

Welcome! The Webinar will begin shortly



# Sustainability and Climate Action Plan Ad Hoc Committee

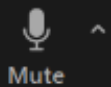
September 9, 2021

[cityofpaloalto.org/ClimateAction](https://cityofpaloalto.org/ClimateAction)

*Acting Now for a Resilient Future*



Click on Q&A anytime during the presentation to ask questions



Mute



Chat



Raise Hand



Q&A

Leave

- **Recap of August S/CAP Ad Hoc Meeting**
- **S/CAP**
  - Brief summary of the AECOM Impact Analysis Memo
  - Overview of draft S/CAP Goals and Key Actions
  - Overview of draft Three-Year Work Plan
- **Buildings**
  - Residential Building Electrification
    - Electrification Retrofits
    - Low-income Programs
    - Financing Programs



- 86 Attendees, including 9 high school students (105 registered)
- 40 Participants provided public comment on:
  - the importance of taking action on climate change without delay
  - the need to devote resources and develop a financing plan for implementation
  - the need to work on S/CAP implementation in parallel to S/CAP Update completion
  - the need to prioritize issues such as renewable energy, resilience, electrification, sea level rise, and housing
  - the necessity of CEQA review of the S/CAP Update
  - the need for more outreach, partnerships, and collaboration



## Emissions Reductions

1. Buildings
2. Utilities
3. Transportation
4. Land Use
5. Other GHG sources
6. Carbon Negative Actions
7. Sustainable Cities
8. Clean Energy
9. Economics and Finance
10. Next Phase Goals

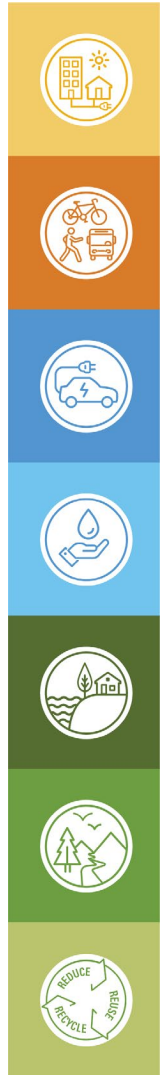


## Climate Adaptation

1. Sea Level Rise and Groundwater Impacts
2. Wildfire Response
3. Resilient Electric Utility

## Policy Collaborations with external partners

## Advocacy and Implementation



**Build consensus among advocates & policy makers**



**Engage stakeholders for S/CAP input**



**Partner with community to raise awareness & promote services**

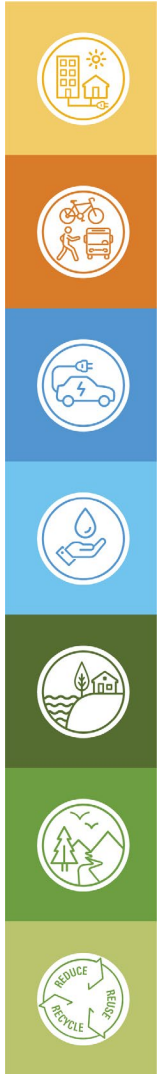


**Build compelling services and tools & recruit users**



**Create an electrification roadmap**

# Sample of Efforts Needed 2021 through 2024 in these Work Areas



## Building Consensus, Engaging Stakeholders & Partnering for Community Awareness

- Outreach and direct engagement
- Leverage community expertise
- Receive and incorporate feedback
- Monthly Ad Hoc committee meetings



