Building Electrification and Local Government: A Workshop for California Cities and Counties

A Workshop Summary
Synthesis and Action Recommendations
Next Steps

Submitted to Stop Waste
October 2017

By Green Cities California
Building Electrification Workshop for California Cities and Counties

Executive Summary

As cities and counties across California reaffirm their commitments to implementing the Paris Climate Agreement, they are seeking new strategies to reach greenhouse gas emission (GHG) reduction goals. One of the newer ideas for reducing GHG and for allowing a faster transition to renewable energy is the concept of building electrification. Stop Waste provided support for Green Cities California (GCC) to host a workshop for cities and counties to explore ways they can collaboratively work with other entities on building electrification. The workshop, hosted in Oakland in September 2017, focused on ways local governments and others can remove barriers and create more opportunities for building electrification, share successes of programs and projects, and to spread the concept among local governments statewide. While some local governments have been active in the conversation, building electrification is still a new field of practice. Therefore, the main goals of the workshop included connecting cities, counties and others and aligning them around seeing building electrification as an opportunity. In order to successfully build new fields of practice and produce collaborative outcomes, the processes of connecting and aligning are crucial first steps.

Workshop Outcomes and Next Steps
GCC identified four themes that emerged in the discussions about what cities and counties need in the near future to build the field of building electrification:

1) **Broad information sharing and education** is important: Cities and counties want to stay informed about updates in the field and become more familiar with the concepts.

2) Cities and counties need a **collective voice or coalition**: Cities and counties need to speak together from their unique perspective to advocate for their needs for expanding building electrification efforts.

3) Cities and counties need more information about **roles and responsibilities**, for example: “What roles do key organizations plan and what roles and players are missing?”; “How do cities and counties fit in?”; “What is the role of cities and counties?”

4) **Regional partnerships** can make a big difference: Integrating a city and county perspective into regional work can help expand engagement.

The workshop helped GCC identify the following ways the network can move work forward on building electrification among cities and counties:

1) Create a **Local Government Building Electrification Workgroup led by and for cities and counties** to continue connecting and aligning around this work. This workgroup would continue to use a member-driven model, coordinated and facilitated by GCC, and work with the partners identified in this report to encourage ongoing coordination between this workgroup and others. This workgroup’s overarching goal would be to continue to engage cities and counties around building electrification.

2) Work with cities and counties to **establish a collective voice for building electrification legislative issues** that can engage with partners as appropriate.

3) Help **set up communications infrastructure** with this workgroup and with key partners to make sure appropriate information is shared with cities and counties in a way that will help spur connections, alignment and action.

4) Convene **cities and counties to continue this discussion and learn from each other in person**.
Workshop Summary

As cities and counties across California reaffirm their commitments to implementing the Paris Climate Agreement, they are seeking new strategies to reach greenhouse gas emission (GHG) reduction goals. One of the newer ideas for reducing GHG and for allowing a faster transition to renewable energy is the concept of building electrification. Simply put, if more energy uses within a building transition toward electric power sources, and move away from natural gas, buildings (which are often the largest GHG emitters) will be better equipped to fully connect to renewable energy sources. Buildings often have heat pumps, ranges and appliances that are tied to the natural gas system, and by transitioning these appliances and energy users off natural gas and toward electricity; it means the whole building has the potential to be tied to renewable sources.

Stop Waste provided support for Green Cities California (GCC) to host a workshop for cities and counties to explore ways they can collaboratively work together, with other entities at the local and state level, on building electrification. The workshop, hosted in Oakland in September 2017, focused on ways local governments and others can remove barriers and create more opportunities for building electrification, share successes of programs and projects, and to spread the concept among local governments statewide. While some local governments have been consistently participating in the conversation, building electrification is still a new field of practice. Therefore, the main goals of this workshop included the process of connecting cities, counties and others and aligning them around the issue. In order to successfully build new fields of practice and produce collaboration and action, the processes of connecting and aligning are crucial first steps.

Workshop Goals
Cities and counties are seeking connections with peers that will help them gain knowledge about relevant issues that will support climate action goals, energy resilience planning and programs. They are also, more pointedly, seeking and require knowledge about using renewable, clean energy to electrify buildings. This workshop provided knowledge and relationship building and meet the following goals:

- Participants developed greater connections with each other and come away with stronger relationships with peers.
- Participants gained knowledge and resources, enabling them to take action appropriate to their situations.
- Participants identified at least one collective action item they will be able to work collaboratively on, and move toward implementation.
- Participants are motivated to move the issue of Building Electrification through Renewable Energy forward in their respective cities/counties.
Workshop Partners

Stop Waste provided direct grant support to GCC to host this workshop. However, during the planning process opportunities for partnerships allowed for more prospects for successful workshop outcomes. Local Government Sustainable Energy Coalition (LGSEC) with GCC connected over their members’ common interest in the topic of building electrification. LGSEC’s board and GCC’s steering committee unanimously approved the idea of working on this workshop together and combining efforts to connect and align both organization’s city and county membership base around this topic. To host the event, they partnered with Sierra Club to convene participants at the organization’s headquarters in downtown Oakland, California.

Attendees
Over 75 people attended the workshop and the successful attendance of this event can be attributed to the partnerships developed to put the event on and the success in the partners’ outreach. The primary audience for this event, city and county representatives, made up a majority of the total participants. The following cities and counties were represented by 40 staff people, whose roles in their governments included sustainability directors and officers, public works and infrastructure staffers, civic sparks and planners.

County of Alameda
Berkeley
Chula Vista
County of Contra Costa
Cupertino
Davis
Dublin
El Cerrito
Emeryville
Fremont
Hayward

Los Altos
Los Angeles
County of Marin
Mountain View
Novato
Oakland
Palo Alto
Piedmont
Richmond
Sacramento
San Francisco
San Jose
San Leandro
County of San Mateo
County of San Luis Obispo
Santa Barbara
County of Santa Barbara
County of Santa Clara
Santa Cruz
Santa Monica
Sunnyvale

The secondary audience for this event, nonprofits and other key public and private partners, had 35 representatives attended from the following organizations:

Association of Bay Area Governments
Association for Energy Affordability
Bay Area Air Quality Management District
Build It Green
California Energy Commission
California Public Utilities Commission
Center for Sustainable Energy
DNG VL
LGSEC
Local Government Commission
MCE Clean Energy
Misti Bruceri and Associates
Natural Resources Defense Council
San Gabriel County Council of Governments
Sierra Business Council
Sierra Club
Sonoma Clean Power
Stop Waste
Planning Process

GCC and LGSEC collaboratively developed the agenda for the workshop through a member-driven, participatory approach. Recognizing the fact that GCC and LGSEC could not accurately forecast the level of experience with building electrification among participants, a survey was included in the registration process to help determine: 1) What level of existing experience meeting participants have with building electrification 2) What topics participants wanted to learn about related to building electrification.

