

How Denver Passed its Ambitious Commercial and Multifamily Building Performance Standard, and How Your City Can Too

Christine Brinker, Southwest Energy Efficiency Project

Katrina Managan, City and County of Denver

Kathie Barstnar, NAIOP Colorado

Stephen Shepard, Building Owners and Managers Association of Colorado

ABSTRACT

Denver, Colorado passed one of the country's most ambitious and robust climate policies for commercial and multifamily buildings, projected to reduce the existing building sector's carbon dioxide by emissions 80% by 2040. What's more, the policy passed City Council unanimously with essentially no public opposition and was based on 100-percent-consensus recommendations from a Task Force comprised of "uncommon allies" – building owners and managers, developers, affordable housing, tenant advocates, labor, oil and gas, utilities, climate advocates, energy practitioners, and racial equity/community justice advocates.

How did we do it? In this paper we'll take a closer look at what worked, what we learned, and how other cities can follow the same path. From three diverse perspectives representing building owners and developers, climate advocates, and city staff, we'll explore exactly how the City and the Task Force:

- Brought an inclusive and diverse set of stakeholders to the table, facilitated difficult and complicated discussions, incorporated community engagement, and reached 100% consensus;
- Grounded the policy in racial equity and environmental justice for historically disadvantaged and under-resourced communities, including through the committee make-up, policy development process, and ultimate policy design;
- Built the policy from the latest-and-greatest BPS model, incorporating improvements learned from other cities and local data analysis;
- Crafted an efficiency and renewable energy strategy that incorporates flexibility, rewards early action, and yields firm greenhouse gas reductions;
- Designed an electrification strategy that recognizes technology readiness, understands unique building types and mechanical systems, and acknowledges economic realities;
- Expanded opportunities for a local trained workforce; and
- Built a bridge between the aspirational and the achievable.

Introduction

Denver City Council unanimously passed the Energize Ordinance at the end of 2021, a bold policy to slash carbon emissions from commercial and multifamily buildings. The policy brings Denver's existing building stock to nearly carbon-free levels over the next two decades, using a combination of energy efficiency, renewable energy, and zero-emission heating and water heating. It improves health and equity, creates living wage local jobs, cumulatively reduces

11.8 million tons of carbon emissions between now and 2040, and delivers over \$1 billion in benefit through avoided social cost of carbon. (Denver 2021d).¹

The ordinance establishes weather-normalized site energy use intensity (EUI) targets for commercial and multifamily buildings 25,000 square feet and larger by building type, a choice of a high-efficiency lighting upgrade or solar for buildings 5,000-25,000 sq. ft., and electrification requirements at the end of system life for all existing buildings.

The comprehensive policy was designed and unanimously approved by a Task Force bringing the voices of commercial real estate, building owners and managers, residents and tenants, labor, utilities, oil and gas, racial justice, solar, energy efficiency, energy modeling, and climate advocacy. Both the policy and the process to get there deserve replication nationwide.

The Backdrop

Denver's efforts for a robust building performance standard started with strong community support and city-wide goals, advantages that not all cities enjoy. The City has goals to reduce overall greenhouse gas emissions 65% by 2030 and 100% by 2040 from a 2019 baseline, and interrelated goals for renewables, zero waste, and transportation efficiency. (Denver 2021c). Denver's existing building owners and operators have been taking concerted actions towards sustainability for years. For instance, the Building Owners and Managers Association of Metro Denver (BOMA Denver) established a sustainability committee in 1995 and a green leasing guide in 2005. NAIOP Colorado has participated in various Task Forces to help guide and develop policies and programs to ensure technological feasibility and fiscal attainability. Partly as a result, Denver buildings performing higher than average compared to their peers nationally. For example, the median ENERGY STAR score for buildings in Denver is a 68 compared to a national 50 (Denver 2022).

Furthermore, Denver voters made clear on a couple instances that they recognized the urgency of climate crisis and demanded stronger climate action. This included raising the local sales and use tax by 0.25% to create the Climate Protection Fund (CPF), generating up to \$40 million per year and establishing the Denver Office of Climate Action, Sustainability and Resiliency, or CASR (Denver 2021c). In part to head off additional ballot initiatives that would lack a robust collaborative process, the City formalized a broad Climate Action Task Force to comprehensively discuss all options and policy levers. That group, a predecessor to ours, recognized the significant role of existing buildings and set a goal for existing buildings as a whole to reach net zero by 2040. For reference, commercial and multifamily buildings are responsible for 49% of Denver's greenhouse gas emissions (Denver 2021b).