## Services/Tools, 2021-2024

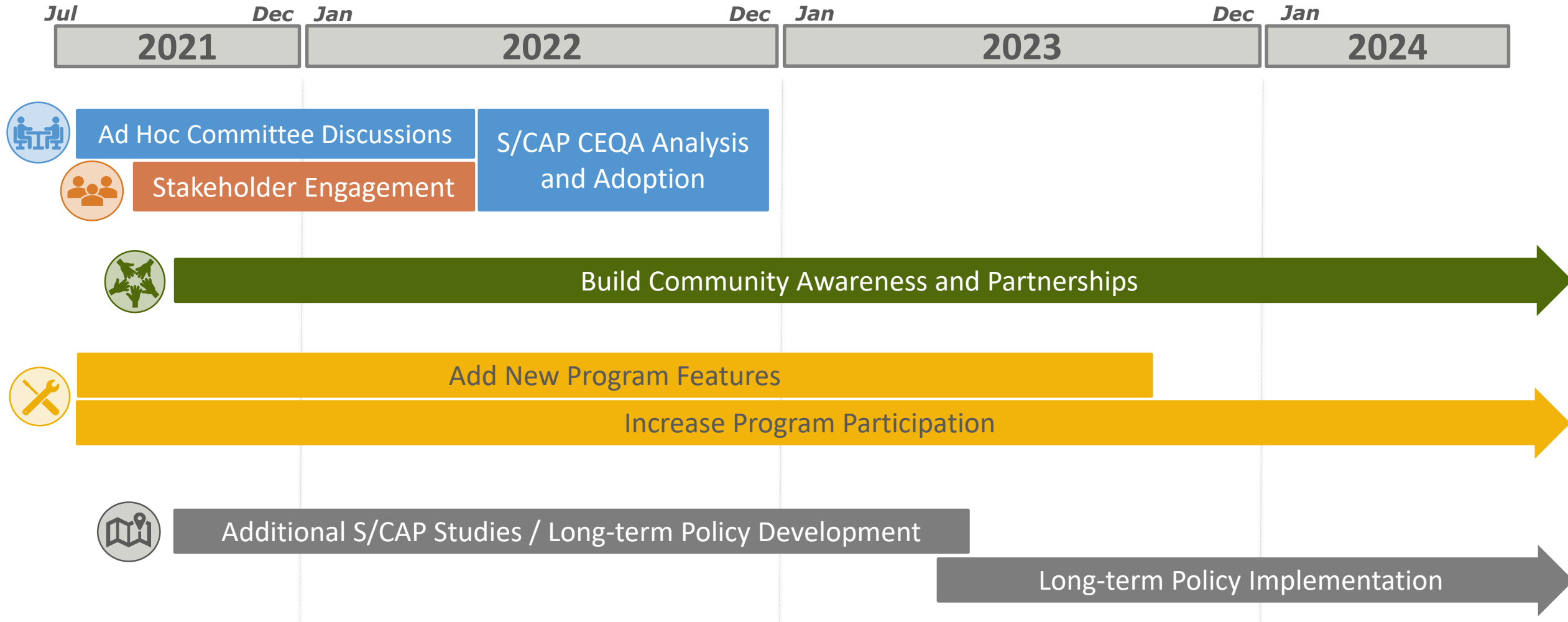
- Add new programs/services and add features to what exists now
- Reduce barriers to adoption
- Ensure positive participant experience



## Roadmap, 2025-2030

- Complete studies
- Achieve community buy-in
- Develop implementation plans for 2025-2030

# S/CAP Adoption and Implementation Timeline







- S/CAP actions can reduce emissions to 71% below 1990 levels by 2030
  - Strategies include technically feasible and cost-effective local actions
  - There are remaining emissions within buildings and transportation sectors that cannot feasibly be fully reduced by 2030
- Cost-Effective Strategies
  - Most Cost-effective: Reducing vehicle emissions through use of EVs and alternative travel (transit, biking, walking)
  - Within building electrification
    - Single-family residential water heating and space heating electrification
    - Electrification of commercial rooftop packaged heating, ventilation, and air conditioning (HVAC) units



- Key actions in sustainability areas were assessed for co-benefit impacts (almost all positive or very positive) but not included in GHG analysis
- AECOM recommendation: Remaining 9% emissions can be reduced through some combination of (in order of priority):
  - Finding ways to accelerate or enhance already identified key actions, or identify additional key actions
  - Removing barriers to key action implementation
  - Carbon sequestration, especially through Natural Environment actions
  - Industrial-scale carbon removal
  - Verified carbon offset purchases



