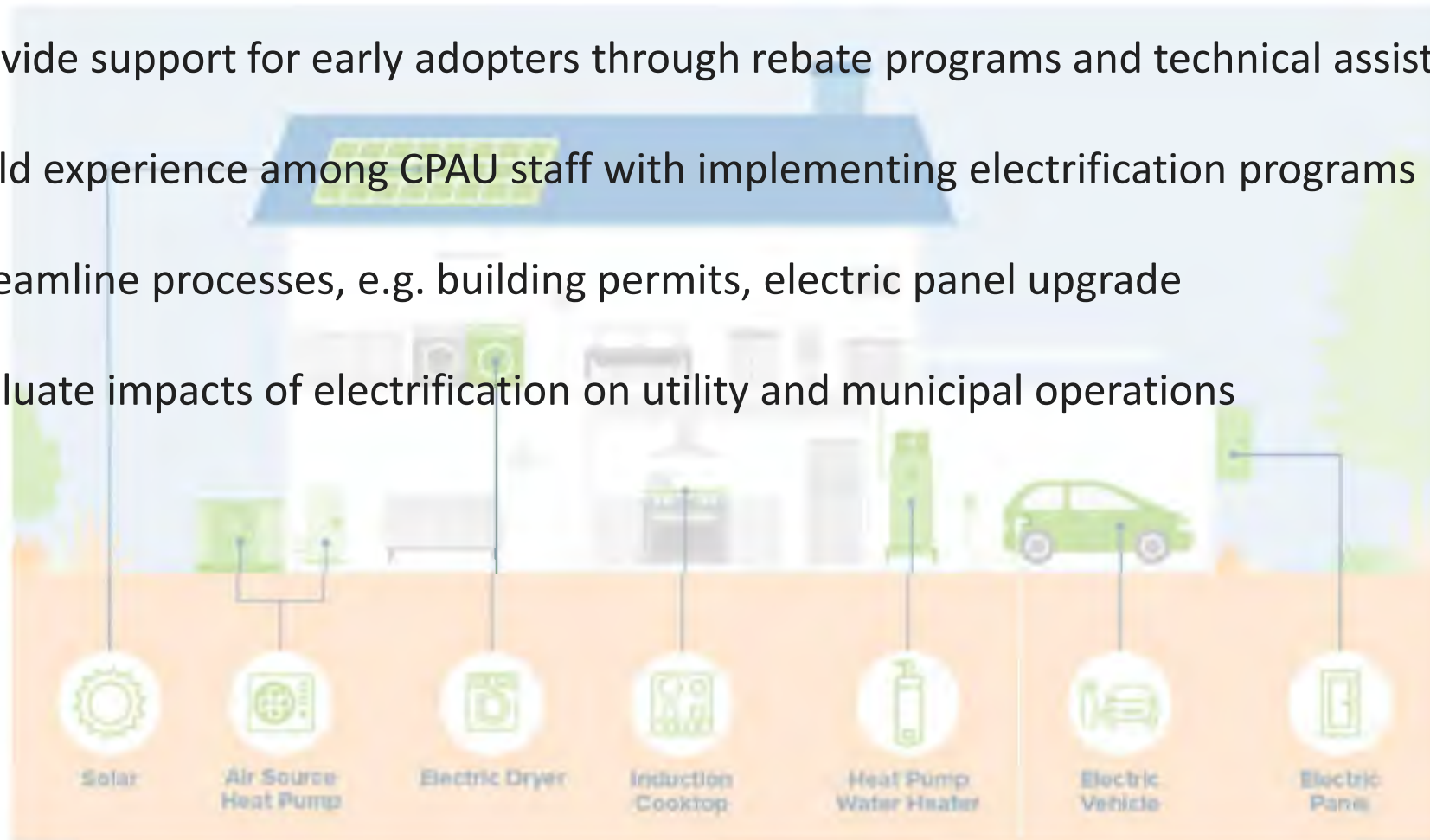
➔ Access to multiple funding sources

Electrification may pose significant strategic and operational challenges for CPAU