The survey revealed that cities and counties attending the event have a wide range of existing knowledge, understanding and experience with building electrification. Some participants are just beginning to work on this, while others have no knowledge about it at all. A few cities and counties are already moving forward on some implementation projects.

The survey showed that fifty percent of respondents are “just beginning work on” building electrification and identified as being still in the planning phase. Thirty percent of respondents are not working on building electrification at all but anticipate beginning this work in the near future. Ten percent of respondents said they are not working on building electrification at all. Ten percent reveal they are actively already working on it and identified as being in the implementation phase.

The survey data also asked participants to rank their interest in several pointed topics related to building electrification. Respondents revealed high levels of interest (over 60% of respondents) in learning more about the following areas:

- Collaborating with other California cities/counties to develop pilot projects that can serve as case studies for best practices
- Learning more about and identifying mechanisms for developing upstream rebates
- Understanding and exploring opportunities and barriers around residential incentive programs
- Understanding financial barriers and exploration potential funding sources for cities and counties to expand building electrification efforts
- Collaborating with other California cities/counties on the development of reach codes
- A general understanding around the basic, technical aspects of renewable electric heating technology
- Understanding statewide regulatory barriers and opportunities and how local governments can develop policies that will advance building electrification efforts
- Tools for workforce development + technical capacity building among manufacturers, installers, HVAC professionals and city/county staff
- Communication and outreach strategies to engage the general public (including homeowners, renters, commercial building owners and others)
To plan the agenda, GCC and LGSEC formed a workshop-planning committee comprised of GCC steering committee members and LGSEC board members (including Richmond, Santa Monica, Berkeley, Hayward and San Francisco). GCC staff also conducted interviews with key stakeholders to help craft the agenda, including Stop Waste, NRDC, Sierra Club, DNG VL, Urban Sustainability Directors Network (USDN) and LGSEC. Both the survey responses and interviews were used to help identify three focused topics related to building electrification, which were included as break-out session topics in the afternoon deep-dive discussion activities. The three topics included:

- **Financial incentives for electric water heaters**
- **Local code leadership to promote electrification**
- **Education and outreach**

Based on the pre-meeting research, GCC worked with LGSEC to develop an agenda that provided introductory content with the purpose of establishing a baseline of knowledge about building electrification for all participants. The morning sessions provided context around the issue, provided examples of how cities and counties can get engaged, and provided regulatory perspective from the state level, with a presentation from the California Energy Commission. Afternoon sessions focused on making peer-to-peer connections and having small group discussions that provided the opportunity to discover alignment around the three focus areas mentioned above. The day wrapped up with all participants learning about each other’s small group discussions and becoming aware of alignments from the group at large. *The full meeting agenda can be found in Appendix A.*
Key Findings

Important Themes for Building the Field

To many municipal leaders in California cities and counties, the concept of building electrification is still new. The field of practice is still in the earliest stage of evolution, or the “framing” stage, and many people are just beginning to work on this on behalf of their city or county. GCC sees an immediate opportunity to help evolve the field through closing the gap between current isolated practices by connecting local government practitioners, accelerating the sharing of knowledge, and aligning their priorities around building electrification. If California cities and counties work with partners in a coordinated way to move through the stages of field development (Figure 1.), we believe Green Cities California can help accelerate the advancement the field of practice.

![Figure 1. Evolution of a Field of Practice](Image credit: Innovation Network for Communities)

To help understand the opportunities to move from the framing stage to the networking and maturation stages, GCC synthesized the notes from the general conversation and breakout groups. From that process, GCC identified four themes that emerged in the discussions about what cities and counties need in the near future in order to help contribute to building the field of building electrification:

1) **Broad information sharing and education** is important: Cities and counties want to stay informed about updates in the field and become more familiar with the concept.
2) Cities and counties need a **collective voice or coalition**: Cities and counties need to be able to speak together to advocate for their needs to expand building electrification efforts.
3) Cities and counties need more information about **roles and responsibilities**, for example: “What roles do key organizations plan and what roles and players are missing?”; “How do cities and counties fit in?”; “What is the role of cities and counties?”
4) **Regional partnerships** can make a big difference: Integrating a city and county perspective on regional work can help expand engagement.
Highlights of the Break-Out Group Discussions

The following summary highlights the details of the discussions around the three breakout discussion topics that are important to address in order to move building electrification efforts forward: Local Codes and Standards; Financial Incentives and Education and Outreach. Each of the summaries below highlights key players that are working in these areas, some of the barriers to moving forward, and solutions that breakout group participants identified for overcoming those barriers.

Local Codes and Standards Discussion Summary:

Key Players in this Focus Area: Cities/Counties, Legislature, California Energy Commission, California Public Utilities Commission, Utilities, Contractors, Councils/Commissions, Nonprofit partners

Barriers: Inconsistent permitting processes across cities/counties, Lack of political will, lack of understanding about service capacity and planning, misconceptions about technologies, lack of understanding about the best process for developing codes (who should be at the table, best approach, etc.)