- Framework for S/CAP Ad Hoc Discussions
- Seven S/CAP areas: Energy, Mobility, Electric Vehicles, Water, Climate Adaptation and Sea Level Rise, Natural Environment, and Zero Waste
- New S/CAP area: Climate Action
  - Goal: Reduce GHG emissions 80% below 1990 levels by 2030
  - 8 Key Actions
- Climate Areas – reworked but outcomes are the same
- Sustainability Areas – minor changes, added wildfire protection



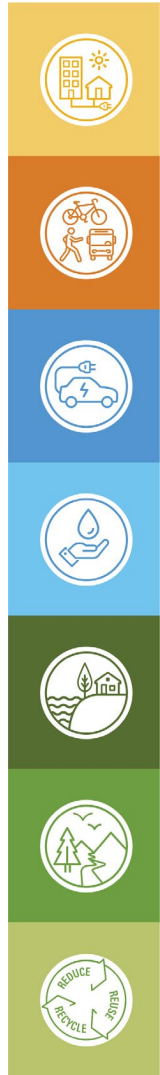
# Using S/CAP Goals & Key Actions and Work Plan Documents



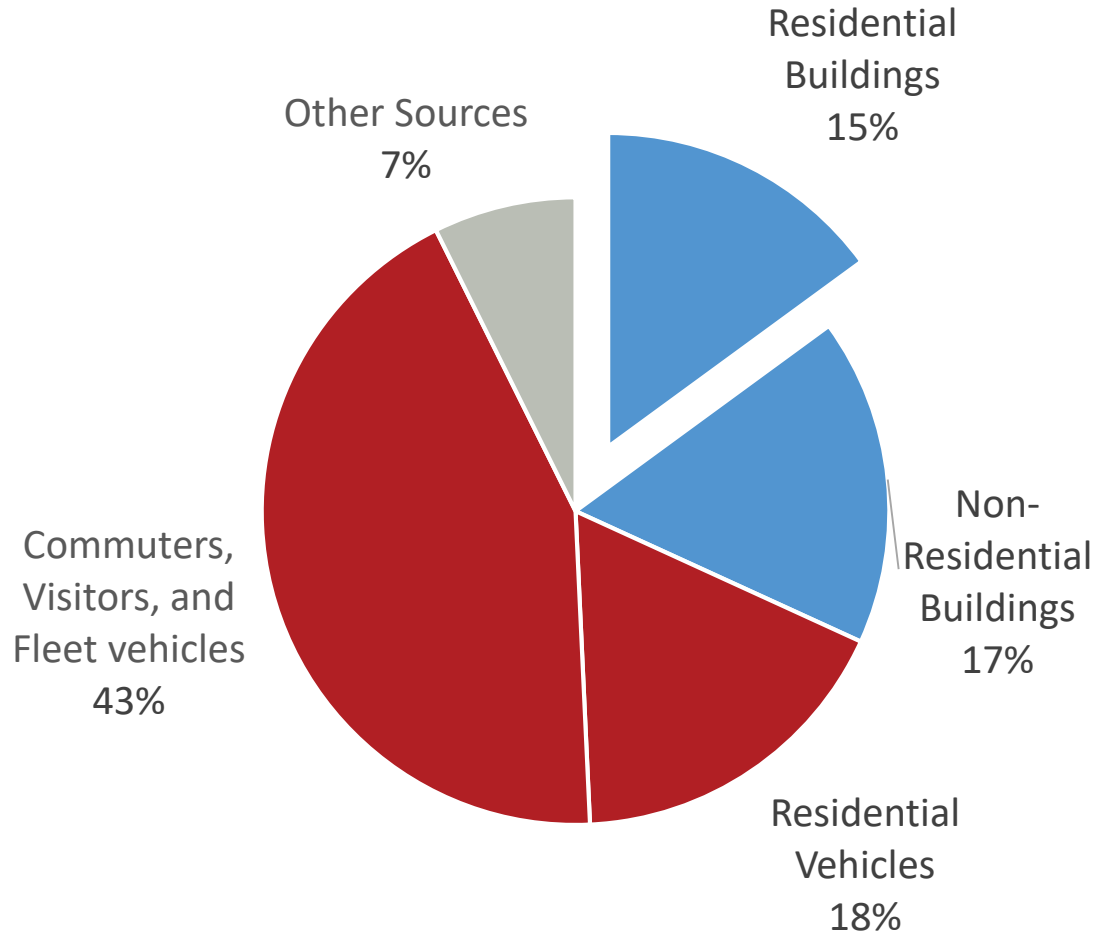
- Goals and Key Actions provide a high-level view of S/CAP efforts
  - Used as basis for CEQA analysis
  - Includes metrics (KPIs)
- All Key Actions are numbered (e.g. Energy actions = E1, E2, etc.)
- Work Plan provides detail of implementation efforts, broken down by:
  - Consensus-building (S/CAP adoption), engagement, and community awareness
  - Development of new climate action programs and services
  - Studies in support of long-term climate action policy development
  - Sustainability efforts focused on natural environment
- Work Plan numbering corresponds to Goals and Key Actions



