

**Building a Sustainable City through the Decarbonization of Affordable Housing:  
A Case Study of East LA Community Corporation**

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## Introduction

It is undeniable that climate change is impacting people all around the world, with some bearing a greater part of the burden due to their geographic location, income, and race (Gardiner 2020; Morello-Frosch and Obasogie 2023). In the last few years, California has experienced a record number of wildfires, high summer temperatures, and worsening air quality. Thus, the state of California is implementing several strategies as a way to mitigate the effects of climate change (Kenney et al. 2021; Rust and Barboza 2020)

carbon dioxide and other greenhouse gas (GHG) emissions produced by buildings (Kenney et al. 2021).

Although California has pledged to completely decarbonize their buildings by 2045, it will be a challenge to accomplish this in an equitable manner (Krieger, Lukanov, and Shonkoff 2018). Several community stake(t)-21(a )-29(s)9A.7v 39(f)13challenge to accomplv acd9(l)38(o)-19(c)4(a)4(t)-2

Decarbonizing affordable housing will be an additional challenge for these organizations because they have limited capacity and funds (Kirk 2021). More specifically, it will be a challenge to decarbonize *existing housing* as opposed to new housing because existing buildings already have certain systems in place that may be difficult to remove and replace and there are tenants living in existing buildings (Kirk 2021). Moreover, unlike new buildings, which are being decarbonized through city ordinances, there is no one to enforce the decarbonization of existing buildings. Hence, this study sought to understand *how nonprofit developers in Los Angeles (LA) can support the equitable decarbonization of existing affordable housing* through the case of the East LA Community Corporation (ELACC), a mission-



## **History of East LA Community Corporation**

In 1995, four individuals founded ELACC with the purpose of transforming the Eastside through community organizing and real estate development. In its early years, ELACC focused on developing single-family homes, rehabilitating and selling homes to first-time home buyers, organizing community members to fight for affordable housing, and advocating for the development of their community. In the early 2000s, Maria Cabildo took over the position of Executive Director, shifting ELACC's focus on the development of affordable multi-family homes. During this time, ELACC also created the First

services. Today, this program, along with real-estate development and community organizing, forced to lay off half of its staff members due to financial difficulties, resulting in the community organizing department being dissolved. Although the spread of the coronavirus in the second half of the year further affected how ELACC operated, ELACC continues to work towards its mission of advocating for economic and social justice in the Eastside (ELACC 2022).

### **The Racist Planning and Development of Los Angeles**

LA was founded in 1781, through the displacement of the Chumash and Tongva tribes (City of LA 2022b). From then on, ownership of land would change from Spain, to Mexico, and finally to the United States (Torres-Rouff 2006). These changes in political power and territory marked the beginning of certain practices that would negatively impact communities of color in East and South LA. In the early 1900s, LA was advertised as a utopia where people could relax and find many economic opportunities, resulting in a population boom and congestion of traffic (Ansari 2022; Macleod and Ward 2002). However, not everyone benefited from these opportunities equally. People of color were denied access to these opportunities and many communities of color were displaced to make way for the infrastructure that was to be built to accommodate the influx of people (Estrada 2005). Additionally, racially restrictive covenants were used to keep people of color out of the neighborhoods LA was advertised for. These covenants legally allowed property owners and developers to discriminate against people of color, resulting in many settling in South LA and East LA.

