

Energize Denver: Putting the Human Touch in Building Decarbonization

Berenice El Gharamti, City and County of Denver

ABSTRACT

Denver, Colorado, stands at the forefront of innovative climate action and equitable urban development through its Energize Denver initiative led by the Office of Climate Action, Sustainability, and Resiliency (CASR). This paper presents how Denver has put the human touch in building decarbonization within their Building Performance Ordinance in identifying “Equity Priority Buildings” and co-creating an effort with building stakeholders, including building owners, managers, tenants, and community leaders. These efforts allowed Denver staff to co-design supportive technical assistance and incentive programs for Equity Priority Buildings necessary to ensure equitable compliance with the Energize Denver requirements. Beyond this human-centered perspective, the paper not only explores the criteria, methodology, and tools employed by Denver, including the development of an Equity Index and the segmentation of the building stock based on socioeconomic and equity factors, but it also dives into the successful strategies and lessons learned. Denver's innovative model serves as a beacon of hope and inspiration for other cities striving to address climate challenges while uplifting their most vulnerable, historically excluded, and underserved communities. This paper underscores the dynamic synergy between climate action and equity in Denver, offering valuable insights for urban planners, policymakers, and community advocates seeking to foster sustainable and inclusive urban futures.

Introduction

In recent years, cities nationwide have grappled with the urgent need to mitigate climate change and reduce greenhouse gas emissions. Among these cities, Denver, Colorado, has emerged as a beacon of innovation and progress in building decarbonization. At the heart of Denver's Office of Climate Action, Sustainability, and Resiliency (CASR) efforts lies the Energize Denver initiative, a groundbreaking endeavor that not only seeks to combat climate change but also prioritizes the human element in its approach.

The [Energize Denver requirements](#) represent a paradigm shift in how cities approach building decarbonization. Unlike traditional top-down approaches focusing solely on technical solutions, Energize Denver recognizes the importance of engaging with the community and stakeholders at every level. By putting the human touch into building decarbonization, Denver aims to not only reduce carbon emissions but also address social inequities and uplift underserved communities.

In 2021, the City adopted a [Net Zero Energy New Buildings and Homes Implementation Plan](#) (Denver Office of Climate Action, Sustainability & Resiliency 2021) to ensure that all new buildings are built to the highest standards and released the [Energize Denver Renewable Heating and Cooling Plan: Resilient Existing Buildings and Homes \(2021a\)](#), which details the opportunities, barriers, and solutions to decarbonize the City's existing building stock equitably.

The same year, Denver convened the Energize Denver Task Force (2021b) to provide recommendations for designing a building performance policy and supporting incentives for existing buildings. Denver's City Council adopted the resulting and groundbreaking Energize Denver policy in late 2021. The policy requires large multifamily and commercial buildings over 25,000 square feet to become as efficient as the 85th percentile of Denver's large buildings by 2030 and requires all multifamily and commercial buildings (regardless of size) to electrify heating and hot water systems at the time of replacement when cost-effective beginning in 2025. It also requires prescriptive energy upgrades of smaller buildings that are 5,000-24,999 square feet between 2025 and 2027 (2022c).

Within this ordinance, CASR has identified "[Equity Priority Buildings \(EPBs\)](#)" — those that require special attention and support to ensure equitable compliance with Energize Denver's requirements. Through collaborative efforts with building owners, managers, tenants, and community leaders, CASR has co-created initiatives to provide technical assistance and incentives for EPB buildings that are necessary to ensure equitable compliance with the Energize Denver policy.

As we explore CASR's approach, it becomes clear that the city's model is not just about reducing carbon emissions but building resilient and equitable communities. CASR's innovative strategies and lessons learned provide valuable insights for urban planners, policymakers, and community advocates worldwide. These strategies emphasize integrating sustainability with social equity, ensuring that environmental initiatives also address community needs. By adopting CASR's methods, planners can create more inclusive urban environments, policymakers can develop regulations that benefit both the planet and society, and advocates can champion solutions that prioritize all community members' well-being. This shifts their approach to holistic, community-centered planning that balances environmental and social goals.