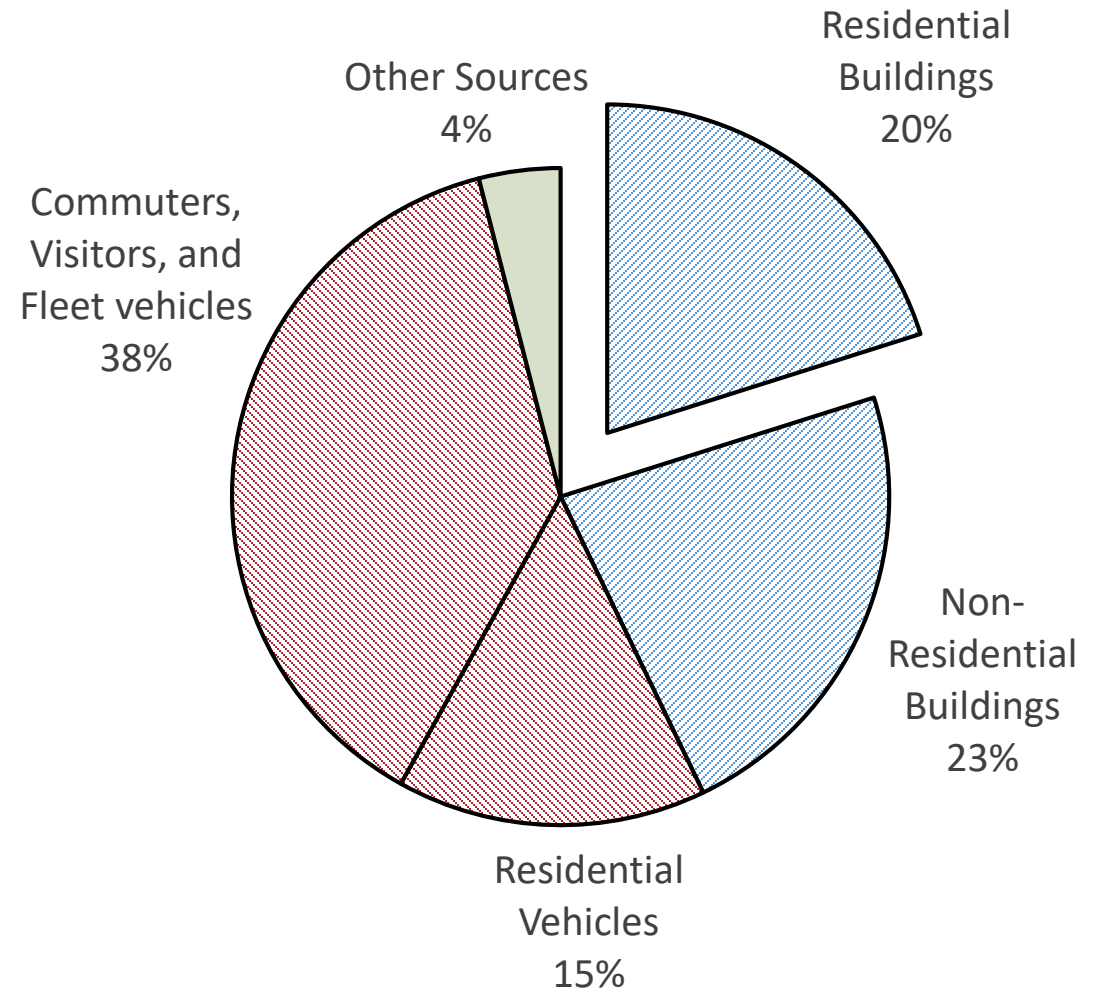
# Importance of Residential Electrification - Residential Emissions