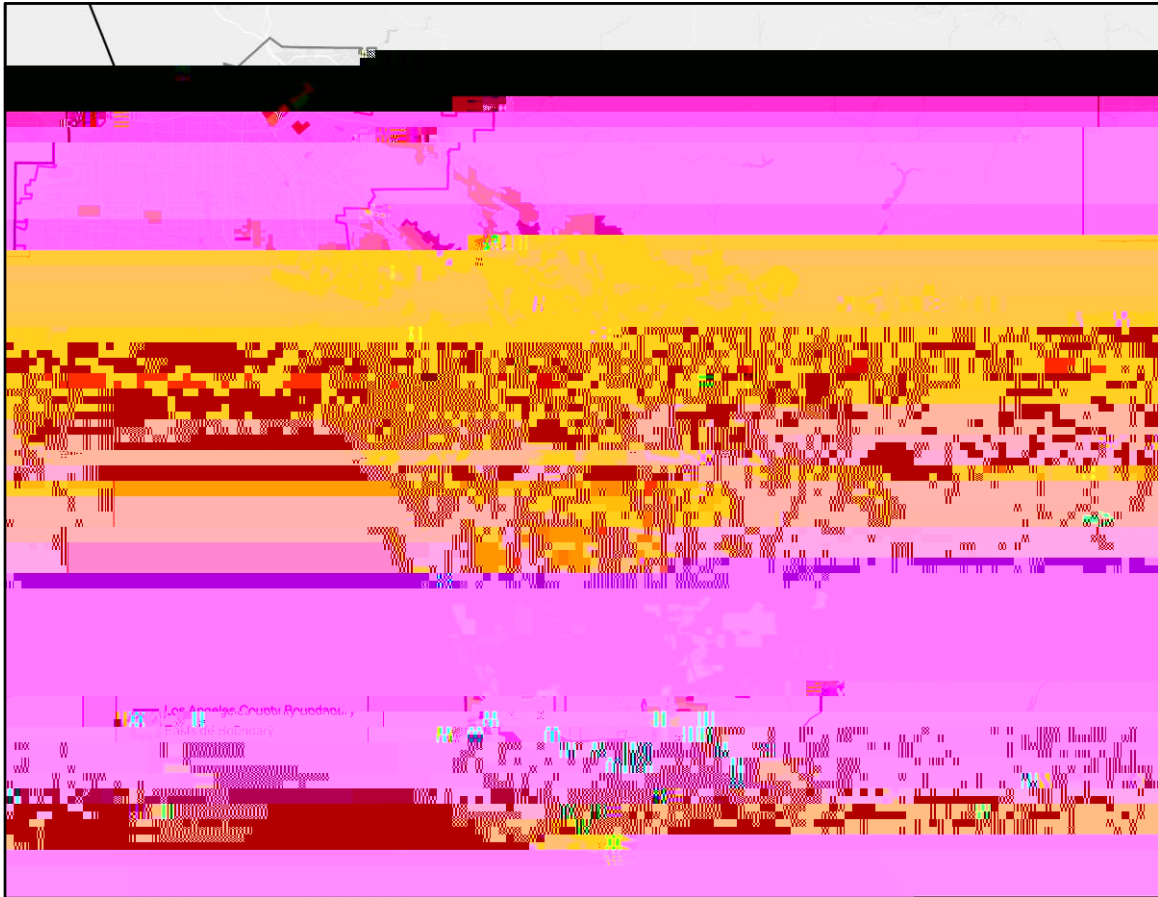
#### *Redlining in Los Angeles*

LA further became segregated through redlining practices which were a direct consequence of the National Housing Act of 1934. Redlining was created by the Home Owners

and living desirability. Neighborhoods were gi

desirable. Below is a map showing how neighborhoods in Los Angeles county were graded.

**Figure 1.** *Redlining Map of Los Angeles County*



*Source:* Data from GIS

in the Eastside, making them ineligible for loans and community investment, while also reinforcing racially restrictive covenants by denying Angelenos of color the rig or green zoned neighborhoods (Kilgore 2020). Although covenants were later deemed



recognize is that Angelenos of color have repeatedly been removed, displaced, and relocated

Angelenos came together to

establish several community organizations that continue to exist today.

### **Planning for an Equitable and Sustainable Los Angeles**









multi-family homes with more than 50 units, followed by small medium multi-family homes (3



*Building Decarbonization Pathways*

The following table summarizes the strategies the state of California has offered as pathways for building decarbonization. These strategies are not independent of each other; most, if not all, rely on the last strategy to function.

**Table 1.**

2021). Despite claiming that DACs must not be left behind in the process, Kenney et al. (2021) offer few recommendations for how to target these communities. Instead, it is Rosenberg et al. (2021) and Kirk (2021) that offer suggestions for how to do this by stating that stakeholders must focus on affordable housing preservation and tenant protections when decarbonizing buildings to ensure residents in DACs are not left behind in the process.

