



PHYSICIANS FOR SOCIAL RESPONSIBILITY SAN FRANCISCO BAY CHAPTER

Knowledge of Building Electrification: A Brief Survey of the San Francisco/ East Bay Communities

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Background

Building electrification (BE) is the shift toward zero-carbon electricity, which would be not only beneficial for the planet but also for public health and safety. Gas stoves emit hazardous gasses that harm the health of people and contribute to the development of chronic conditions. People of color are exposed at greater rates overall to such gasses and particulate matter. This has to do with many social factors ranging from poor outdoor air quality, lack of knowledge about the health harms of gas appliances, lack of resources, rental and landlord issues.

Gas stoves produce dangerous amounts of air pollutants, including nitrous oxides (NOx), carbon monoxide (CO), and particulate matter (PM), that often exceed outdoor ambient air standards.

These pollutants can have lasting and damaging effects on the human body. Children, low income, and communities of color are among the most vulnerable. A study by [UCLA](#) reported that "... residential appliances alone constitute 15% of California's CH₄ [methane] emissions from gas, and overall, buildings are responsible for an estimated 25% of all GHG [greenhouse gas] emissions in California."

In October 2021, I started working on a community survey to gauge information in the Bay Area surrounding environmental justice and building electrification. We focused on how environmental organizations are centering a discourse on the relationship between environmental justice and building electrification.

Methods

Sample Selection: A convenience sample of SF Bay Area nonprofit and grassroots organizations working in environmental justice sectors and working with minority groups was compiled as follows: (1) a web-based search for relevant organizations; and (2) knowledge from community organizations we had established relationships in the Bay Area. I found 30 organizations working in different capacities on building electrification. Following the search, I found the organization's contact information and emailed them with the survey and offered a \$20 gift card incentive for completing the survey. I initially sent 30 emails, and after 10 days, I sent follow up emails to those who had not replied and did so again in a month.

Survey Development: We started off by making simple questions with basic information needed about the organizations. We reviewed draft questions and incorporated feedback from SF Bay PSR building electrification core members, and put questions into Survey Monkey. We made some scales, multiple choice and open-ended responses. We included an “any additional questions/ comments” to get the respondents thoughts on any issues we may not have asked about. The complete questionnaire is presented in the appendix. I emailed the survey to 30 organizations, with some having a specific contact person and others sent to general information email. I followed up with all of them after one week and three weeks. I organized the responses according to types of organizations, focusing on BE, the communities the nonprofits worked with, contact information, and website all into an excel spreadsheet.

Results

Of the 30 organizations that were emailed 10 surveys were filled out. The respondents were usually staff who were working with building electrification or community organizers. There were 6 different organizations that responded with 5 responses from the same organization. The organizations work on different ranges of work including policy work, community organizing, and advocacy surrounding environmental justice work (Fig. 1). Of the 6 different organizations 4 respondents were working in Oakland and 2 were working in San Francisco. The organizations predominantly serve people of color such as Asian American Pacific Islander, Latinx, and Black population.

The 6 organizations that responded stated that they are familiar with what building electrification is with 4 working on the building electrification movement directly.

As shown in Fig. 2 community outreach events and social media were reported to be the most effective format of communicating with these environmental justice communities.

Fig. 3 suggests that the top messages that can help encourage people to move towards building electrification are

- “Continuing to use gas stoves contributes to negative health impacts in individuals and families”
- “Protect your family and communities by shifting to all electric appliances”
- “A helpful suggestion was to not use too much jargon that people cannot comprehend as that makes it less accessible”

Fig. 4 shows that the expense of new appliances is the biggest hurdle and people not understanding the negative health impacts was the least of the hurdles for these communities. Other hurdles to BE reported were:

- “upgrading electric service can be way more expensive than buying the electric appliances”
- “the largest hurdle I think my patients and their families face is that they are renters, not owners, of their homes and do not think (and in some cases likely do not) that they have the ability to switch their appliances to all-electric”

- “People are mostly renters/tenants and do not control what appliances are in their homes”
- “cost of converting in existing buildings and payback is a long way off”

Fig. 5 shows that the organizations believe that the costs of a transition to BE should not further burden environmental justice communities, such as from increased energy costs for people who cannot afford to make the transition, increased rents, etc.