Solutions:
1. Focus on collaboratively working on few codes as low-hanging fruit: panel capacity codes, EV reach codes, water heating codes
2. Develop code templates to share among cities/counties
3. Education about grid impact planning and addressing related issues
4. Educate cities/counties and others about relevant studies and metrics
5. Develop a coalition or collective voice from cities/counties to advocate for appropriate legislation to break down barriers to electrification - help inform/influence agenda
6. Develop a fuel switching measure/metric for climate adaptation and climate action plans and share widely with cities/counties

Financial Incentives Discussion Summary:

Key Players in this Focus Area: Utilities, CCAs, Cities/Counties, Utilities, Nonprofit partners

Barriers: Risk of inequitable access of financial incentives, risk of potential inequitable transfer of financial burden, three prong test, two trades are required for installation, need to develop different incentives for different markets (ex. single family, multi family, new v. existing construction), distributive challenges (local governments are not used to working “upstream”), customers’ lack of knowledge about rates

Solutions:
1. Opportunities to look to PACE for financing assistance and develop common RFP
2. Increase transfer tax to help incentivize homeowners
3. Leverage relationships with CCAs to start a pilot incentive program
4. Opportunity to leverage areas where alternatives are high cost (ex. regions that use propane or where natural gas connections are cost prohibitive)
5. Think about an alternative to the three prong test
6. Raise fees for gas hookups
7. Water heating leasing models to help with transition from natural gas
8. Cities/counties could establish bulk purchasing programs - learn from Sunshares
9. Focus on electrification in resilience plans to help drive city/county support
10. Coordinate with cities/counties within same CCA to work on incentives
11. Develop a preferred contractor list to help make installation costs more consistent

**Outreach and Communications Discussion Summary:**

**Key Players in this Focus Area:** Cities and counties, USDN, nonprofit organizations, manufacturers, contractors, installers, local distributors, consumers, CCAs

**Barriers:** Citizen Awareness, lack of motivation, building inspectors, time frame, terminology/language, hard to overcome successful messaging from natural gas industry, capacity, lack of unifying communication channels, lack of understanding about key market targets, varying climate across the state

**Solutions:**
1. Bring more cities and counties into the conversation and align around common goals
2. City/County develop coordinated trainings and FAQs for building professionals (like contractors, architects, HVAC experts, etc.)
3. Develop common messaging / common language that all cities and counties can use to reach different audiences
4. Develop and share common outreach tools (one-pagers, website content, social media content, videos, how-to graphics, etc.) to reach different audiences
5. Identify key communication outlets (in addition to cities and counties) where this common messaging should/could be hosted - ex. schools, faith-based, professional associations, etc.
6. Use city/county buildings as pilot projects and develop city / county case studies around those projects to share with all audiences
7. Develop a statewide campaign that cities/counties can all join in on
8. Make information readily available for appropriate city/county staff who work in building departments/inspections
9. Develop a guiding initiative or mission to provide a baseline or reference point for cities/counties to better engage their communities (ex. Electrification Ambassadors)
10. Develop a list of experts who could/would be available to speak, share resources and help educate audiences, including cities/counties
11. Link the solar industry into the conversation to help promote building electrification

* A detailed summary of notes from each discussion can be found in Appendix B.
Synthesis of the Discussion

GCC learned from the conversations that this topic is still new to many, and there are still many others who have no experience at all with this topic at all. Likewise, there are some areas where collaborative action is more “shovel ready” than others, and it would make sense to approach these potential actionable items in concert, with cities and counties working together with other key players.

To provide an understanding about the maturity of the ideas developed in the workshop, GCC has organized the ideas into three main categories in Tables 1, 2, and 3 that follow. Some of the ideas are more mature than others, and are on the verge of being, or are already ready for, collaboration and/or action. These are the collaboration or action-ready ideas. Other ideas are far enough along to have substantial interest and understanding, but those ideas still need more time to develop. When more alignment happens with these ideas, and more points of view are shared, the next step becomes more obvious. Other ideas are still in the brainstorm phase, and more connections and education are needed to bring more people along in the conversation, connect them to their peers, and to educate them about context and possibilities (See Figure 2 for reference: Connect, Align, Produce model).

Table 1. Collaboration or Action-Ready Ideas

<table>
<thead>
<tr>
<th>Collaboration Opportunities</th>
<th>Next Step</th>
<th>Partners</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrate building electrification into Climate Action and Adaptation Planning Efforts</td>
<td>Develop Climate Action Plan template with Building Electrification language and metrics; Develop Climate Adaptation language and metrics and share widely</td>
<td>GCC, City of Richmond, other Cities/Counties</td>
<td>Codes + Standards</td>
</tr>
<tr>
<td>Activity</td>
<td>Description</td>
<td>Sponsoring Organizations</td>
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<tr>
<td>Disseminate + share information about recent cost effectiveness studies that can help the development of a reach code</td>
<td>Hold a webinar or call where cities and counties can learn about these studies and their relevance to their work in building electrification</td>
<td>GCC, LGSEC</td>
<td></td>
</tr>
<tr>
<td>Pursue legislation to support Building Electrification</td>
<td>Develop a coalition of cities and counties that can support appropriate legislation regarding cost-effectiveness metrics in building codes</td>
<td>GCC, LGSEC, NRDC, Sierra Club, Cities/Counties, CEC, BAYREN</td>
<td></td>
</tr>
<tr>
<td>Learn lessons from Richmond’s 0% Social Impact Bond program + Zero Net Energy projects</td>
<td>Share more detailed information about this program with cities and counties</td>
<td>City of Richmond, GCC</td>
<td></td>
</tr>
<tr>
<td>Conduct consumer outreach, awareness and education</td>
<td>Develop a “Building Electrification and Consumers” resource for cities and counties to continue sharing information and resources like fact sheets, workshops, other marketing strategies</td>
<td>GCC, Cities and Counties + nonprofit partners</td>
<td></td>
</tr>
<tr>
<td>Create shared resources for professional training and outreach (for the contractor, architect, building inspector, and City/County staff)</td>
<td>Develop a “Building Electrification for Professionals” Resource for cities and counties to Continue to share information and resources like fact sheets, workshops, other strategies for educating professionals</td>
<td>BAYREN, GCC, Cities and Counties, nonprofit partners</td>
<td></td>
</tr>
<tr>
<td>Bringing more cities and counties to the table</td>
<td>Hold another opportunity to have this conversation at next GCC workshop in Spring 2018 in Southern California</td>
<td>GCC, Cities/Counties, nonprofit partners</td>
<td></td>
</tr>
<tr>
<td>Build understanding about the key players in the field</td>
<td>Develop a list of experts who could/would be available to speak, share resources and help educate audiences, including</td>
<td>GCC, nonprofit partners, private sector partners, CEC, utilities</td>
<td></td>
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</tbody>
</table>
## Table 2. Ideas that Need More Alignment