Identifying Equity Priority Buildings

CASR's dedication to transparency and equity is evident in the thorough process of identifying Equity Priority Buildings (EPBs). This effort began with a comprehensive analysis of buildings 25,000 SF and larger under the Energize Denver policy, combined with an inclusive engagement strategy. As a result, CASR offers a range of supportive technical assistance and incentive programs to help EPBs meet Energize Denver requirements. The free Compliance Assistance Program provides personalized support, including energy audits, retrofit recommendations, and financing options, which will be detailed in a later section.

Initial steps involved cross-referencing building data with City internal databases and indicators to establish proxies for developing criteria to identify potential Equity Priority Buildings under the Energize Denver ordinance. Primary databases were sourced from the City's Department of Housing Affordability, which maintains a list of current deed-restricted buildings. Subsequently, an analysis was undertaken to determine an appropriate threshold for affordable units. Upon consensus¹, it was decided that buildings with at least 30% affordable units would be considered for priority designation, given that 90% of deed-restricted buildings met or exceeded this threshold.

¹ From the EPB advisory group, including representatives from housing authorities, CASR staff, city and county planning and housing departments, energy service providers, nonprofits, affordable housing providers, commercial and residential property real estate, and community leaders.

In addition to affordability, several supplementary factors were considered when developing additional criteria. These include buildings located in [Neighborhood Equity & Stabilization \(NEST\) neighborhoods](#) undergoing rapid change and cost increases, those within census tracts below Denver's median income.², and those with the potential to be Naturally Occurring Affordable Housing³. Furthermore, buildings affiliated with human service providers and nonprofits were considered. Additionally, buildings were evaluated based on their alignment with corporate social responsibility, such as offering livable wages, health benefits, local hiring practices, or contributing profits to charitable causes.

To further enhance the identification process, Denver developed an Equity Index—a tool that ranks each census tract in Denver based on environmental and socioeconomic indicators (Figure 1). This index, developed in collaboration with stakeholders and community members, is valuable for prioritizing areas of need and guiding equitable policy development and implementation.