There was a section for additional questions and comments to be made and some of those included:

- “Rocky Mountain Institute is working to develop specific information geared toward health professionals about the health benefits of electrification and the health harms of fossil fuel use indoors”
- “EJ community inclusion in implementation/decision-making”
- “taking into consideration, many working class communities are usually not looking to replace their appliances if they are already “natural” gas if they don't need to and the appliances are still working”
- “Resources need to be targeted to specific communities, translated into multiple languages and include video/audio versions for those who cannot read”
- “Building electrification and gentrification risk is very real in some areas - especially if rent control does not exist and renter protections are not in place”

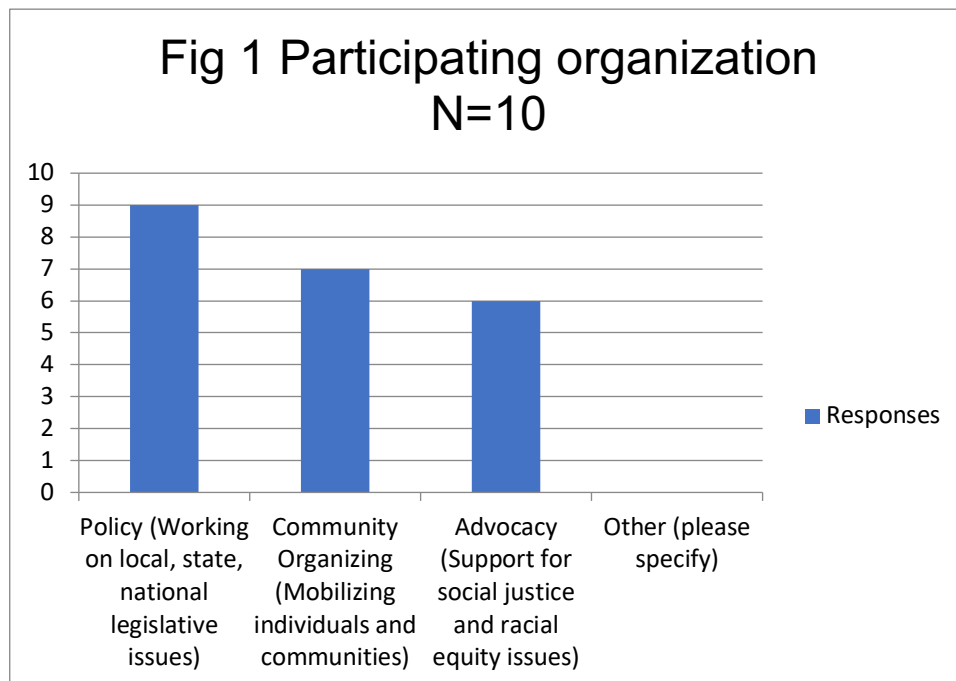


Fig 2. Even if your organization is not involved in building electrification currently, which of the formats below do you think would be the most effective in educating the communities you serve about this issue?

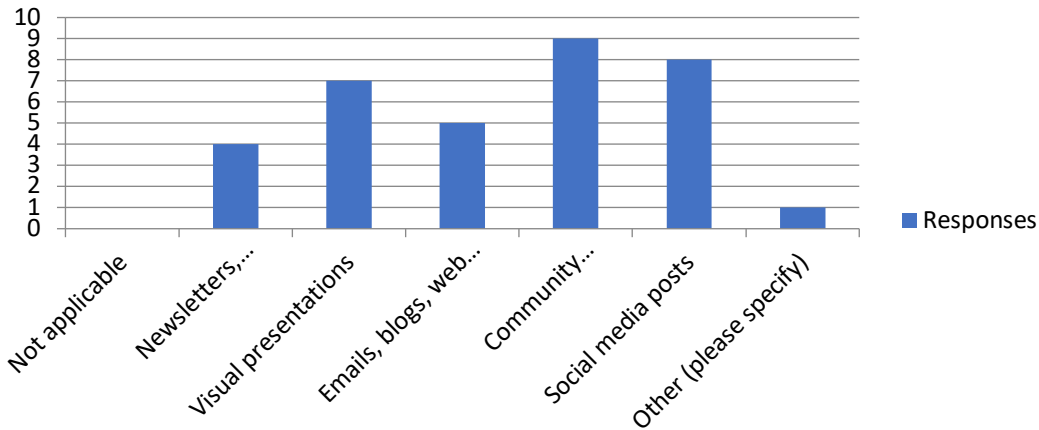


Fig 3. Which of the messages below about building electrification might be most successful at reaching the communities you serve? Check all that apply.