<table>
<thead>
<tr>
<th>Idea</th>
<th>Next Step</th>
<th>Partner</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Further Explore Reach Code Development</td>
<td>Share sample reach codes, further explore low-hanging fruit in code development</td>
<td>Cities/counties, nonprofit partners</td>
<td>Codes and Standards Codes + Standards</td>
</tr>
<tr>
<td>Develop pilot projects and write case studies about them</td>
<td>Share information as more cities and counties test pilot projects where they implement building electrification efforts</td>
<td>Cities and Counties</td>
<td></td>
</tr>
<tr>
<td>Develop templates for policies and codes that promote building electrification</td>
<td>Develop policy/code templates that could be used by cities and counties to help the adoption of reach codes</td>
<td>GCC, Cities/Counties</td>
<td></td>
</tr>
<tr>
<td>Explore/model bulk purchasing programs</td>
<td>Sunshares program modeling exploration</td>
<td>East Bay cities/counties</td>
<td>Financial Incentives</td>
</tr>
<tr>
<td>Coordinate municipal utilities on upstream incentives for electric water heating</td>
<td>Provide opportunity for further discussion among municipal utilities about incentive programs, successes and challenges</td>
<td>Sacramento, Palo Alto, Los Angeles, and other city/county utilities, CCAs</td>
<td></td>
</tr>
<tr>
<td>Look at potential for financial incentives with CCAs</td>
<td>Coordinate with cities/counties within same CCA to work collaboratively on incentives or pilot programs</td>
<td>CCAs, cities and counties, nonprofit partners</td>
<td></td>
</tr>
<tr>
<td>Develop a statewide</td>
<td>Develop a statewide campaign that all cities and counties can use to promote</td>
<td>Cities/counties, GCC, LGSEC,</td>
<td>Education and</td>
</tr>
<tr>
<td>Idea</td>
<td>Next Step</td>
<td>Partner</td>
<td>Topic</td>
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<tr>
<td>Financial incentives through Contractors</td>
<td>Developing an approved contractor list that can include trained contractors statewide that can do this work efficiently, effectively and affordably</td>
<td>Cities/counties, private sector professionals (contractors, architects, etc.)</td>
<td>Financial Incentives and Education and Outreach</td>
</tr>
<tr>
<td>Explore other financial incentive models for effectiveness</td>
<td>Water heating leasing models to help with transition from natural gas, natural gas hook up fees, PACE as a tool, etc.</td>
<td>Cities/counties</td>
<td>Financial Incentives</td>
</tr>
<tr>
<td>Develop more knowledge about and look at alternatives to the Three Prong Test</td>
<td>Educate cities and counties about and find alignment around alternatives to the three prong test</td>
<td>nonprofit partners, cities/counties</td>
<td>Education and Outreach</td>
</tr>
<tr>
<td>Create consistent messaging to combat effective messaging of alternatives</td>
<td>Opportunity to leverage areas where alternatives are high cost (ex. regions that use propane or where natural gas connections are cost prohibitive)</td>
<td>Cities/counties, GCC, LGSEC</td>
<td></td>
</tr>
<tr>
<td>Coordinate content for CA Energy Commission Blueprint</td>
<td>Help coordinate content for CEC Blueprint to dispel misconceptions about condensate technologies</td>
<td>GCC, Stop Waste, Cities/Counties, CEC</td>
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</tr>
</tbody>
</table>
Recommended Next Steps

GCC sees the following roles for our network in moving work on building electrification among cities and counties forward:

1) Create a Local Government Building Electrification Workgroup led by and for cities and counties for cities and counties to continue connecting and aligning around this work. This workgroup would continue to work using a member-driven model, and would be coordinated and facilitated by GCC staff, Meg Jamison, and work with partners identified in this report to encourage ongoing coordination between this workgroup and others. This workgroup's overarching goal would be to continue to engage cities and counties around building electrification. GCC’s role in the workgroup would be to convene the participants, help share information, guide the conversation, build off of existing work and help bring new cities and counties into the conversation. Using the member driven model, participants of this workgroup would help guide the work plan and help decide the priorities for action.

2) Work with cities and counties to establish a collective voice for building electrification legislative issues that can engage with partners as appropriate.

3) Help set up communications infrastructure with this workgroup and with key partners to make sure appropriate information is shared with cities and counties in a way that will help spur connections, alignment and action.

4) Convene cities and counties to continue this discussion and learn from each other in person.

Timeline for next steps for the Workgroup

Short term next steps (1-3 months)
- Schedule a call for the fourth quarter of 2017 (November or December) with interested participants from cities, counties and other partners (like Stop Waste, NRDC, Sierra Club, LGSEC ) to continue the alignment process around key issues.
- Schedule a call with the existing California Building Decarbonization group to discuss participation and coordination between the two groups and determine the appropriate communication moving forward.

Medium-term next steps (4-8 months)
- Develop a consistent communication method and set up communication infrastructure for workgroup participants and others to help disseminate key communications around building electrification.
- Build awareness among workgroup participants about legislative action issues and needs to expand opportunities for building electrification.
- Continue the conversation in person: In the spring of 2018, GCC will have another in-person workshop for members in southern California. GCC proposes to plan for time
when GCC members and others can reconvene and discuss further connections and alignment around building electrification.

- Action-group or sub-committee formation: If participants determine that they are ready to take on some of the action-ready ideas as discussed in the workshop, action groups, or sub-committees, can be formed to focus specifically with the purpose of collaboratively working on those ideas. GCC will determined interest in doing so on workgroup calls and in its 2018 in-person workshop.

**Long-term next steps (9-12 months)**

- Develop a unified city/county voice on legislation that supports building electrification: GCC will continue work with LGSEC and cities and counties to form a coalition of city and county governments that can speak with one voice to support building electrification advancement efforts and work with the NRDC, and others, in the work with California energy regulators, which has thus far been effective in raising regulator awareness.
- Advance alignment efforts with the workgroup to develop at least one collaborative action opportunity. The idea would be that a few workgroup participants would be far enough aligned in their work that they would want to collaborate around action that would help further advance work in building electrification. This might look like a collaborative grant application to work on a specific project, the formation of a sub-group that is focused on a specific task related to building electrification.
- Build a resources database for educational resources. As GCC continues to access and share information internally with the workgroup, a resource database can be developed with access by cities and counties will have open access to information relate to building electrification regularly.
- Continue to engage with a collective voice with partners on legislative issues.

**Evaluation of the Workshop**

To assess the workshop, GCC and LGSEC used an evaluation survey. As of October 19, 2017, 32 people had responded to the survey. Their feedback reveals the following highlights. A full survey response summary can be found in the excel spreadsheet attached to this final report.