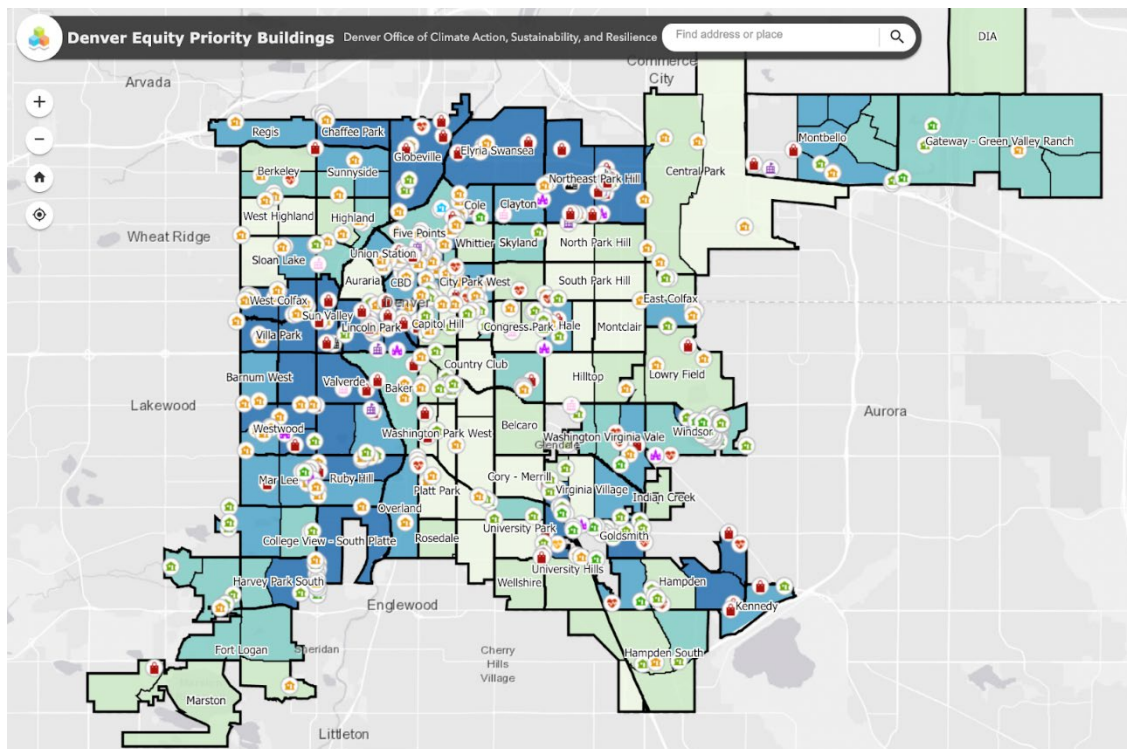


Figure 1. [Denver Equity Priority Buildings Equity Index](#)⁴. Source: Denver Office of Climate Action, Sustainability & Resiliency 2024.

The development of an Equity Index, complemented by segmenting the building stock according to the aforementioned factors and validated through inclusive engagement with

² Denver Median Income, 2022 level: \$67,000.

³ Building units have rents at or below 80% of [city housing department rent limits](#) – verified through rent rolls.

⁴Icons represent different property types. For more detailed information, please refer to the [Denver Equity Priority Buildings Equity Index](#).

stakeholders and the building community, played a pivotal role in guiding CASR's identification of potential Equity Priority Buildings. These criteria, summarized in Table 1, served as a robust framework for prioritizing buildings needing targeted support under the Energize Denver ordinance.

Table 1. Equity Priority Building (EPB) Criteria

Criteria A	Buildings with more than 30% affordable housing units.
Criteria B	Buildings that are in the NEST neighborhood with a low ranking on the EPB equity index, serving frontline community members. ⁵
Criteria C	Building has significance to the neighborhood, serving frontline community members (E.g., Building outside NEST but supporting/housing people with disabilities, low-income, etc.). ⁶
Criteria D	Buildings with human service providers (nonprofits) responsible for HVAC systems and/or utility bills.
Criteria E	Buildings located in a census tract below the Denver median income ⁷ and/or with a low ranking ⁸ on the EPB equity index, serving frontline communities.
Criteria F	Buildings that provide affordability (rents at or below 80% of city housing department rent limits).
Criteria G	Buildings where operations align with corporate social responsibility (E.g., livable wages, health benefits to employees, hiring a local workforce, donating profit to charities or causes, etc.).

Source: Denver Office of Climate Action, Sustainability & Resiliency 2022.

Following the above criteria, a building must meet criteria A, B, or C plus one or more additional criteria to be potentially identified as an Equity Priority Building. While initially identified EPBs were targeted, their ultimate classification depends on their web-based sign-up application process, which is elaborated upon in the following section. Each building that was believed to be an equity priority building needs to apply for this specific classification and be approved to receive the additional services and incentives.

Our initial analysis identified 552 buildings as potential Equity Priority Buildings. A breakdown of these buildings reveals that the majority (72%) are in the residential sector, followed by commercial properties, worship facilities, and others (Figure 2). Notably, a

⁵ Frontline communities are groups that face the effects of climate change at higher rates than those with more resources. Frontline communities have less access to health, income, and resources and have been historically excluded (CASR, Equity Priority Buildings 2022)

⁶ Intake forms or documented conversations must have demonstrable evidence to accept a building under this criterion.

⁷ Denver Median Income, 2022 level: \$67,000.

⁸ A high-priority ranking is below or equal to 85 in the equity index. The 85-score threshold includes 83% of all the potentially identified priority buildings above 25,000 ft².

significant portion (37%) of the residential sector has been identified as potentially naturally occurring affordable housing (NOAH). This finding is particularly relevant as it underscores the importance of supporting NOAH to prevent displacement and mitigate gentrification pressures in Denver neighborhoods.