### *The Role of Cities in Decarbonization*

While federal and state governments play a significant role in ensuring cities play their part in building decarbonization, local governments are the one with the power to create the greatest impact (Holmes et al. 2021). Many international cities such as Oslo, Norway, have already shown results. For example, between 2015 and 2016, Oslo reduced their emissions by 16 percent through its strict climate budget plan (Vangala,







difficult to address as they exist due to existing policies and economic inequalities. These two challenges are discussed in the context of nonprofits decarbonizing affordable housing.

### *Policy Related Barriers*

Nonprofit developers who plan to decarbonize their buildings must not only conform by the regulations of their city and state, but also by those of the federal government if they receive funding from federal programs (Bartolomei 2016). While these regulations can be helpful for ensuring housing stays affordable, by forcing nonprofit developers to take extra steps, it may discourage them from decarbonizing their buildings. While California has adopted building codes to advance building decarbonization, these codes have been for new buildings, meaning that owners of existing buildings may not qualify for the incentives or programs created thereafter (York et al. 2022). In addition, there needs to be more policies that protect tenants from the negative consequences of decarbonization, otherwise it will be difficult for nonprofit developers of affordable housing to decarbonize existing buildings (York et al. 2022; Kirk 2021).

### *The Costs of Decarbonizing Housing*

It is estimated that an average of \$21,200 will be needed to decarbonize a unit; the larger the building, the more costly this will be (Kirk 2021). Scholars agree that there is a lack of funding for the decarbonization of housing (French 2022; York et al. 2022). Decarbonizing affordable housing will be even more difficult for mission driven developers, such as ELACC, because they must ensure that the low-income families they serve spend no more than 30 percent

-carbon technologies if it threatens the affordability of the housing they own (Kirk 2021). These concerns are reasonable because as York et al. (2022) explains, developers of affordable housing will have to bear high up-front











that are already a concern in LA. Although the city has made an effort to involve various community stakeholders in their role in the planning of policies and programs, there is little evidence that proves that these conversations are effectively enabling the City and their partners to decarbonize building equitably.

### **Methods**

ELACC was examined as a case of **how nonprofit developers of affordable housing can support the equitable decarbonization of their existing and future buildings** because it is one of the four cohort members of LA Retrofit. LA Retrofit is a pilot program meant to offer technical assistance and guidance when applying to the available decarbonization incentive programs. It is led by the Los Angeles Better Buildings Challenge (LA-BBC), a network created Sustainability City pLAn (LABBC n.d.). Thus, as one of the few nonprofit organizations in LA decarbonizing their existing affordable housing portfolio, ELACC provides a strong case for examining how nonprofit developers can support the equitable decarbonization of existing affordable housing.

My current internship with ELACC further influenced my decision to study ELACC because I have experienced how they plan for the decarbonization of their portfolio. During the last few months, I have participated in their meetings and learned about the incentive programs they are applying to, the specific buildings being decarbonized, and the organizations they are partnering with to complete this work. Having access to this information has allowed me to extent to which concerns around decarbonization apply to ELACC.

## Description of Selected Properties

Rosenberg et al. (2021) describes how multi-family properties tend to be overlooked when programs and incentives are provided. So, being that ELACC qualifies for the existing decarbonization programs and incentives, ELACC provides the useful case for evaluating the equitable decarbonization of affordable housing, more specifically the decarbonization of small and medium multi-family homes. The table below provides a description of the two properties ELACC plans to decarbonize.

**Table 4.** *Buildings in ELACC's Decarbonization Portfolio*

| <b>Property Profiles</b>     |  |                           |
|------------------------------|--|---------------------------|
|                              | <b>Property A</b>                      | <b>Property B</b>         |
| <b>Affordability Type</b>    | NOAH                                   | LIHTC                     |
| <b>Year Built</b>            | Built in 1905 and 1916                 | Built in 2006             |
| <b>Owner</b>                 | Acquired by ELACC in 2017              | Owned by ELACC as of 2023 |
| <b>Units/Buildings</b>       | 16 unit building + single family annex | 49 units in 4 buildings   |
| <b>CalEnviroScreen Score</b> | 94.2                                   | 98.1                      |
| <b>AMI</b>                   | \$97,900                               | \$97,900                  |
| <b>Zip Code</b>              | 90031                                  | 90023                     |

*Source: ELACC, AMI Lookup Tool, OEHHA*

Although both buildings differ in size, age, and affordability

to decarbonize their buildings can be seen as an effort of environmental justice. In prioritizing the decarbonization of affordable housing, ELACC provides a case for understanding the role of nonprofit developers in building decarbonization.