**Successes**

- Over 94% of respondents ranked the workshop as either “Excellent” or “Very Good.”
- Over 70% of respondents strongly agreed that they felt inspired by ideas to take back to their community.
- The two highest rated activities from the workshop were the “Building Electrification 101” and “Opportunities for CA Cities/Counties to Engage and Act” plenaries.

**Weaknesses**

- The length of the peer learning/small group discussions was too long for some
- Food choices could have been improved

Overall written feedback from the meeting revealed that the workshop successfully combined the need for technical education, peer learning, and networking and creative idea generation. The respondents revealed excitement about next steps, and continuing the conversation.
## Appendix

### Appendix A - Meeting Agenda

**MEETING AGENDA**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>8:00 AM</td>
<td><strong>Light breakfast and coffee</strong></td>
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<tr>
<td>8:30 AM</td>
<td><strong>Meeting welcome</strong> - Heather Larson, Stop Waste&lt;br&gt;<strong>Goals and agenda overview</strong> - Meg Jamison, Green Cities California&lt;br&gt;<strong>Thank You and Introduce Regulatory Update</strong> - Margaret Bruce, Local Government Sustainable Energy Coalition (LGSEC)</td>
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<tr>
<td>8:40 AM</td>
<td><strong>Regulatory Update + Discussion Session</strong> - Irene Moosen, LGSEC Regulatory Consultant</td>
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<tr>
<td>9:25 AM</td>
<td><strong>Creating a Shared Purpose</strong> - Maggie Ullman, Green Cities California</td>
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<tr>
<td>10:00 AM</td>
<td><strong>Plenary and Discussion: Building Electrification and Renewable Energy 101</strong>&lt;br&gt;Rachel Golden, Sierra Club&lt;br&gt;Wendy Goodfriend, City of San Francisco&lt;br&gt;Pierre Delforge, NRDC</td>
</tr>
<tr>
<td>10:45 AM</td>
<td><strong>Plenary and Discussion: Opportunities for California Cities and Counties to Engage and Act</strong>&lt;br&gt;Christopher Meyer, California Energy Commission, Building Standards Office&lt;br&gt;Adam Lenz, City of Richmond&lt;br&gt;Billi Romain, City of Berkeley&lt;br&gt;Sarah Moe, DNV GL</td>
</tr>
<tr>
<td>12:00 PM-</td>
<td><strong>Lunch</strong></td>
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<tr>
<td>1:00 PM-</td>
<td><strong>Breakout Session Prelude: Cities and Counties Collaborate and Connect around Building Electrification Topics</strong> - Maggie Ullman / Meg Jamison, Green Cities California</td>
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<td>Time</td>
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| 1:20 PM    | **Peer Learning Small Group Discussions:** Small group discussions around three specific ways local government can move forward on building electrification. Small group discussion topics include:  
  ● *Financial Incentives for Electric Water Heaters* (Facilitator, Maggie Ullman)  
  ● *Local Code Leadership to promote Electrification* (Facilitator, Meg Jamison)  
  ● *Education and Outreach* (Facilitator, Margaret Bruce) |
| 2:20 PM    | **Break**                                                    |
| 2:35 PM    | **Small group report outs**                                  |
| 3:00 PM    | **Collaboration Opportunities Small Group Discussion:** Small groups regroup to discuss possible ways to move forward together, priorities, and action planning related to each of these topics. |
| 4:00 PM    | **Small group report outs**                                  |
| 4:30 PM    | **Wrap up, next steps, and invitation for ongoing collaboration and participation**  
  Maggie Ullman, Meg Jamison and Margaret Bruce |
| 5:00PM     | **End of day one**                                           |
| 5:30pm-6:30| **Post workshop happy hour**  
  Drake’s Dealership at 2325 Broadway - All participants are welcome to gather at Drake’s Dealership for further conversation and networking |

**Appendix B – Breakout session notes**

**Local Code Leadership to Promote Electrification Notes**  
9/19/17

- Where do cities and local gov want to focus
  - Reach codes?
  - What other ordinances might we consider?
  - CEC - released model model ordinance
  - Model language doesn’t help adoption of ordinance
  - heat pumps? Or more broadly look to buildings?
  - EV cost share for multifamily buildings?

- Pierre: important to remind ourselves **why codes matter, b/c we have to make the case to cities. New buildings are only a small percentage of total buildings, but**
these codes can be the low hanging fruit in terms of electrifying even though these codes won't address existing building stock, but it's a really important first step.

- **Outreach and Education**
  - Streamlining - content to white label and put the information in peoples in people's hands.
  - Developed 1 pages for reach codes - brings you to green building page, which sends you to exact code.
    - On electrification - have a web page with info on decarb., building electrification.

- **Hot water heating/heaters** issues is a ripe area
  - Pierre has been working on language for heat pump and heat pump water heaters
  - water heaters, in particular domestic water heating can be a small and easy switch from traditional space heating

- **ZNE**
  - Dean: interested in learning about what we can do about existing buildings.
    - Difficulties - contractor community unsure how to implement many of these initiatives.
    - Qs for Dean on ZNE codes - ZNE is currently performance based. Buildings have to meet a standard “electricity level”. This applies to low rise housing and will apply to commercial buildings in the future.
  - Rachael: unincorporated areas experiencing gentrification issues
  - Adam: developing draft ZNE code, had to compare each community to each other. Some developers have capacity to meet ZNE but some don't. Conversation is about developing fast enough so were not contributing to the housing crisis.