Without Upstream Emissions

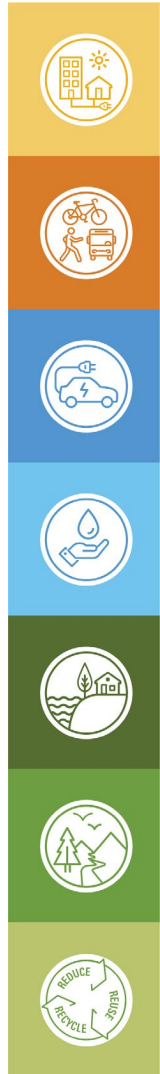


With Upstream Emissions (20-year GWP)





# Cost of Residential Building Electrification



- Other commercial and multi-family actions are expensive – at least those analyzed so far.



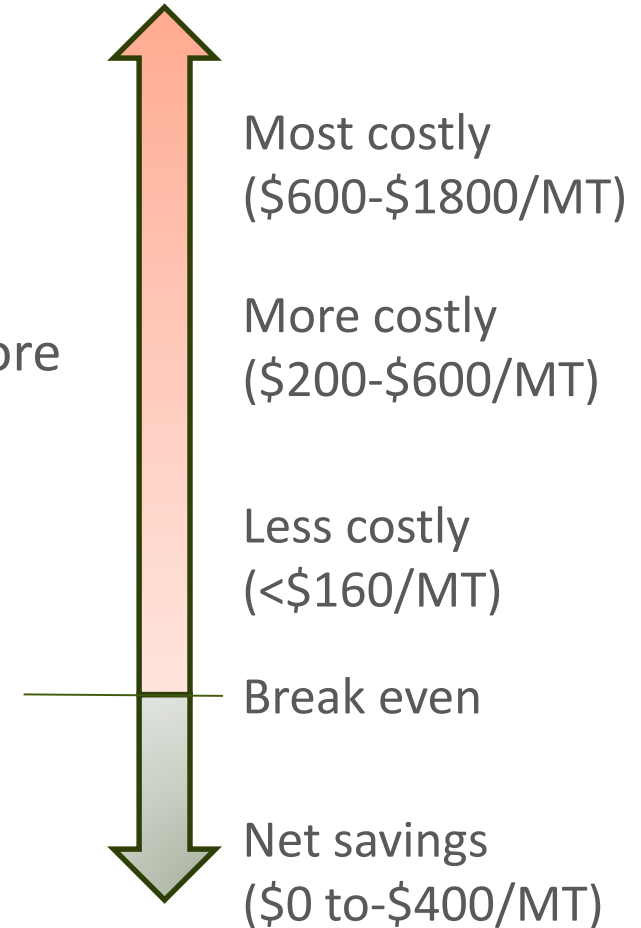
- Other single-family appliances like cooktops and clothes dryers that are more expensive, but unlock other savings