Despite outreach efforts, CASR acknowledges the possibility that some buildings may have been overlooked and thus remains committed to ongoing community engagement and data refinement to ensure the equitable implementation of its policies and programs.⁹ This commitment reflects CASR's unwavering dedication to fostering fairness and inclusivity in all initiatives.

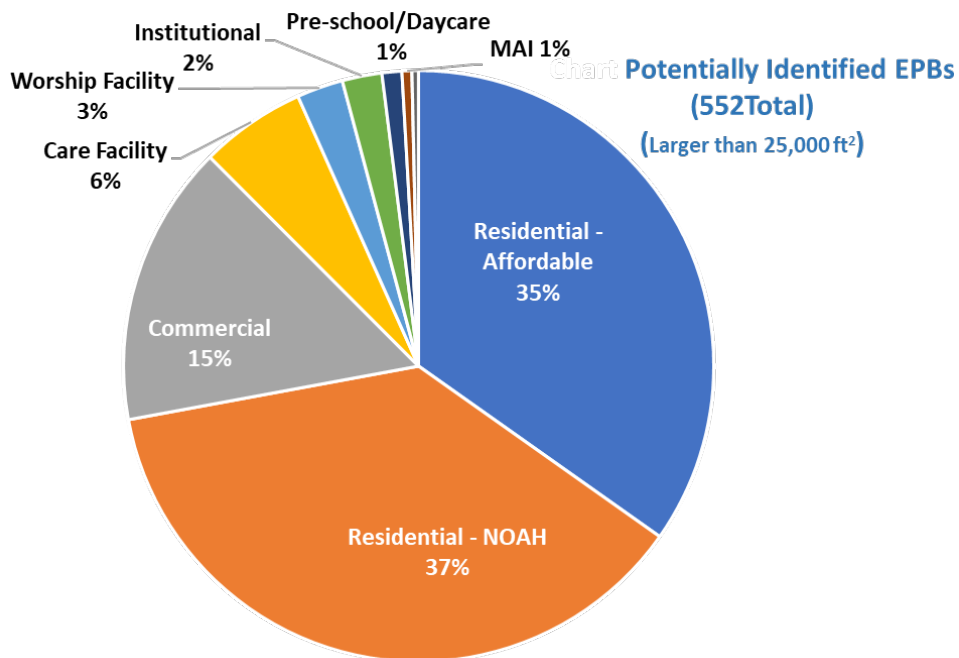


Figure 2. Identified Potential Equity Priority Buildings. *Source:* Denver Office of Climate Action, Sustainability & Resiliency 2024.¹⁰

Co-Creation Efforts with Stakeholders

CASR initiated an intensive co-creation effort with building stakeholders, including building owners, managers, tenants, and community leaders across the city. These efforts allowed Denver staff to co-design supportive technical assistance and incentive programs for equity-priority buildings necessary to ensure equitable compliance with the Energize Denver requirements.

⁹ As of May 2024, 19 buildings that were not initially identified have enrolled in the [Compliance Assistance Program](#) for Equity Priority Buildings.

¹⁰ MAI= Manufacturing and Industrial

Engagement happened throughout 2022 for buildings (25,000 SF and larger), reaching tenants, building owners, property managers, and the general public through direct conversations and surveys. The target participants for tenants included the Hispanic and Asian communities, NEST neighborhood community members, and those who live in multifamily and affordable housing. In partnership with community organizations including, Conectoras de Montbello, Far East Center, BuCu West, Adelante Community Foundation, Escuela de Guadalupe, Energy Outreach Colorado, and Enterprise Community Partners, engagement happened across the community and reached over 200 people. Engagement instruments included:

- Quantitative and qualitative surveys for tenants (residential and commercial), building owners, and property managers.
- Multilingual focus groups with community members and tenants (Figure 3).
- Virtual listening sessions with EPB owners and managers for buildings 25,000 SF and larger.
- Monthly sessions with EPB Advisory Group¹¹.
- One-on-one conversations with EPB property owners, managers, service providers, and non-profits.
- Tabling events with community members.
- Walking tours in NEST neighborhoods.