- **EVs**
  - massive batteries in EVs and many EVs in the near future will be equipped for "car to grid" capabilities that enable the car to power the grid.
  - Info from tesla: by the end of 2018, there will be 3 - 4 times the number of EVs in santa monica.
  - Tesla is pushing ev readiness - and requirement for ev charging stations in some circumstances - they want us to put "stub out" to go up to 20% for residential buildings.
  - EV charging stations are designed to assume all vehicles are charging all at the same time. Unlike how building service capacity is usually designed (i.e. they don’t assume that all loads in the building are on at the same time).
  - Need to plan for service level capacity to charge vehicles, and understand how the V2G (vehicle to grid) battery capacity will change grid loads/capacity.
• Miscellaneous:
  ○ Need to look at what other countries were doing
  ○ Induction cooking? Conversion of home cooking ranges away from nat gas.
  ○ Is it a good idea to have a reach code on panel capacity?
    ■ How much to increase panel capacity by is an concern.
    ■ 200 amp panel can handle most home loads, heat pump water heaters currently 15-40 amps, average around 30 amps.
  ○ Frank: The dev will look at the cost per home, and may push back due to any added costs added by electrification, but cost per home for electrical homes could be lower than mixed fuel homes b/c you don’t need to install an expensive underground gas line going into the homes.
  ○ A gateway to all electric could be renewable water heating.
  ○ Misty - you could still generate electricity that you don’t need, even if it is not done cleanly.
    ■ Cost effectiveness study - all electric SF low rise residential, plus heat pump water heaters, for reach code beyond title 24.
    ■ An all electric code study and renewable water heating code study is currently being done.
  ○ Ability to use electric baseline if nat gas is available?
    ■ Federal preemption is a barrier
  ○ A code currently exists that prevents you from installing a hot water heater Unless you do a performance approach, thus we are looking at ways to allow a prescriptive approach.
  ○ TDV - every hour of the year has a cost weighting, CEC is also looking at a GHG metric. CEC is also looking at including societal cost of carbon into the calculation for the 2019 code.
  ○ Frank - Works on capital improvements team, with a focus on energy. Going to start “savings by design”. Currently looking at HVAC building plans and seeing conventional designs in buildings currently being designed for the city. This is technology that has been around since the 1980s.
    ■ Must bring PG&E into conversation, because they “own” the grid and electrical loads are going to increase with increased total building electrification.
    ■ Blockchain and cryptocurrency can be an emerging issue.

Common Opportunities:

• Societal cost of carbon/ GHG metric
• EV reach codes
• Panel Capacity codes
• Water heating codes - all electric
• Studies: compliance option, ADUs, Existing buildings & retrofits
• Data from home scoring
• Building inspector trainings
• Consistent permitting
• Subsidies - political will
• Misconceptions on technologies

Common Needs:

• Service capacity planning
• Understanding real load needs (EVs)
• Existing buildings and retrofits.
• Educating installers about code compliance
• Timing and process
• The process - letting the right people at the table
• Building inspector trainings

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Collaboration Opportunities Small Group Discussion: Small groups regroup to discuss possible ways to move forward together, priorities, and action planning related to each of these topics
● Actionable (bite sized) vs visionary?
● Societal cost of carbon/ GHG metric
● Water heating codes - all electric
● Existing building retrofits
● Legislation
● Bayren
● Make informative handouts that can be used to educate sustainability directors as well as the public, contractors, though leaders, etc.
● Look at nexus of battery, EV and solar.
● Advocate at CEC for legislation
  ○ TDV metric is defined in next code cycle
  ○ Bill could say cec will align building codes with climate goals
● Funding to have a significant difference with existing buildings.
● Establish chain to talk about thes issue with the same lexicon.
● Work with solar companies to sell a package deal for electrification that includes solar and electric water heater.
● Matrix of who has done what with the reach codes is in the works.
● Add into CAP 2.0 efforts
  ○ GCC could help facilitate this.
● Resiliency - planning efforts, tack onto other costs.

Codes:

● Help spread resources
  ○ Cost effectiveness studies - all electric, HP
  ○ Model ordinances
  ○ Matrix
● Existing buildings
  ○ Education and outreach
  ○ Incentives
● Identify Key opportunity sector
  ○ Propane
  ○ PV
  ○ Electric resistance
● Legislative
● Develop fuel switching measure for climate action plans
Financial Incentives Breakout Notes
9/19/17

Sonoma Clean Power-CCA in Sonoma and Mendocino counties
- Begin to tackle: what do we do w/buildings?
- Market assessment identifying who the partners are
  - Hope to have a program online in the beginning of 2018
- Benefit to self financing as a CCA
  - GHG reductions, drive for all programs
  - Programs are not focused on cost-recovery
- Serve 87% of customers
  - Remainder opt out
- Can CCAs incorporate on-bill financing?
  - Sonoma Clean Power is looking into this
  - Self finance or partner w/a bank?
- Opportunity for comments of how local government programs are run
  - GHG reduction as opposed to electric savings
- Where is PG&Es incentive to support CCAs?
  - Limitations to PG&E funded programs
- Ways to get financing through PACE programs and GHG reduction funds?
  - Linked to the objective of CCAs
- Impact on all-solar/all-electric?
  - City does not get tax incentives from solar panels
- What opportunities are there to partner with utilities, etc?
  - Pay to take customers away from gas utilities

Introductions
- Will Provost
- Ted-City of LA
  - Push on transportation electrification
  - What gets people to fuel-switch?
    - 15,000 public available charters
  - Utility users tax
    - All electricity sales under 10% tax
    - Serious money, and something you can sell to populace
      - Put in a water heater and help local fire dept
  - There is an 8% power sales revenue to general fund
    - About $250-270 million a year
  - Monopoly, no CCA
- As more people go to renewables on self-generation, the city loses sales, there is grid defection
  - Income level of rate base is beginning to fall
    - Poor people are supporting the maintenance of the grid
    - Broaden rate base,
- Miya w/StopWaste
  - Multi-family program
  - Support local member agencies
- Rachel from Sierra Club
  - More interested in PACE for financing?
- Jody London from Contra Costa
- Ben w/stopwaste
- Tory Francisco, CPUC
- Brett Bishop, County of San Luis Obispo
- Sally Barros
- Rebecca w/City of Dublin
- Alice w/County of Marin
  - Hoping to adopt reach code update
- Ariana Vito-City of Santa Monica
  - New reach code just went into effect
  - Figuring out which CCA to join
- Billi Romain-City of Berkley
  - Would like some program that incentivizes homeowners for electrification
  - Increase transfer tax as an option
  - Looking for potential other funding sources and considering the equity piece as well
  - Can’t use public benefits funds
- Nupur, City of Sunnyvale
  - Part of Silicon Valley CCA
  - Looking to leverage relationship with CCA to start a pilot program
  - Cost has not traditionally been a barrier to implementation (permitting and logistics are more of a barrier)
- Kevin Armstrong, County of Santa Clara
- Rich-City of SF
  - Interested in PACE as an opportunity
  - Has mechanism through BAYREN to start regulating PACE
  - Needs to start training contractors and getting them on board
    - Opportunity b/c there is no natural gas
- Nick Dirr-AEA
  - Working w/BAYREN on multi-family program
Fuel-switching w/Lyft
- In areas w/propane, it is cost effective
- Test models out and target areas that are using propane
- Implementing cap and trade program
  - Has to be in DAC and low income properties
    - Incentives are tied to GHG reduction a property has
      - Domestic and individual water systems