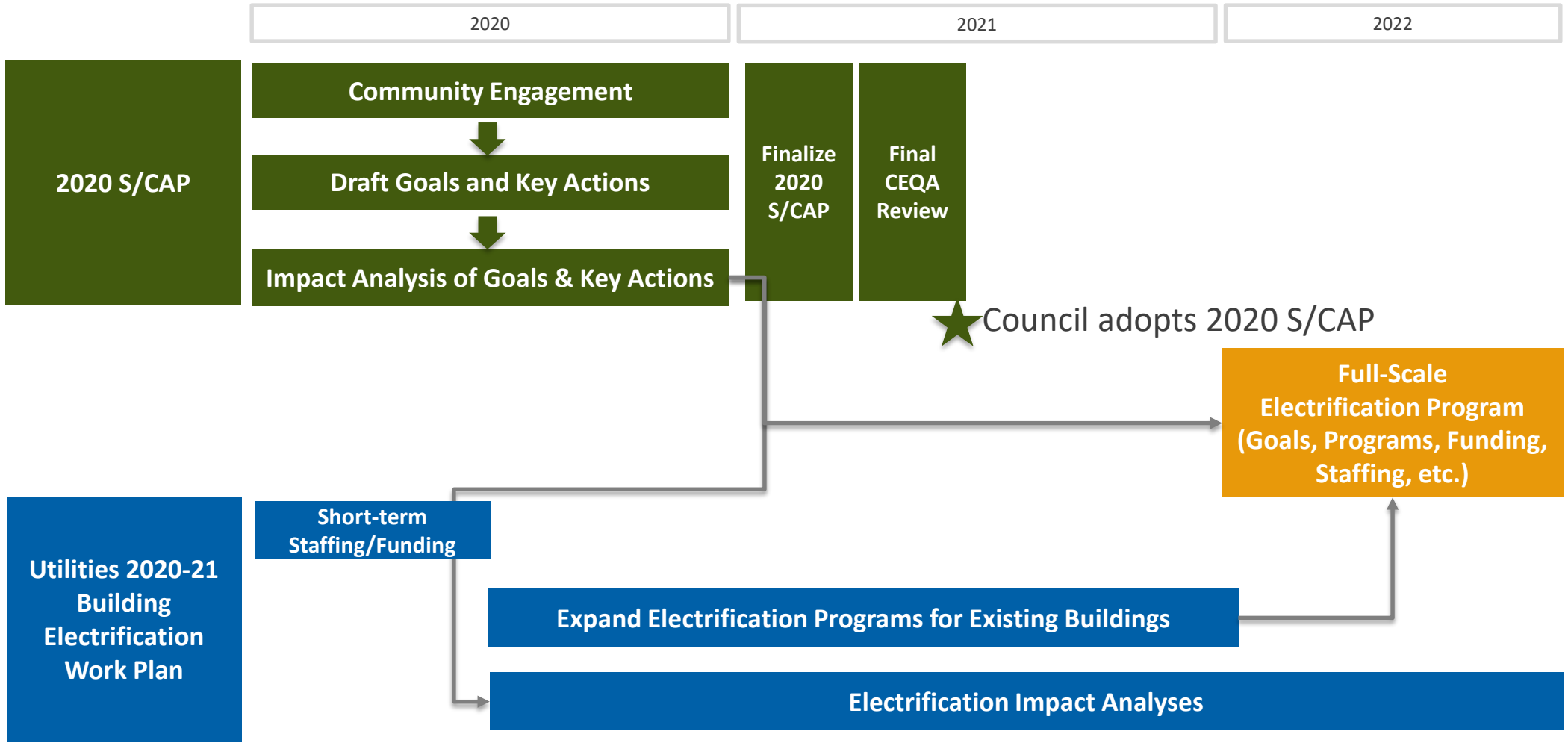
Short-Term Building Electrification Work Plan

Staff propose a short term Building Electrification Work Plan to accelerate progress and plan for future changes to the electric and gas utilities.

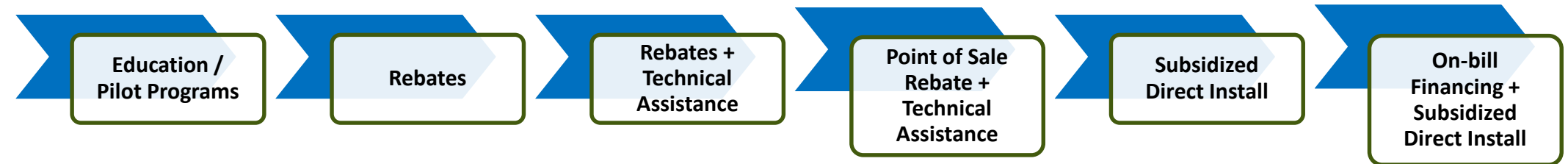
- Provide support for early adopters through rebate programs and technical assistance
- Build experience among CPAU staff with implementing electrification programs
- Streamline processes, e.g. building permits, electric panel upgrade
- Evaluate impacts of electrification on utility and municipal operations