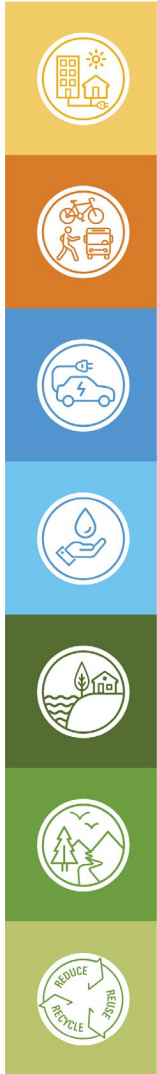


- Lowest cost building electrification is single-family space and water heating and commercial rooftop HVAC.



- Alternative commute and electric vehicle programs are a net savings





Heat pump water heaters



Heat pump space heaters



Induction Cooktops



Heat pump clothes dryers



Alternatives to central heat pump HVAC systems include ductless mini-split heat pump and through-wall heat pump systems

# Benefits of Residential Building Electrification



- Reduces emissions
- Increases safety
- Improves indoor air quality
- Improves Bay Area air quality
- Eliminates health risks
- More energy efficient
- Reduces environmental impact of fossil fuels





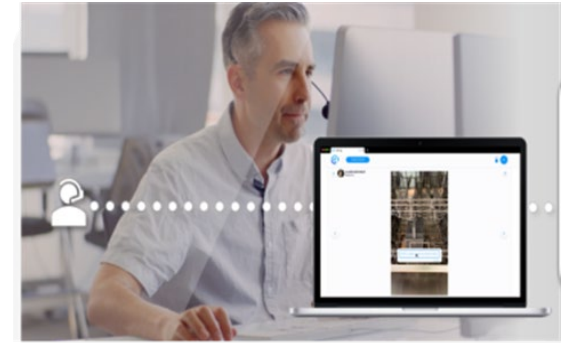


- Lack of awareness
- Misconceptions and unfamiliarity
- Fundamental disagreement on goals
- Inconvenience
- Concerns about ability to keep specific gas appliances
- Concerns about electric reliability
- Up-front cost of conversion cost
- Cost of electricity vs. cost of gas
- Lack of availability of contractors with expertise
- Different incentives for owners of rental property

# Services Currently Available to Residents



Receive a home electrification evaluation from the Home Efficiency Genie, including assistance reviewing contractor quotes