Katie, City of Cupertino
- PACE in Cupertino
- Community based social marketing
  - Phase of trying to identify barriers and benefits
    - Electrification of water-heater
      - Upgraded gas ranked higher than electrification of water heaters for the community

Ariel-City of San Jose
- Own CCA
- Environmental sustainability plan

What are the barriers for financial incentives?
- How to best spend money to move forward w/new technologies/cost analysis/market transformation
  - Where is gov's role for intervening as the market transfers
  - Unpredictability
- Duel-fuel utility
  - Socal gas
- Funding sources unknown
- Three-ponge test
- Consumer demand-or lack there of
  - Perception disconnect
- Rates
  - Don't reflect true costs
  - Electric heating rate does not apply to water heaters
    - Change in rate structure for water heating
- Majority of costs are tied to distribution. Difficult to do when PG&E won't work with CCAs
- Plumbers need help, two trade are required
- Avg consumer does not know about the rate tiers-do customers want to bother with it
- Distributive challenges
  - Local governments are not accustomed to working upstream
- Willingness of building departments to collaborate and bandwidth to tackle the issues
• Extent of retrofit that’s needed
  ○ Not going to consider buying a new water heater if it works
  ○ Readying for a retrofit
  ○ Electrical infrastructure upgrade
• Types of incentive for different groups
  ○ Commercial vs residential
  ○ New vs existing
• Disincentive to do anything that requires additional permits
• Multi-family market is place where changes are made
• Grid impacts of policy
• Political support/priority
• Competition w/other programs
• Young technology

**Solutions for local governments for financial incentives:**
• Integrating w/PACE
• Raising fees for gas hookups
• Time of sale transfer
• Advocating for better government services
  ○ Process improvement
• Propane water heaters
• Low hanging fruit
  ○ Multi-family
  ○ Solar
  ○ EV Drivers
• Water heater leasing models
• Bulk purchasing programs
• HVAC community outreach
  ○ Own water business
  ○ New profit center
• Resiliency angle
  ○ Natural disaster gas to electric recovery
    ■ In SF, 6 mos to restore gas, couple weeks for electric
• Off peak incentive rate design for grid enabled systems (CCA)
• Air Quality Management district $$
  ○ Interest to get gas out in their clean air plan
• Cap & trade funds
• Utility user tax
• Electrification-ready code
  ○ Have to put in charge
Local Government Influence with Electrification w/Incentives/Better if we did it together

- Collect data
  - Market assessment to understand audience
  - Pilot study
  - Data collection --> case studies --> implementation targeting
    - Where is data coming from?
      - Water heater install date
        - Can target older homes or businesses
    - Sharing good website content
- Bulk/group purchasing
  - Learn from sunshare
  - Sun shares
    - Cities negotiate a discount based on promise of doing outreach
    - Creates a buzz
- Share reach code templates and staff report
- RFP/RFQ for PACE financing and other finances
- Cities w/same service providers to petition CCA
  - Unify asks/plays w/CCA
- Coordinating cities w/in CCA
- Legislation to overcome barriers
  - To address three-prong test
    - TRC of 1
    - Program of cost-effectiveness, not portfolio
    - Lower req below zero
  - GHG target for buildings
  - State agency work groups
  - CSI and descending rebates
    - Learn to replicate
- Advocacy, letters of support
- Partner w/league of cities/counties
- Approved contractor list
- Contractor incentives
- Education during EV permit and PV process
- Code coach
- Contractor edu outreach
- Preferred contractor lists
- Negotiating purchase of lease
- Share documents/materials
● Use government facilities to share
● Muni building lead by example
● Research funding opportunities
● ID potential regional partners
● Pursue block grant approach

What should we all do together?
● Resource/info sharing
● Explore BayREN dialog
  ○ Operational funds?
  ○ City/county working groups
● Explore LGSEC conversation w/state agencies S.G.C
● Explore legislation through building decarbonation work group (NRDC)
  ○ Inform and influence agenda
● Think about alternatives to the 3 pronged test
● Online communication tool
● Continue discussion
  ○ On-bill financing
  ○ PACE
  ○ Other

Education and Outreach Breakout Notes
9/19/17

Actors
● Regional networks
● City partnerships with non-profit organizations
● Major players in decision/delivery process all with different motivations & incentive structures: manufacturers, contractors, installers, local distributors, consumers
● USDN: membership-based network
● CCAs
● All actors have and serve as different audiences—consider target audience
  ○ Contractors
  ○ General public/consumers: Motivated by (a) price and (b) user experience
    ■ Differing levels of existing knowledge on the topic
  ○ Office staff (city, non-profit, regional board, sustainability org)
  ○ Space as a defining issue (Dispersed cold region vs. dense, warm city)
Barriers

- Awareness
  - Do consumers realize benefits?
  - What are the details (examples of utility bills) regarding cost-effectiveness?
  - Publicize testimonials (Palo Alto, Santa Monica, etc.) from pleased homeowners

- Motivation
  - Range of incentive structures (consumers want low bills, local distributors want cheap and available options from manufacturers, etc.)
  - (Lack of) policy imperatives for government departments who have a pre-defined workload/agenda
  - Consumer behavior: convincing a fuel switch is harder than a clear-cut reduction

- Building inspectors
  - Lack of willingness due to large workload or other factors
  - Lack of knowledge from trainings, accessible in free time only

- Time frame: not a quick fix, can’t replace broken heater with entire electrification system overnight

- Terminology: at the organizational level (permit coherence for city gov’t research) as well as the broader consumer messaging level (indigestible to many as it stands)

- Capacity
  - Lack of staff or adequate staff training
  - Fear of staff reductions even as teams bring on new personnel
  - Funding sources

- Past promotion of natural gas a viable alternative: hard to overcome successful messaging—Possible framing as ladder from conventional fossil fuels “onward” to natural gas and “next step” is electricity

- Threat to utilities as “existential crisis”—will PG&E and others collaborate or push back on electrification if they currently see gas as a revenue source?