### Stakeholder Selection

The number and type of stakeholders to interview was determined according to a previous multiple-case study that examined the experiences of developers involved in three separate projects. These stakeholders included developers, architects, energy consultants, and property staff. An average of 7 stakeholders per project were interviewed to learn about the decarbonization of multifamily affordable housing in California (Outcault et al. 2022). I interviewed a total of 10 relevant stakeholders, including ELACC staff, property staff, a consultant, a tenant, and other related organizations. This was done after receiving approval from the *Institutional Review Board* on November 9, 2022. **Table 5** lists these individuals in alphabetical order and by the following categories: ELACC staff, partners and related individuals, and community.

**Table 5.** *Interview Participants*

| Name              | Role and Organization                            |
|-------------------|--|
| Adalia Rodriguez  | Vice President of Human Capital and COO at ELACC |
| Joshua Shaw       | Associate Asset Manager at ELACC                 |
| Mauricio Elizalde | Property Manager at Vallejo from ELACC           |
| Monica Mejia      | President CEO at ELACC                           |
| Veronica Leon     | Assistant Property Manager at ELACC              |
| Dave Hodgins      | Executive Director at LA-                        |

|               |   |
|---------------|---|
| Tenant        | Tenant living in Property B   |
| Frank Dieguez | Property Manager from the John Stewart Company and tenant at Property B |

ELACC has a document that lists the contact information of the individuals and organizations partnering with ELACC. I contacted at least two individuals from LA-BBC, AEA, and CRCD. These individuals then referred me to someone I could speak to or volunteered to be interviewed themselves; stakeholders were selected via convenience sampling and snowball sampling. While most stakeholders were reached through email, it is important to note that the resident was reached out to in-person and via phone because they were the only tenant that had some background in decarbonization. This participant was the only individual who attended

Interviews with relevant stakeholders, sought to learn how they are (a) overcoming the financial barriers associated with decarbonizing affordable housing, (b) minimizing the financial impact on tenants, and (c) engaging in meaningful conversations with tenants around decarbonization. Participants were interviewed between the months of January and February, with four interviews being held with ELACC staff, three with their partners and related organizations, and two with community members.

The interviews were semi-structured and carried out in both English and Spanish, with six being conducted via Microsoft Teams, two over the phone, and one in-person. During the in-person interview, two individuals were interviewed simultaneously to accommodate for time and availability. I audio-recorded the interviews for note-taking purposes with the consent of the participants. Each interview varied in length, with the shortest one being 14 minutes and longest being 61 minutes, averaging to 37 minutes per interview. **Table 6** shows a sample of questions asked to participants to obtain information about their motives for decarbonizing, challenges and



successes, programs that were applied to, and the extent of tenant involvement. For a full list see Appendix B.

**Table 6.** *Sample Questions from the Semi-Structured Interviews*

|  |
|--|
| <ol style="list-style-type: none"> <li>1. What is your perspective on the decarbonization building targets set by the City of LA for nonprofit organizations?</li> <li>2. What are some challenges in decarbonizing or supporting the decarbonizing of affordable housing?</li> <li>3. What resources have you been able to leverage for this (decarbonization) work?</li> </ol> |
|--|

Some of these questions were adapted from Outcault et al. (2022) study with the purpose of understanding the extent to which organizations such as ELACC can support the equitable decarbonization of affordable housing (Garcetti 2019; City of LA 2022a).