Highlighted below are the key insights gleaned from our listening sessions:

Building Tenants:

- **Cost and Safety Concerns:** A significant impact of Energize Denver policies on tenants revolves around cost and safety. Most participants allocate 40% or more of their income to rent, with 76% expressing worry about affording their energy bills. This financial strain leads tenants to compromise on comfort, risking health and safety by minimizing winter heating and forgoing summer air conditioning due to high costs. Top efficiency improvement priorities include weatherization, insulation, and window upgrades. However, renters often lack the means to address these issues due to high rents and limited control over building upgrades. Moreover, navigating energy assistance programs poses challenges, with barriers such as language barriers, excessive paperwork, and eligibility criteria hindering access for many.

Building Owners and Property Managers:

- **Engagement and Solutions:** Building owners and managers engaged in 1:1 conversations, surveys, and virtual listening sessions, where they received an overview of Energize Denver requirements and discussed potential barriers and solutions collaboratively. Proposed compliance assistance solutions encompassed education, funding, and streamlining application processes.

¹¹ The advisory group included representatives from housing authorities, CASR staff, city and county planning and housing departments, energy service providers, nonprofits, affordable housing providers, commercial and residential property real estate, and community leaders.

Table 2 outlines feedback gathered from property owners and managers on energy efficiency upgrades and compliance challenges. The comprehensive input collected through this inclusive engagement process was the foundation for CASR to collaboratively design technical assistance and incentive programs tailored specifically for Equity Priority Buildings, as detailed in the subsequent section.

Table 2: Property Owners' and Managers' Feedback at EPB listening sessions.

Top Reasons for Inaction on Energy Efficiency Upgrades	Concerns for Meeting Performance Targets	Services Needed to Support Compliance	Incentives Needed to Support Compliance
<ul style="list-style-type: none"> • Lack of understanding about rebate qualifications • High upfront costs for rebate eligibility • Difficulty accessing project financing • Limited awareness of the financial benefits of energy efficiency upgrades • Lack of understanding about rebate qualifications • High upfront costs for rebate eligibility 	<ul style="list-style-type: none"> • Competition for resources • Timing constraints • Awareness gaps • Financial challenges • Technological limitations • Historic buildings considerations 	<ul style="list-style-type: none"> • Assistance with funding applications • Help with upfront costs • Development of retrofit action plans • Development of retrofit action plans • Education on new technologies • Support with grants and utility programs • Contractor vetting • Simplified upgrade programs • Information on ROI and retrofits 	<ul style="list-style-type: none"> • Rebates • Grants and funding • Efficient HVAC systems • Building envelope upgrades • Feasibility studies

Source: Denver Office of Climate Action, Sustainability & Resiliency 2022.

Supportive Technical Assistance and Incentive Programs

CASR provides a diverse array of supportive technical assistance and incentive programs aimed at aiding Equity Priority Buildings in meeting Energize Denver requirements. [The Compliance Assistance Program](#) is a prime example, having been collaboratively designed with input from building owners, managers, tenants, stakeholders, and community leaders across the city, as outlined in the preceding section. This program, offered at no cost to buildings 25,000 SF and larger, delivers personalized support, encompassing energy audits, target adjustments, retrofit recommendations, and access to various financing options (Figure 4).