Incentives for replacing your heat pump water heater

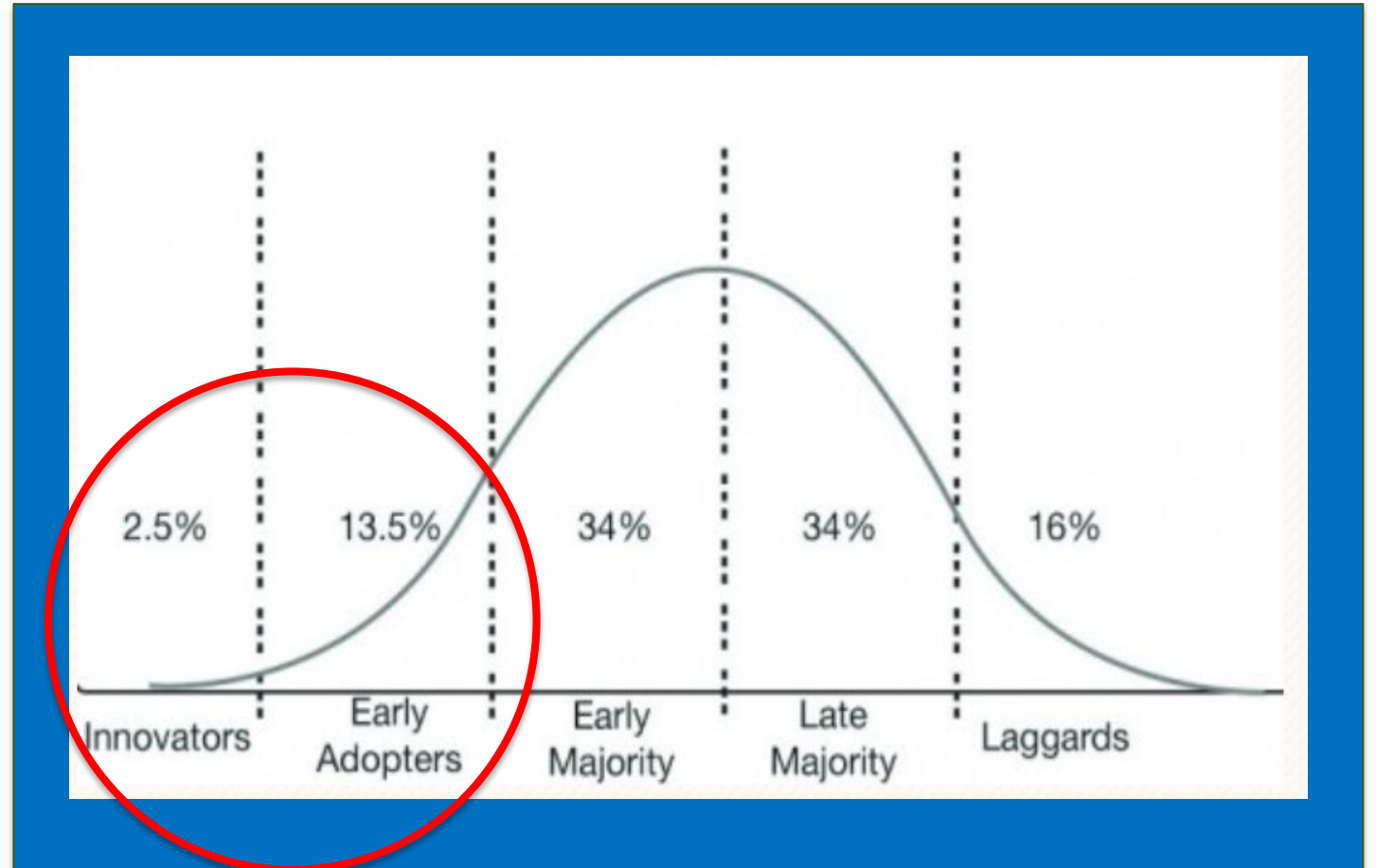


All-electric Reach Code addresses new construction





- Make it as easy as possible for early adopters to electrify
- Prepare to scale
- Build awareness





# Gas Equipment is Typically Replaced in an Emergency



- Customers need to be informed and prepared
- Contractors need to be informed and prepared



# Services Planned for 2022 - 2024



- Emissions reduction one-call service
- Home Electrification Readiness Assessment



- Self-service, online tools\*



- BE Ready: turnkey service for home electrification prep



- Turnkey installation of electrification equipment and building envelope improvements\*



- Vetted contractors



- Technical assistance



- Customer incentives\*

- On-bill financing

- Home Gas Reports for customer awareness of gas use and BE programs

\* *Services that help prepare to scale*



Curious about the City's current efforts for a specific key action?

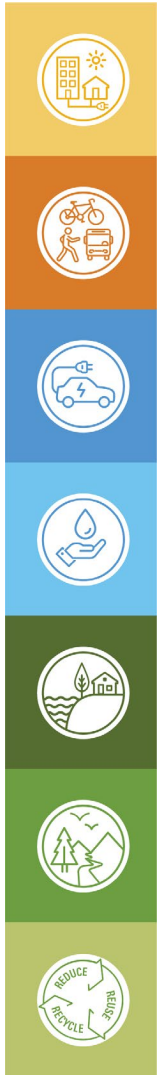
- See the [Residential Building Electrification Overview](#) for the Goals and Key Actions related to residential building electrification
- Look it up in 2021 S/CAP [Draft Goals and Key Actions](#)