### **Findings and Analysis**

**stakeholders agree that there is a lack of information around decarbonization;** in particular, information around how to decarbonize and how to hold conversations around decarbonization. While it has been a learning process for all participants, stakeholders recognize that building decarbonization is necessary. High up-front costs, hidden costs, and government related barriers are among the other challenges that stakeholders repeatedly mentioned. Most interviews concluded with stakeholders offering advice for how to facilitate the decarbonization process. There are five major findings in this study that are summarized below.

|   |
|---|
| <b>Table 7.</b> <i>Summary of Findings Accompanied by Supporting Statements</i> |
|---|

|  |
|--|
| A lack of knowledge around building decarbonization. |
|--|



successfully decar

**strategies** from both the city and nonprofit organizations alike. While it is true that the city has been making an effort to inform property managers about the decarbonization related programs, it is not enough. Frank Dieguez and Mauricio Elizalde describe how they learned about energy efficiency rebate opportunities from LADWP and applied due to the agreement of ELACC.

**Without the agreement of property owners**, tenants and property managers would not be able to decarbonize the building they live in. Despite an incentive existing, if property owners are not interested in building decarbonization due to being misinformed or simply lacking the knowledge on it, building decarbonization will be difficult to accomplish.

### **Challenges Related to a Lack of Knowledge Around Building Decarbonization**

Several of the challenges mentioned in the stakeholder interviews can be attributed to the lack of information on building decarbonization. **Table 8** provides a list of these challenges in order of what was found to be more closely related to the finding discussed above, along with the total number of interviewees who mentioned these challenges. Considering how parallels can be found between what stakeholders mention and what was mentioned in the reviewed literature, categories were made according to what was previously discussed in the *Barriers to Building Decarbonization* section.

**Table 8.** *Summary of Challenges*

| <b>Building Decarbonization Challenges</b> | <b>Times Mentioned</b> |
|--|------------------------|
| 1. Lack of Knowledge/Education             | 9                      |
| 2. Timing/Convenience                      | 5                      |
| 3. Social/Cultural Barriers                | 4                      |
| 4. Financial Costs and Hidden Costs        | 5                      |
| 5. Governmental Barriers                   | 6                      |



organizational goals according to the priority of that year. This is a practice that is quite common among nonprofit organizations like ELACC already.

### *Planning for Decarbonizing*

Even so, it might be challenging to do the above successfully when one is not well informed about the process. Adalia Rodriguez mentions how **some processes are taking longer than expected** due to requiring specific information. Although ELACC is ready to hire a contractor, they cannot do so until benchmarking is complete, a process that takes over two months (interviewed on January 26, 2023). Although ELACC could have completed the benchmarking prior to considering doing the actual decarbonization work, they did not because (a) they did not know it could be done before plans were completed and (b) did not know how to complete it. Some application processes can be difficult to complete especially if one does not have the background knowledge, pointing to the fact that the lack of information around building decarbonization is **hindering** work from being done. Additionally, as a nonprofit, ELACC has **limited staffing resources**, meaning that they must **balance** between the general operations of an organization and decarbonization (Hodgins, interviewed on February 14, 2023 and Dirr, interviewed on January 27, 2023). Currently, most of the decarbonization work is being done by three or four individuals who have other responsibilities within the organization. Considering

nonprofit developers of affordable housing, this can be a **tedious and challenging process** especially if one does not have the personnel or individuals with the right experience. Meanwhile Nick Dirr and Dave Hodgins describe how **getting the required permits for unit and building inspections can also be difficult** as this is another responsibility of the owner (Dirr, interviewed on January 27, 2023; Hodgins, interviewed on February 14, 2023 ). Adalia Rodriguez further adds that a Tenant Habitability Plan is needed before decarbonizing their buildings (January 26, 2023). The challenge with this is that it **takes time** to write and get approval from the city. Once approval has been given, the owner must notify tenants 60 days before the work begins. While not necessarily difficult, **going through this process can slow down** the work being done and even the resources being received (Hodgins, interviewed on February 14, 2023).