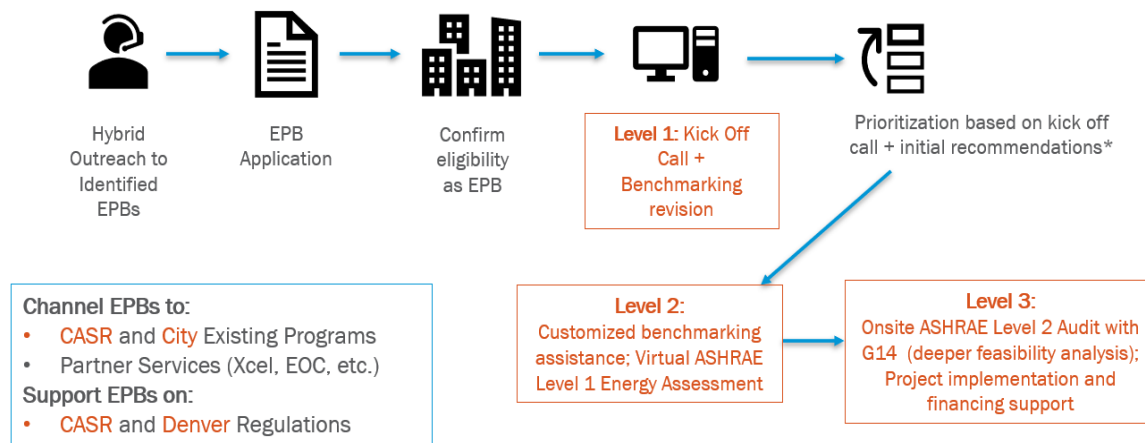


Figure 4. Equity Priority Buildings FREE Compliance Assistance. *Source:* Denver Office of Climate Action, Sustainability & Resiliency 2023.

The level of assistance Equity Priority Buildings 25,000 SF and larger under this program can receive depends on the building's equity index factors and the initial kick-off call with our help desk. This support guides EPBs on the path to implementing energy-efficient measures and renewable energy solutions to lower energy consumption and meet ordinance targets.

Table 3 presents data on the current enrollment and participation of Equity Priority Buildings in the Compliance Assistance program. Note that thanks to our outreach efforts, 32 EPB buildings were benchmarked for the first time. This strategy involved in-person visits to ensure these buildings knew the Energize Denver ordinance. Moving forward, CASR remains committed to meeting buildings where they are, as this approach has proven effective in fostering long-term collaboration towards achieving our equity and climate objectives.

Additionally, the city provides [financial incentives](#), such as [renewable energy](#) and [electrification](#) incentives, to offset the costs of energy upgrades and investments that can be stacked to current [utilities](#) and [state](#) and [federal](#) incentives. By offering supportive technical assistance and incentives, CASR aims to remove barriers to compliance and accelerate the adoption of sustainable practices among Equity Priority Buildings.

Table 3: Participation of Equity Priority Buildings in the Compliance Assistance Program by Service Category

EPB Services	Number
Potential Identified	552
Still buildings to outreach	320
Applied to the program	232
Enrolled in the EPB program	224
In compliance with the 2024 reporting	155
Benchmarked for the 1st time	32
ASHRAE Level 2 audits	24
Onsite visits in 2023	183
Buildings not initially identified enrolled in the EPB	19

Source: Denver Office of Climate Action, Sustainability & Resiliency 2024. Data as of May 2024.

Successful Strategies and Lessons Learned

CASR's experience implementing human-centered building decarbonization efforts has produced invaluable insights and lessons that serve as a blueprint for success. By employing innovative strategies, CASR has effectively engaged diverse audiences and building types across various key locations, reflecting a deliberate and considerate approach to community involvement.

Engaged stakeholders anecdotally appreciated the opportunity to voice their opinions and emphasized the importance of establishing long-term relationships. Trust in community leaders was evident, along with a strong preference for communication in native languages. Stakeholders demonstrated a willingness to actively participate and learn, with priorities focusing on health, environmental sustainability, and economic stability. Additionally, there was an appreciation for engaging local vendors to provide interpretation, childcare services, and catering and a commitment to budgeting for equitable community engagement.

One of the successful strategies employed by CASR was the development of data-driven analysis and the Equity Index. This approach not only facilitated the identification of further Equity Priority Buildings but also guided the prioritization of funding in areas with the most significant impact. Examples include the [Denver Healthy Homes](#) and [CASR electrification incentives](#). Multilingual marketing initiatives and tailored programs for historically underserved neighborhoods underscored CASR's commitment to equitable engagement¹².

CASR's success can be attributed to its co-creative approach, which prioritizes equity, transparency, and inclusivity. Key lessons learned include the importance of building trust and relationships with stakeholders, leveraging data for decision-making, and maintaining flexibility in strategy implementation.