Even without such strong community backing or history, another city could still implement its own building performance standards with the right process and promotion of benefits.

Step 1: Start with Benchmarking

Like nearly every other large city in the U.S., Denver has a benchmarking policy already in place, requiring large building owners to measure, track, and report energy use. Overall energy use per building is posted on a city map at www.energizeddenver.org (see Figure 1). Benchmarking policies work by applying market pressure and allowing transparent data so that:

¹ The social cost of carbon is defined as the cost of the damages created by carbon dioxide emissions.

- Building owners and managers can compare their properties to similar properties;
- Building owners and managers can prioritize upgrades across their portfolio; and
- Investors and tenants can select high-performing properties.

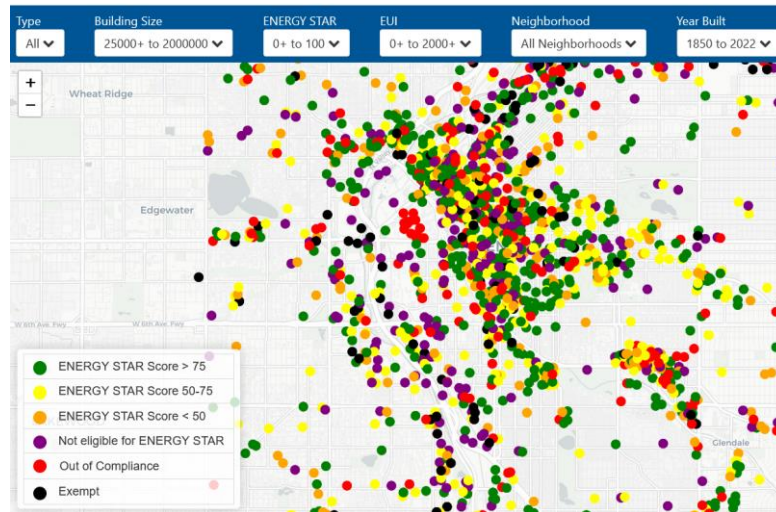


Figure 1. Energize Denver Benchmarking Map. *Source:* Denver 2022.

A benchmarking policy is the necessary foundation for a building performance policy. It builds building owner and public awareness of existing building energy use, sets up the internal city infrastructure for collecting and managing data, and provides a numeric baseline to measure progress. For cities without benchmarking in place, a building performance policy is still possible – benchmarking would simply be the first component of the policy.

Denver’s experience with benchmarking matches that of the more than 40 other U.S. cities with benchmarking in place – it does mildly reduce energy use, but not at a pace fast enough to meaningfully stem the climate crisis. In Denver’s case, its high growth rate caused overall energy use to continue to rise. Benchmarking is therefore necessary but not sufficient.

Step 2: Form the Right Task Force

To be successful, the Task Force has to have all the right voices and expertise at the table. From the perspective of commercial real estate, building owners, and building managers, having a role in shaping the policy is better than simply being told what the policy will be. Being active partners in the process allowed us to make sure the policy would be ambitious yet achievable and would result in “eager compliance” rather than denial and delay. What’s more, we could speak to the broader economic value that results from our city’s reputation as a leader in this area. The building-sector representation along with the oil and gas representation and utility representation brought these financial and business advantages and realities to the table, the design and engineering representation ensured the policy would be technically sound, the energy modelers checked the progress of the recommendations against the end goals, the resident/tenant/non-profit housing representatives looked out for Denver’s more vulnerable residents, the labor representation made sure the current and future workforce will be prepared and ready (and will come from within Denver to the highest degree possible), the community advocates ensured the

benefits would be widely felt in every corner of Denver, and the climate advocates challenged the group at every step to stretch a bit further while bringing climate-policy-specific expertise.

Step 3: Set the Right Goals

With that in mind, we set additional guiding principles for our draft policy to be achievable, implementable, understandable, flexible, effective, and supported by building owners and managers.



Step 4: Address Equity and Racial Justice Upfront (Not as an Afterthought)

dedicated subgroup, and agreeing on an Equity Lens to evaluate our work.² In addition, the Task Force itself was racially diverse, and included members speaking for historically underrepresented and disproportionately-impacted communities.