#### **A Lack of Tenants Involvement in Building Decarbonization**

**Table 10.** *Statements Describing Social and Cultural Barriers*

| <b>Participant</b> | <b>Statement</b>   |
|--------------------|--|
| Dave Hodgins       | about this health survey or something that we're trying to do they're going to be <b>I don't have time</b> |
| Adalia Rodriguez   | <b>tenants work different hour</b>   |
| Nick Dirr          | <b>language</b> sometimes can be a challenge. You know, just finding                                       |
| Frank Dieguez      | <b>pandemic</b> the attendance of the tenants definitely   |

**In order to engage tenants, they must be persuaded that building decarbonization matters which cannot be done without informing them about what it is.** Additionally, the role of COVID-19 cannot be ignored in making the above happen. The pandemic greatly

affected how organizations like ELACC interacted with tenants because **relationship building happens most effectively in-person.**

In the month of January, ELACC arranged a meeting in which building decarbonization was to be introduced to the tenants of Property B, however they had a **low participation rate.** Besides COVID, another reason for this was because some tenants may work long and irregular hours, making them reluctant to attend meetings, especially if there is no incentive, such as refreshments or snacks







accounted for when planning to decarbonize, otherwise, costs may be passed onto tenants.



largest emitter of GHGs. By doing this, the city would also reach their building decarbonization goals and support the equitable implementation of building decarbonization.

### **City (In)Action in Implementing the pLAN**

When asked about their perspectives on the building decarbonization goals set by the city of LA, most stakeholders had a positive outlook. These targets might be aggressive, but set a standard that stakeholders agreed to be achievable. Unfortunately, as pointed out by Monica Mejia, there is little being done to support the targets outlined in the plan. Monica Mejia points out that in the 6 months that she has been part of the commission not much has been done besides hiring a foundation to write a report that was submitted to the city council. There has been no talk about the recommendations made nor any communication with the new mayor (interviewed on February 1, 2023). This is even more true for the building decarbonization targets because when asked about the resources the city has made available for nonprofits, only Adalia Rodriguez, Dave Hodgins, and Nick Dirr were able to give a response, with two individuals providing the same answer (Rodriguez, interviewed on January 26, 2023; Dirr, interviewed on January 27, 2023; Dave Hodgins, interviewed on February 14, 2023). Additionally, no stakeholder was able to answer the question about whether the city was providing any resources to support tenant engagement, pointing to a lack of outreach or resources provided by the city. Despite the city making claims on the importance of tenant involvement for the equitable implementation of decarbonization, interviews revealed how the city is not supporting that (City of LA 2022a).

### **Accomplishing Building Decarbonization through Capacity Building and Collaboration**

Among the advice provided by stakeholders, the importance of **collaboration and capacity** building was mentioned by multiple individuals (Mejia, interviewed on February 1,



4.

stakeholders, tenants and owners alike are more concerned about the issues that affect their immediate lives. Thus, the City must frame building decarbonization as a solution for healthy living in their pLAN, programming, and conversations. By doing so, tenants and owners alike may be more likely to become involved in building decarbonization and support its implementation.



do this, it would be ideal if a community based organization focused on sustainability could take on this responsibility. Either way, the goal would be for tenants and owners to experience these zero-net technologies and develop an understanding of how they work, their effectiveness, and whether it is worth the investment based on how comfortable and satisfied they feel. By bringing the equipment to the people, the public has a chance to voice their concerns, ask questions, and provide their feedback on the equipment; subsequently, enabling developers of net zero technologies to better understand their customers and reach them so that building decarbonization can be done equitably.

### **Building Decarbonization Committee(s)**

To ensure the equitable decarbonization of buildings, the city developed milestones and initiatives meant to be accomplished by 2021. However, as learned by the case of ELACC and stakeholders, not much progress has been made in regards to building decarbonization. Therefore, I recommend that the city creates a committee focused on developing and overseeing the implementation of a city-wide plan for engaging tenants and nonprofit developers in building decarbonization. While CEMO does exist, their commission is involved in a broad range of climate related issues, therefore it is necessary that a separate committee focused only on building decarbonization is created. This committee would of course work with CEMO, nonprofits, and tenants to ensure that the plan being developed is feasible and equitable. Potential housing, known developers of affordable housing who have participated in its incentive program, and through the recruitment of tenants involved in community organizations concerned with affordable housing, health, and/or sustainability.

Given that each neighborhood has different needs, it might be difficult for a single committee to create and oversee a plan that can be applied city wide, therefore it would be wise to create a committee at each of the 272 neighborhoods in LA. These committees would function in a similar fashion to neighborhood councils while also gathering data to develop a report on s would not only allow the city to identify the neighborhoods that require the most aid, but also track whether decarbonization strategies are being implemented equitably. Theoretically, the city would do this by comparing the progress of building decarbonization in DACs to non-DACs.