¹² Equitable engagement includes services like childcare, refreshments, transportation, translation, interpretation, and compensation for participation.

Moving forward, CASR recognizes the need to refine additional criteria to better identify Equity Priority Buildings in the commercial sector. Aligning criteria with other CASR programs to streamline the application process for EPBs is also essential. Furthermore, there is an opportunity to influence policymakers and leaders to secure increased funding, establish more incentives for weatherizing various building types, and implement navigation programs and rebates. These measures will support health and safety improvements and energy efficiency upgrades, helping EPBs achieve compliance. Additionally, we aim to develop targeted strategies to support residential condominiums and apartments with affordable housing units and those housing essential workers as tenants. These efforts are particularly crucial for refining criteria for smaller buildings (2024j), which often face resource constraints and must comply with prescriptive energy requirements.

By sharing these successful strategies and lessons learned, CASR aims to inspire and inform other cities striving to address climate change while promoting equity and social justice. CASR remains committed to driving meaningful progress toward decarbonization goals while prioritizing the needs of its equity priority communities.

EPB Framework as a Role Model

Denver's approach to building decarbonization serves as a beacon of hope and inspiration for other cities striving for climate action and equity. By prioritizing human-centered strategies and engaging with stakeholders, Denver demonstrates that meaningful progress can be achieved through collaboration and collective action. The city's innovative initiatives and commitment to social justice offer a model for other cities seeking to address climate change while uplifting their most vulnerable communities. CASR's model highlights the interconnectedness of climate action and equity, illustrating how cities can build resilient and sustainable futures for all residents.

Moreover, CASR's approach to building decarbonization has significant implications for urban planning and policy at the local level. By prioritizing equity and community engagement, Denver demonstrates the importance of inclusive decision-making processes in shaping sustainable cities. The city's experience offers valuable lessons for other local jurisdictions seeking to develop and implement effective climate policies and programs. Key factors for success include the need for data-driven analysis, a solid budget, the prioritization of stakeholder engagement, and allowing flexible and adaptive approaches. By learning from CASR's experience, other cities can enhance their own efforts to address climate change while promoting equity and social justice.

Denver's impactful approach has already begun to influence neighboring jurisdictions, as evidenced by Boulder County's recent launch of an incentive program to support Equity Priority Buildings (Boulder County 2024). This ripple effect underscores the transformative potential of Denver's model, serving as a catalyst for broader systemic change and inspiring collective action toward a more sustainable and equitable future for all.

Conclusion

Energize Denver, spearheaded by the Office of Climate Action, Sustainability, and Resiliency, exemplifies a transformative approach to building decarbonization that intertwines

climate action with social equity. By infusing the human touch into its policies and programs, Denver has demonstrated its commitment to combating climate change and uplifting its most vulnerable communities.

Through collaborative efforts with building stakeholders and the community, CASR has developed innovative strategies for identifying and supporting Equity Priority Buildings (EPBs). The meticulous process of criteria development, inclusive engagement, and creating an Equity Index has ensured that resources are targeted towards areas of greatest need.

The success of Denver's approach is evident in the robust participation of EPBs in the Compliance Assistance Program. By providing tailored technical assistance and financial incentives, CASR has removed barriers to compliance and accelerated the adoption of sustainable practices.

Additionally, CASR's model serves as a role model for other cities grappling with the dual challenges of climate change and social inequity. The city's emphasis on data-driven analysis, stakeholder engagement, and flexibility in strategy implementation offers valuable lessons for policymakers worldwide.

As Denver continues to refine its approach and expand its impact, the ripple effect is already being felt beyond city limits. Neighboring jurisdictions are beginning to emulate Denver's initiatives, highlighting the potential for systemic change inspired by collaborative action.

In conclusion, Energize Denver embodies the interconnectedness of climate action and equity, offering a blueprint for building resilient and sustainable communities. Denver paves the way toward a more inclusive and equitable future by strongly emphasizing the human element in building decarbonization efforts.