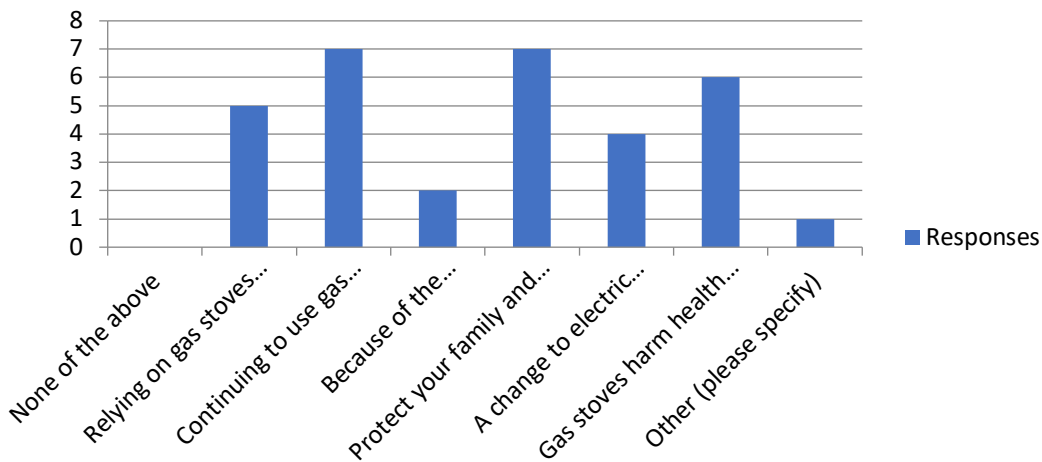


Fig. 4 What would you say are the major hurdles to getting the communities you serve to switch to electric appliances? Please check all that apply.

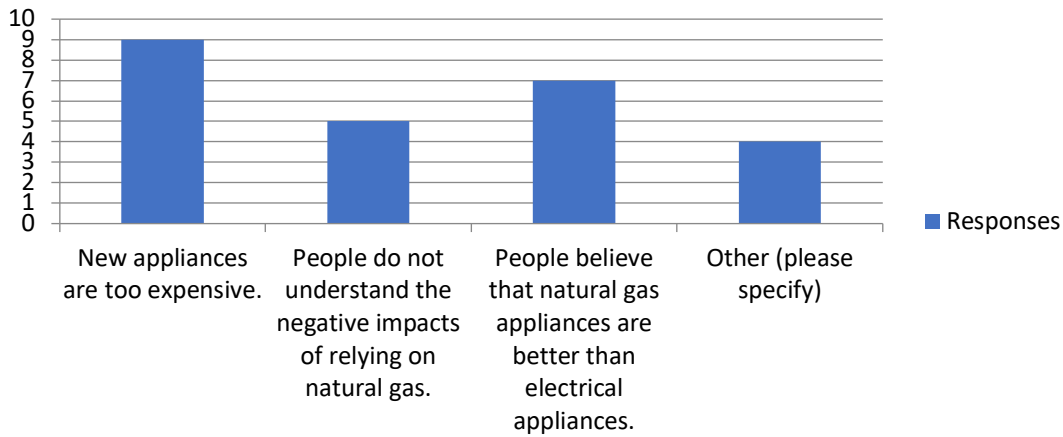
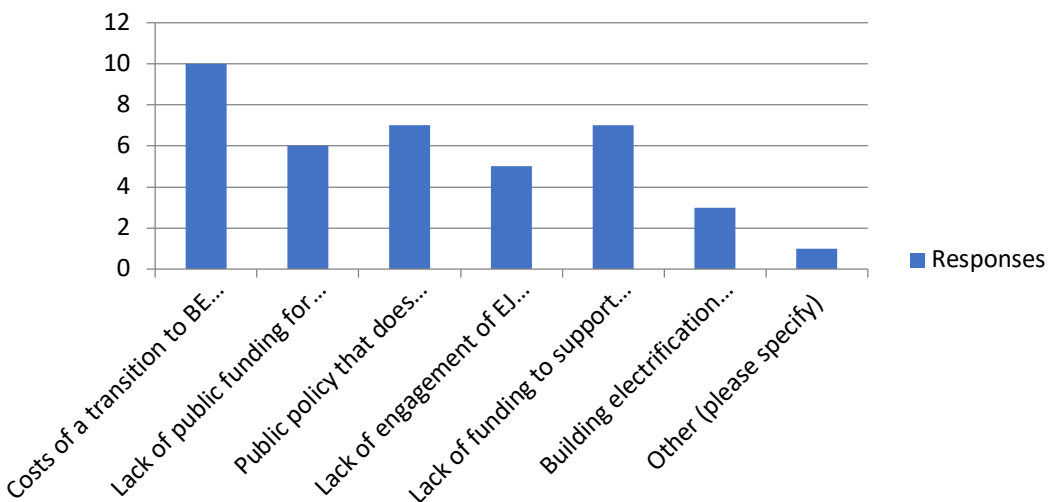