Timing of the 2020-2021 Building Electrification Work Plan



Types of Customer Programs to Drive Voluntary Electrification



- Understand adoption barriers
- Raise awareness

- Establish funding sources and spending authority

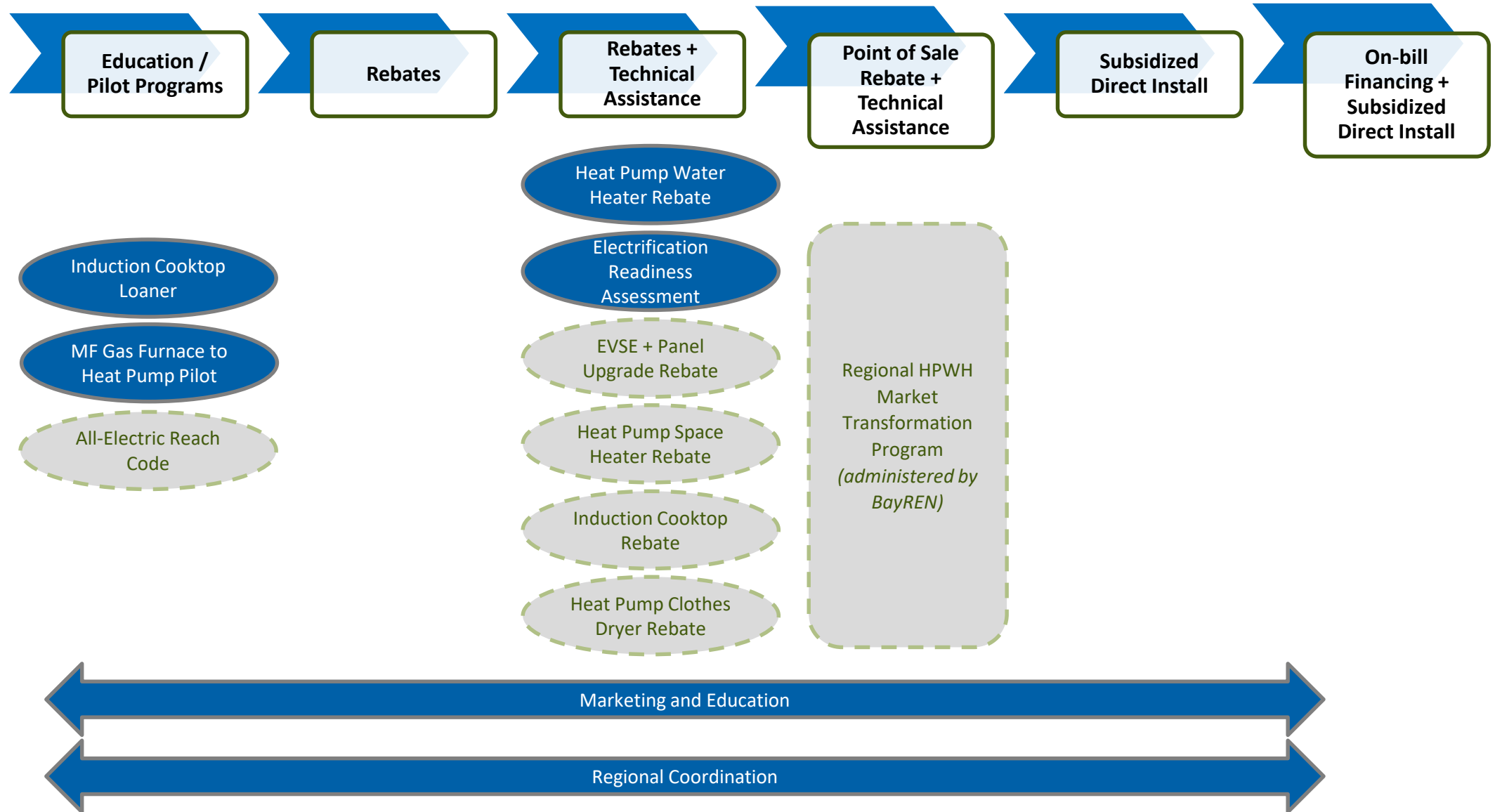
- Develop project expertise
- Improve permitting & other processes
- Design assistance for new construction

- Develop supply chain relationships
- Regional partnerships
- Could include group buy programs