#### KEY ACTIONS

- E1.** Launch comprehensive residential program services and incentives to promote voluntary electrification of water heating, space heating, cooking, clothes drying, and other appliances

- See the [Three-Year Work Plan](#) for more information

# Residential Building Electrification Goals/Key Actions Overview



## New homes



## Existing home retrofits



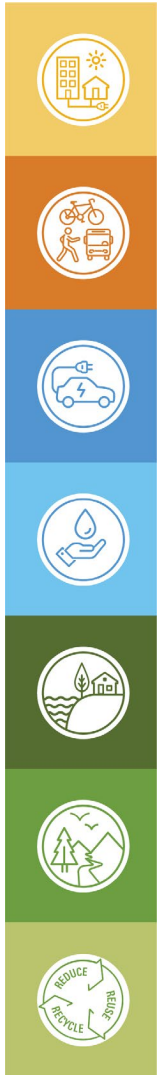
### Launch new programs and services

### Study how to accelerate and fund electrification

<ul style="list-style-type: none"> <li>• (E5) Add all-electric requirements for ADUs and major renovations to existing all-electric Reach Code</li> </ul>	
<ul style="list-style-type: none"> <li>• (E1) Expand Home Efficiency Genie program to include:             <ul style="list-style-type: none"> <li>• First point of contact for all types of emissions reductions</li> <li>• Technical assistance, contractor pre-qualification, BE readiness, and turnkey/direct installation services</li> </ul> </li> <li>• (E1) Online tools for electrification roadmap</li> <li>• (E1) Expand incentives to all appliance types</li> <li>• (E3) Services for low-income customers</li> <li>• (E1) Add on-bill financing program</li> </ul>	<ul style="list-style-type: none"> <li>• (C5) Examine policies to accelerate electrification like carbon pricing, time-of-sale and end-of-life mandates</li> <li>• (C6) Develop options for community funding mechanisms</li> <li>• (C7) Complete study to identify low-income funding needs</li> </ul>



# Residential Building Electrification Goals/Key Actions Overview



## Multi-family



## Outreach and Awareness

## Addressing Challenges

### Launch new programs and services

### Study how to accelerate and fund electrification

<ul style="list-style-type: none"> <li>• (E5) Add all-electric requirements for any multi-family or mixed use residential not covered by current Reach Code (which currently only addresses low-rise residential)</li> <li>• (E8) Evaluate City ordinance to require energy benchmarking/building emissions reductions for multi-family buildings over 25,000 sf</li> </ul>	<ul style="list-style-type: none"> <li>• (C3) Identify additional actions to achieve 80x30 (re-examine the potential for multi-family building electrification measures)</li> <li>• Pilot program in progress to evaluate wall furnace to heat pump retrofit in multi-family building</li> </ul>
<ul style="list-style-type: none"> <li>• Expanding outreach campaigns to raise awareness. Planning more active tracking of customer awareness, program participation, and customer experience</li> <li>• Various departments coordinating on permit streamlining effort</li> <li>• (E4) Develop residential all-electric rate options</li> </ul>	



- **Buildings**

- Permitting
- Commercial Building Electrification

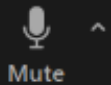


- **Funding and Resources**

- Near-term funding and resource options



Click on Q&A to ask questions



Mute



Chat



Raise Hand



Q&A

Leave



## **SUSTAINABILITY & CLIMATE ACTION PLAN**

**Thank You!**

Please submit questions or comments to  
[sustainability@cityofpaloalto.org](mailto:sustainability@cityofpaloalto.org)

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- In the [Residential Building Electrification Overview](#), we've outlined barriers to residential building electrification. What are your top three barriers?
- Does our [draft Three-Year Work Plan](#) address those barriers?
- What should the City's top three priorities be for advancing residential building electrification?

You can also submit comments and questions to [sustainability@cityofpaloalto.org](mailto:sustainability@cityofpaloalto.org)