Fig. 5 What do you think are the main environmental justice issues the building electrification movement needs to ensure are addressed? Check all that apply.



Discussion

The communities these organizations serve are mainly Black, Indigenous and people of color and the majority reported that their constituents are aware of the negative impacts of fossil fuels and

climate change, but only about half are aware and understand the negative impacts of gas stoves. They also believe that while their communities do not know or understand the negative impacts of gas appliances, more than half of the communities would be happy to change to electrical appliances and buildings. This brings up the idea that many people are unaware of the situation and a need for more information about the long-term benefits of building electrification.

These statements are brief and the beginning of a deeper conversation about what building electrification is and its benefits. One of the conversations that needs to happen about shifting to electrification is regarding electrical appliances. The organizations state that some of the selling points for electrical appliances are “gas appliances are more damaging to the environment and to community health” and “electrical appliances rely on clean energy and do not contribute to global warming.”

The respondents believe that some of the biggest hurdles to BE in their communities are the following:

- New appliances are expensive and they believe that “natural” gas appliances are better than electrical appliances.
- Many people are renters and cannot change the appliances in the homes.
- Making educational resources for communities with many renters and making resources easy to understand and effective is challenging.
- The cost burden of BE for EJ communities is often overlooked.

Many responded that they are working on the movement but few things have changed throughout the years and more barriers are stopping communities from making the switch.

We continue to learn as a community about what needs to be done to move the building electrification movement forward. As part of our educational outreach activities, we hosted a webinar presentation discussing electrification, made an easy to understand video introducing BE to families, created a [patient brochure](#) on the health harms of gas stoves, and made a [resource list](#) that allows for more information for anyone to access via our website.

Limitations

Time was an issue in making this survey available to more organizations and providing a longer response time and more direct contact info would have helped in increasing the response rate. We received 10/30 responses. Reaching out to more organizations that share a similar mission, have worked on similar projects, and having direct connections would have allowed for more responses. Given the limitations of a small sample we got consistent responses. This allowed for a great stepping stone to continue research in the right direction. Being able to reach these organizations on a more personal level rather than email alone would allow us to gain a much deeper insight of their work and knowledge about the organization's effort toward building electrification. One of the main limitations is the small sample size which means we cannot extrapolate the findings, but they do provide insights that should help guide our work moving forwards.

Conclusions

Environmental justice must be placed at the center of building electrification because burning fossil fuels negatively affects the health of minorities and low-income people. A shift to electrical appliances must take into consideration the barriers that communities of color face to making this change for their health. This shift must be seen not just in appliances and solar energy. These changes need to take into consideration other needs, including housing issues and other related public policies. Public policy must prioritize and fund environmental justice communities in the BE transition.

Garnering momentum and addressing the holistic need of communities of color in the BE movement is needed to make this transition equitable for all. Equity should be top of mind when designing and implementing building decarbonization policies, so marginalized communities do not bear disproportionate costs and have ample opportunity to reap the benefits of building electrification. Some of the solutions include governments providing financial incentives, such as tax credits or rebates, that will enable low-income homeowners to eliminate gas stove pollution, including adding plug-in induction stovetops or switching from gas to electric stoves.

Acknowledgment

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