The Task Force centered its focus on race because of an understanding that designing for racial equity results in improvements for all groups. In partnership with the city's Office of Social Equity and Inclusion, the Task Force challenged itself – and the City in implementing its recommendations – to not just apply an equity lens to ‘deliver benefits to people of color’ or ‘avoid unintended consequences for people of color’, but also to measure those benefits in their process and throughout implementation. Equity metrics or indicators include reduced energy burden, lower exposure to carbon monoxide leaks from gas equipment, and improved housing quality.

To help quantify the benefits and avoid unintended consequences for people of color, we asked specific questions to inform our Equity Lens:

- Are we on the right track to provide benefits to people of color through decreased monthly energy bills?
- Are we on track to benefit people of color through improved housing quality (including improved ventilation and thermal comfort)?
- Are we on track to avoid increased housing costs for, and/or displacement of, people of color?
- Are we on track to benefit people of color through safer living spaces with less carbon monoxide risk?
- Are we on track to benefit people of color by lowering exposure to indoor air pollutants that impact asthma rates?

The Task Force recommended extra support for under-resourced buildings – including both technical assistance and financial assistance. Under-resourced buildings are identified as buildings in areas with high Social Equity Index scores (utility burden, income stress, asthma rates, racial composition) and buildings with affordable units or otherwise serving under-resourced communities (see Figure 3).

² For its racial equity expert, the Task Force brought in Dr. Dwinita Mosby Tyler with the Equity Project, www.theequityprojectllc.com. Dr. Tyler led the Task Force through discussions about the history, context and meaning of racial equity, and what it means in the context of a building performance policy and for the work of this Task Force. Jeremy Hayes from Upright Consulting also supported the Task Force's Equity Working Group.

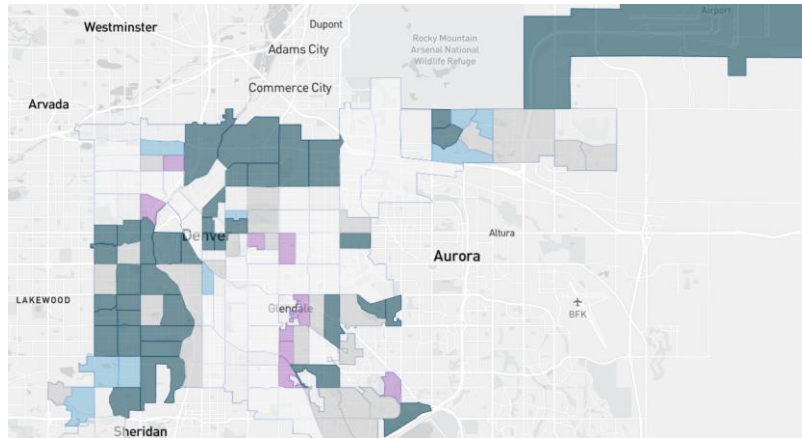


Figure 3. Social Equity Index: Weighted social equity indicators including utility burden, income stress, asthma rates, racial composition. *Source:* Denver 2021e.

Step 5: Run Task Force Meetings at Maximum Effectiveness

Denver city staff and consultants essentially ran a master class in effective Task Force organization and facilitation, even with only eight full meetings and roster of busy professionals. Here are some of the techniques used to shepherd the process through efficiently, smoothly, and agreeably, while addressing both the big picture and the nitty-gritty technical details:

- If budget allows, bring on an independent facilitator. A qualified person in this role can act as an advocate for members' procedural interests while remaining impartial to the substance of the issues under discussion.³
- Lay out the topic of each of the eight meetings at the beginning of the process (and stick to it) to make sure you stay on track.
- Provide background materials, the upcoming presentation, the agenda, and the previous meeting's notes a week ahead of time.
- Offer an optional briefing a week before each meeting to bring members up to speed; members are expected to either attend or watch/read on their own time before the full group meeting.
- Start each meeting, subgroup, and briefing with a couple of slides outlining the goals of the Task Force, in part for the public listening in who may not have listened to previous meeting and in part to ground the group.
- Model and present the greenhouse gas reductions and/or energy reductions from the Task Force's recommendations to date to determine if they are on track to meet the target, and how big of a gap is remaining. The tool used by the Task Force, developed by Group14 Engineering, allowed the Task Force to turn on and off different policy options for different building sizes and types to see the impact on carbon budget, cost effectiveness, implementability, renewables goals, and grid impacts.
- Present a selection of suggestions, examples, and best practices about the meeting's main topic in the first 15 minutes or so.