References

Boulder County. 2024. "Partners for a Clean Environment PACE Equity Priority Buildings." Accessed February 2024. www.pacepartners.com/program-areas/energy/.

Denver Office of Climate Action, Sustainability & Resiliency. 2021. "Denver's Net Zero Energy (NZE) New Buildings & Homes Implementation Plan." www.denvergov.org/files/assets/public/v/1/climate-action/documents/denver-nze-implementation-plan_final_v1.pdf.

———. 2021a. "The Energize Denver Renewable Heating and Cooling Plan." www.denvergov.org/files/assets/public/v/1/climate-action/documents/hpbh/renewable-hampc/denver-renewable-heating-and-cooling-plan_june-2021.pdf.

———. 2021b. "Energize Denver Taskforce." www.denvergov.org/Government/Agencies-Departments-Offices/Agencies-Departments-Offices-Directory/Climate-Action-Sustainability-Resiliency/Cutting-Denvers-Carbon-Pollution/High-Performance-Buildings-and-Homes/Energize-Denver-Task-Force.

———. 2022c. "Energize Denver Policy." www.denvergov.org/Government/Agencies-Departments-Offices/Agencies-Departments-Offices-Directory/Climate-Action-

[Sustainability-Resiliency/Cutting-Denvers-Carbon-Pollution/High-Performance-Buildings-and-Homes/Energize-Denver-Hub](#).

- . 2022d. “Property Owners' and Managers' Feedback at EPB listening sessions.” [www.denvergov.org/Government/Agencies-Departments-Offices/Agencies-Departments-Offices-Directory/Climate-Action-Sustainability-Resiliency/Cutting-Denvers-Carbon-Pollution/High-Performance-Buildings-and-Homes/Energize-Denver-Hub/Buildings-25000-sq-ft-or-Larger/Performance-Requirements-NEW/Equity-Priority-Buildings-Compliance-Assistance](#).
- . 2023e. “Equity Priority Buildings Criteria.” [www.denvergov.org/Government/Agencies-Departments-Offices/Agencies-Departments-Offices-Directory/Climate-Action-Sustainability-Resiliency/Cutting-Denvers-Carbon-Pollution/High-Performance-Buildings-and-Homes/Energize-Denver-Hub/Buildings-25000-sq-ft-or-Larger/Performance-Requirements-NEW/Equity-Priority-Buildings-Compliance-Assistance](#).
- . 2023f. “Identified Potential Equity Priority Buildings.” Unpublished data, last modified February 2024.
- . 2023g. “Equity Priority Buildings FREE Technical Assistance.” [www.denvergov.org/Government/Agencies-Departments-Offices/Agencies-Departments-Offices-Directory/Climate-Action-Sustainability-Resiliency/Cutting-Denvers-Carbon-Pollution/High-Performance-Buildings-and-Homes/Energize-Denver-Hub/Buildings-25000-sq-ft-or-Larger/Performance-Requirements-NEW/Equity-Priority-Buildings-Compliance-Assistance](#).
- . 2024h. “Denver Equity Priority Buildings Equity Index.” Accessed February 2024. [www.geospatialdenver.maps.arcgis.com/apps/webappviewer/index.html?id=784fff300fcb4b73b0088d622d76271a](#).
- . 2024i. “Participation of Equity Priority Buildings in the Compliance Assistance Program by Service Category.” Unpublished data, last modified February 2024.
- . 2024j. “Energy Requirements for Buildings 5,000 – 24,999 SF.” [www.denvergov.org/Government/Agencies-Departments-Offices/Agencies-Departments-Offices-Directory/Climate-Action-Sustainability-Resiliency/Cutting-Denvers-Carbon-Pollution/High-Performance-Buildings-and-Homes/Energize-Denver-Hub/Buildings-5000-24999-sq-ft/Compliance-Guide](#).

Denver Office of Economic Development and Opportunity. 2023. “Neighborhood Equity & Stabilization (NEST).” [www.denvergov.org/Government/Agencies-Departments-Offices/Agencies-Departments-Offices-Directory/Economic-Development-Opportunity/Neighborhood-Equity](#).