- Target hard-to reach customers

- Requires billing system upgrades

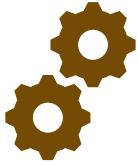
Snapshot of current Utilities programs



Summary of Current and Proposed Programs

Customer Type	Most Cost-Effective Building Electrification Measures	Existing Programs	2020 - 2021 Proposed Utilities Programs & Outreach Activities	Notable Barriers to Electrification
Residential				
New Residential Buildings	All-electric new construction	<ul style="list-style-type: none"> All-Electric Reach Code (effective April 2020) 	<ul style="list-style-type: none"> Partner with Planning Department on education and outreach 	<ul style="list-style-type: none"> Lack of awareness
Single-Family (Existing Homes)	Heat pump water and space heating	<ul style="list-style-type: none"> Education and outreach Heat pump water heater rebate Induction cooktop loaner program Home Efficiency Genie electrification assessment 	<ul style="list-style-type: none"> Expand education and outreach efforts Permit streamlining Full suite of electrification rebates and technical assistance Regional mid-stream incentive (rebate to contractor, not consumer) Ambitious community program(s) such as: <ul style="list-style-type: none"> - Group action, e.g. "1000 heat pump water heater challenge" group buy - Electrify an entire block, e.g. target electrification where gas main replacements are planned 	<ul style="list-style-type: none"> Lack of awareness Cost Building configuration Project complexity Lack of industry support
Multi-Family (Existing Buildings)	Mini-split heat pump space heating	<ul style="list-style-type: none"> Multifamily Heat Pump Retrofit Pilot in progress 	<ul style="list-style-type: none"> Complete MF Heat Pump Retrofit Pilot Depending on pilot results, evaluate expanding the program more broadly 	<ul style="list-style-type: none"> Similar to single-family Landlord/tenant split incentives
Non-Residential				
New Commercial Buildings	Analysis in progress. New all-electric small commercial buildings are cost-effective	<ul style="list-style-type: none"> All-Electric Reach Code requirements to be adopted by end of 2020 	<ul style="list-style-type: none"> Partner with Planning Department on education and outreach 	<ul style="list-style-type: none"> Lack of awareness. Some builders are already voluntarily choosing to build all-electric
Small and Medium Commercial Buildings (Existing Buildings)	Packaged rooftop heat pump units	None	<ul style="list-style-type: none"> New Small and Medium Business efficiency program starting in 2020. Evaluate adding select electrification measures to program. 	<ul style="list-style-type: none"> Lack of awareness More research needed to identify all barriers
Large Facilities	Site-dependent – depends on building size and heating system configuration	<ul style="list-style-type: none"> Some outreach to large facility owners to educate and assess interest 	<ul style="list-style-type: none"> Consider new program to assess electrification potential for large facility owners. Seek partnership opportunities to undertake at least one electrification project with interested facility owners. 	<ul style="list-style-type: none"> Lack of awareness More research needed to identify all barriers
City Facilities	Site-dependent – depends on building size and heating system configuration	<ul style="list-style-type: none"> Partnering with Public Works on evaluating electrification opportunities 	<ul style="list-style-type: none"> Partnering with Public Works to set goals and electrify City buildings where opportunities present themselves. 	<ul style="list-style-type: none"> Funding, staffing Building configuration

Strategic Planning Analyses related to Building Electrification



Operational Impact Analyses

Assess electric system maintenance and replacement needs and implications for reliability

Assess long-term options to improve grid resiliency

Evaluate impact on electric distribution system capacity

Evaluate impact on utility and municipal workforce



Financial Impact Analyses

Evaluate impact on financial health of electric and gas utilities

Assess community cost to achieve different scenarios of electrification

Explore funding sources for community-wide building electrification

Explore ways to pair electrification with other infrastructure efforts to achieve economic efficiencies

Propose a new position in the Utilities Program Services group.

Estimated staffing to implement proposed program activities in 2020-21 = 1.6 FTE

Currently assigned staffing on building electrification activities = 0.5 FTE

Additional staffing requested in FY 2021 budget = 1 FTE

Propose funding from Low Carbon Fuel Standard funds and electric allowance revenue

Propose additional funding for customer programs & outreach activities

Estimated program budget for building electrification in 2020-21 = \$700K and \$1.2M

Propose funding from electric allowance revenues + energy efficiency program funds + LCFS funds

No rate impact from proposed plan

Seek UAC Input on:

- Proposed customer programs
- Proposed impact analyses
- Resource allocation to implement the proposed work plan