- “Natural siloing” within local groups → need greater collaboration, but often lack the appropriate communication channels

- Permit development/tracking/data to identify who may be a good target for electrification in their building/homes

Solutions

- Rely on/seek out experienced industry members to help lead and inform electrification programs (e.g. contractor in SLO)

- Make info available to staff where possible: have powerpoints on in TVs around office
● Small budget set aside to send building staff, on-the-ground personnel to conferences instead of senior analysts where possible

● City-based landscaper trainings and list of program graduates in lieu of advertising a specific group, organization, company, etc.

● Targeting the distribution point of the supply chain (manufacturers won’t supply without demand, distributors won’t offer as option to contractors/installers if there’s no supply)
  ○ Another option here = USDN and other entities persuading manufacturing side to offer product discounts, solving supply problem and building demand

● Identify and circulate WHY in the electrification conversation: WHY looks different for every community but can lead to WHAT and HOW
  ○ Palo Alto ex. Electrification landing page when launching EV Charger rebate program: why is electrification good/necessary in the first place?

● PACE Programs as a way to stimulate permit apps/tracking for useful data

● Power of demonstrations
  ○ Problem: convincing people electrification (heat and esp. cooking) is a viable option is challenging
  ○ Demo spaces where available: house tours, electric ovens that can realistically replace gas stoves
  ○ Host testimonials online and share

● Try to circulate “trends” online (Pinterest, etc.) to potentially stimulate social influence through already-popular platforms
  ○ HGTV potential: building inspection offices get requests for what they’ve watched on TV

● Useful resources:
  ○ USDN or one of its 8 regional networks (e.g. Green Cities CA)
  ○ UCLA Energy Atlas

● Messaging ideas/examples
  ○ “Don’t get caught with your HVAC down” – City of Davis
  ○ Targeted eBlast to PV/EV customers with detailed information and more widespread bill insert to stimulate pilot program enrollment – Palo Alto
  ○ “Electricity > Gas” t-shirt – Austin Energy campaign (knowing their audience)
  ○ “Flameout 3030” – City of Santa Barbara
  ○ Educating communities on basic science
  ○ Packaging the simple “future vision” of an entirely electric home with EV, PVs, HPWH etc. → sell the “home of the future”
    ■ Reliant Energy “Connected Home” (couldn’t find but Smart Home article by Reliant here) focus on gadgets not necessarily enviro focus
    ■ Step on the path toward Green jobs, Green economy, etc.
Can solar companies be the focus for pushing the building electrification in homes? Are solar companies the bridges to the homes?

- **Statewide campaign**
  - Pro: get everyone on board, source of funding
  - Con: some have worked better than others, could be a significant loss of $$

- **Municipalities as a set of examples**
  - Electrifying municipal buildings first—“using our own landscape as a lab”
  - Online resource to be accessed anywhere/anytime—virtual tour

- **Video medium for contractor/inspector trainings**
  - Minimizes the distance-from-resource gap

- **How-to graphics for the fuel-switching process for interested consumers**
  - What do I have to do, what does this look like?
  - **NEAA: Hot Water Solutions**

- Need to at once stimulate consumer base and contractors (chicken or egg → both)
- Build up FAQs page on websites as information builds internally to be a continual resource for residents

### Opportunities to Collaborate

- **Website hosting case studies, testimonials**
  - Was it new or a retrofit?
  - What are the pros and cons from the view of the homeowner?
  - What were the costs associated?
  - Examples of utility bills before/after where possible

- **One central term for electrification (pumps, etc.)**

- **Community-based conduits for information**
  - UCs and CSUs, other schools: faculty/students offer information to the community
  - Faith-based organizations: targeted contact point to reach out to, offer demonstrations, get on board

- **Access to USDN Series of webinars on Innovation Products page—video “toolkit”**
  - Data aggregation, customer segmentation, starting a local advisory board, understanding installation existing numbers and targets

- **Partnerships with solar companies as intermediary before plumbing/contracting step**
  - Opportunity to somehow lessen per-unit cause at time of PV installation for water heater down the road?

- **Finding and distributing or creating some version of informational literature (NEEA provided as example) in the effort to creating a unified language**

- **Web-hosted demonstrations, tools, resources**

- **Example cities offering resources like How-to guides from community engagement workshops to get other cities started**
Some cities would rather start with basic science/information before fully fledged campaign—“how to talk climate change with your conservative uncle”

- A guiding mission/initiative put forth by [LGSEC, GCC, other] to provide a baseline or reference point for municipal actors to better engage with communities
  - “Heating and cooling ambassadors”
- Legislative Platforms should include shared/common language about electrification
  - Nothing beyond renewable energy is Santa Barbara example, updated last year
  - City reps would value shared talking points, common statistics, data to bring to city council/board of supervisors/community to build credibility
- Is this a unique opportunity to collaborate with utilities organizations—trying to bring on more customers?
  - Electric-only organizations especially open to partnership (don’t have anything to lose with gas switch)
- Conversations with unions (example: forming East Bay Community Energy and electricity union’s significant seat at the table, could be another source again)
- List of informed speakers as a resource to know who to ask for expert advice
- Bringing together all groups (potential allies) who benefit from electrification in buildings

### Implementable & Aspirational Solutions

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<tr>
<th>Implementable</th>
<th>Aspirational</th>
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<tbody>
<tr>
<td><strong>One-pager</strong> on shared stats/wants for any/most audience</td>
<td>Statewide campaign</td>
</tr>
<tr>
<td>Expert speaker list</td>
<td>Collaboration of potential ally groups aka “electric army”</td>
</tr>
<tr>
<td>Multi-city messaging campaign</td>
<td>Demonstration houses (potentially run by network of early adopters)</td>
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| Heating/cooling air and water (let people keep their gas stoves) | Putting together language for an ask to become the “legislative hammer”—a mandate or directive of some kind
  - Potentially based off CPUC cost-effectiveness study
  - Building code requirements → ZNE as potential starting point |
| Linking solar people into the heat pump conversation → Bulk buys as an example (SunShares in the Bay Area) | Reaching an understanding on the role of gas & gas companies |
|                 | Redefining cost-effectiveness |
|                 | Tax on natural gas use as a cap-and-trade funding source |
|                 | Total electrification |
|                 | Celebrity induction stove cooking campaign |