³ The Energize Denver Task Force used Ryan Golten of the Consensus Building Institute, www.cbi.org.

- Allow for open but facilitated discussion (making use of the “raise hand” function in the case of virtual meetings), and make sure to invite comments from members that have not been vocal.
- Run several smaller working groups between full meetings to hammer out details, then present the proposals at the next full meeting. Denver’s subgroups included climate solutions, workforce, and equity.
- Build a working draft of recommendations as you go along, rather than waiting until the end of the process. The draft can start with framing the goals so that by the second meeting it is already partially filled. Consider an online shared document accessible to Task Force members so they can add comments, questions, or wording suggestions.
- Rather than waiting for explicit acceptance from each Task Force member and for every item, listen to for the general “sense” of the group, expand into more detail in the working draft between meetings, and in the next meeting summarize “Here’s what we heard you say....”
- Periodically query if the recommendations are generally on the right track, via, for example, a thumbs up, down, or sideways.
- Continually seek compromise and remind members that no one will get exactly everything they want or need.
- Include an additional section in the working draft to park ideas that either do not have enough impact or need more technological advances to be a realistic requirement today, but that could be worth considering later.
- Check with the Task Force to ensure consensus was reached at every step along the way before finalizing Task Force recommendations.

Step 6: Choose the Right Performance Metric and Policy Design

Several cities had already established Building Performance Standards for large commercial and multifamily buildings when Denver started its own process, so we could look to what worked and what didn’t in each case and choose the model most likely to be successful. We needed a metric or compliance mechanism that is:

- Easy to understand,
- Within the control of the owner, and
- Flexible enough to accommodate unique and varying buildings.

Here’s what we chose, and why. These decisions were informed by the Policy Design Tool⁴ Denver developed that let the Task Force consider the carbon, cost, and equity implications of many different policy options. Policy options considered were informed by reviewing what had been tried and considered in other cities.⁵

⁴ Developed by Group 14 Engineering for Denver.

⁵ Information on other cities was provided by Sean Denniston from the New Buildings Institute and Zack Hart from the Institute for Market Transformation.

EUI for Medium and Large Buildings

In trying to find the right metric or mechanism to meet those policy goals, we looked at several models. ENERGY STAR scores were deemed too much of a moving target and did not cover a wide enough array of building types. Greenhouse gas emissions per building were deemed too far out of the control of the owner, too dependent on selecting the appropriate grid emission factor, and too variable daily and annually to capture accurately. Prescriptive options were deemed too rigid for larger buildings, and too opaque about the level of energy savings that would actually be achieved.

We selected energy use intensity (EUI, or energy use per square foot) as the metric for medium and large buildings over 25,000 sq. ft., and further refined it to weather-normalized site EUI with building sector targets and individual building trajectories. To explain further, a long-term performance target will be set for each building type (hotels, offices, multifamily, warehouses, etc.) and individual building will have their own trajectory or glide path to achieve that target, with binding 2024 and 2027 interim targets. Targets are set for every covered building type in Denver such that a 30% total energy savings across all covered buildings is achieved. About 15% of the buildings in each sector are already performing better than the final targets that will be set, and these high performers will have to do nothing under the proposed requirements.

This is not as complicated as it may sound. Essentially, a building owner will know “here’s where you are,” “here’s where you need to get to,” and “here’s your trajectory to get there.” We especially appreciate that this policy approach:

- Uses a simple benchmarking number outputted from ENERGY STAR Portfolio Manager;
- Rewards already-high-performing buildings, requires only mild improvements for buildings in relatively decent shape, and puts more focus on lower-performing buildings; and
- Allows building owners flexibility to determine how to meet their targets most cost-effectively.

In Figure 4 below, you can see how this would work for offices. Offices will have a target of 48.3 KBTUs of energy used per square foot per year.