### **Develop a Network for the Exchange of Resources**

In addition to a committee, it would be helpful to create a network among the nonprofit developers of affordable housing. The purpose of this network would be to identify individuals or organizations that can help facilitate the decarbonization of affordable housing. These

### **City Loan Targeting Affordable Housing Nonprofit Developers**

As repeatedly mentioned throughout this paper, even with the existence of incentive programs, the high up-front costs are one of the biggest challenges and concerns with decarbonizing affordable housing. Thus, to facilitate and accelerate the process of building decarbonization, the city can offer a loan to nonprofit developers of affordable housing. Similar to a normal loan, this loan would be made available to organizations based on their ability to show proof of repayment, with priority being given to developers who are decarbonizing their properties for the first time. In this way, those who were unable to take advantage of available incentives can also decarbonize their buildings. Acquiring a loan for the decarbonization of housing would normally be difficult due to the risks involved with this type of project thus it is important that the city offers an alternative form of funds. By doing so, they can ensure that building decarbonization is implemented equitably.

### **A Decarbonization Budget for Existing Affordable Housing**

In addition to doing the above, the city can also develop a budget for the decarbonization of affordable housing in DACs. In fact, one of the stakeholders mentioned how doing so would definitely help building decarbonization be implemented equitably. The way in which this would work is that a part of this budget would go towards supporting the current incentive programs so that they can continue to offer their services, another part would go towards supporting the creation of the committees previously mentioned, and another part would go towards supporting LADWP with the demo program. To develop this budget I would suggest that the police budget is reduced to move funds into a decarbonization budget. However, the likelihood of this happening might be low, thus it is more realistic for this budget to be developed from the House LA fund and the Inflation Reduction Act.

## **Conclusion**

Although the process has not been smooth, Es n

being no incentive for taking the survey and a lack of knowledge around decarbonization. I planned to recruit tenants to survey through the tenant meeting held by ELACC, however these meetings had a low participation rate, suggesting a need for better engagement strategies. Additionally, being an intern at ELACC is a limitation in itself due to there being a certain extent of bias in this study and as a case study, this is limiting in itself because it is unknown whether what was found can be applied to other organizations.



9.  
operation of the selected community?
10. In what ways is the design, construction, and operation/maintenance of this lower-carbon building different from or similar to a typical building?
11. How have your experiences influenced decisions to build all-electric and/or ZNE buildings again in the future?
12. Have you designed or developed any lower-carbon buildings since the selected community? Why or why not?
13. What should affordable housing development teams do or not do when pursuing a lower-carbon project?
14. What resources are you able to leverage for this work? What resources or support has the city of LA made available to nonprofit developers to facilitate decarbonization work?
15. What are the key capabilities required to enable effective engagement between stakeholders (developers and residents)?
16. How can nonprofit developers effectively leverage stakeholder engagement as a resource to reduce the barriers associated with decarbonizing their building?

*Questions Asked to Community Members*

1. Can you please state your name?
2. In which community do you live?
3. How long have you lived there for?
4. How would you describe your relationship with ELACC?
5. How would you describe the current quality of your home?
6. How satisfied are you with living in this building?

7. Buildings use a lot of energy to maintain the systems used for everyday life (for example, gas for heating and cooking). When in use, these systems release carbon and other greenhouse gasses into the air that are harmful not only for the environment but for our health as well. Therefore, the city is working to make sure buildings reduce their carbon emissions by setting certain standards and goals. Do you know whether your building has plans to make changes to the systems in your building?
8. What do you think about having solar panels and electric appliances added to your home?
9. What do you think will happen as a result of your building going through these changes? What other changes would you like to see?
10. How involved have you been in the process of deciding what new technologies are added to the building you live in?
11. To what extent do you think that you should be involved in this process? Do you want to be involved in this process?
12. What are some concerns you have regarding the upgrades being planned for the building you live/work in?
13. The City of LA set goals to be net zero by 2050, meaning all systems that use gas, such as stoves, water heaters, cars, and more will no longer be used. Did you previously know about these goals? If so, how did you learn of them?



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