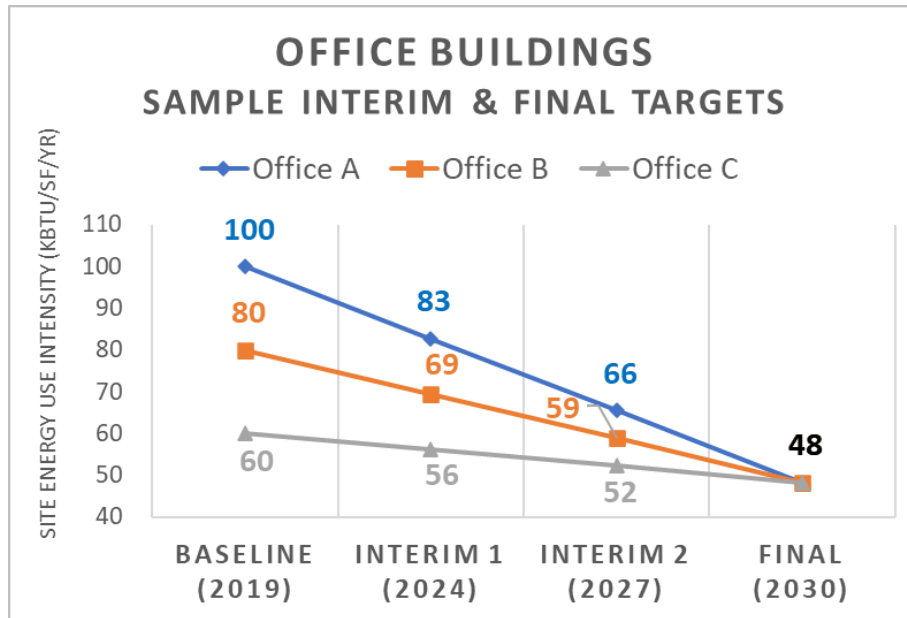


Figure 4. Example of sector-specific end targets and individual building glide paths. *Source:* Denver 2021f.

To meet target EUIs, individual building owners must improve their building's energy performance through energy efficiency improvements and retrofits, installing solar, and/or upgrading to zero-emission heating and water heating systems (beneficial electrification).

Energy efficiency measures could include, but are not limited to, insulation, air sealing, high-performance windows, duct sealing, recommissioning, lighting controls, smart thermostats, efficient water fixtures, building operator certification, and more. In short, each building owner can choose what measures make the most sense for each building.

Buildings will demonstrate compliance through the building's annual Energize Denver Benchmarking submission. Figure 5 below shows the overall timeline for compliance for buildings more than 25,000 sq. ft.



Figure 5. Timeline for compliance with benchmarking and building performance standards for buildings larger than 25,000 sq. ft. *Source:* Denver 2021e.

Incorporating Renewables

Although efficiency and renewables have different resilience and climate impacts, and are not direct substitutes for one another, the Task Force decided to allow building owners the option of pairing solar with efficiency to help meet the targets. Solar will be allowed to lower the net EUI of the building on a one-to-one basis (i.e., producing one kilowatt-hour [KWh] of solar will be considered equivalent to reducing energy use by 1 KWh).⁶ Onsite solar is preferred, but local offsite solar installations and contracts will be allowed. Off-site solar will be revisited every three years as utility-scale solar is increasing. Some of Denver's buildings, including some of our older multifamily buildings with boiler-based heating and water heating, would have an especially difficult time meeting efficiency-only standards without the option for renewables.

Incorporating Flexibility

Flexibility is built in at each juncture. We recognize that each building has unique design and market characteristics, even between buildings with a similar size, age, location, and function. With proper justification, building owners can:

- Request an adjusted end goal (i.e., the target EUI) due to inherent characteristics of the building or a substantial change in use.
- Request a different compliance timeline that is more cost-effective or feasible. This allows upgrades to be timed around such things as end of equipment life, refinancing for capital constrained affordable housing, change of a major tenant, or a major renovation. In applying for this adjustment, justification will need to include the reason for the delay, a simple plan for achieving the target EUI in the future, and proof that easy items have been completed.
- If less than 100,000 sq. ft., use prescriptive options for the interim targets.

Such flexibility allowed the Task Force to continue working on the bigger policy details, rather than getting derailed into very specific building situations. More importantly, such flexibility gives building owners assurance that regardless of their current or future circumstances, they will be able to meet the goals in an acceptable way.

Finally, we built in periodic reviews of the overall policy at least every four years to assess technological advancements, cost-effectiveness, and pathways to achieve the goals.

Prescriptive Menu for Smaller Buildings

For smaller commercial and multifamily buildings 5,000-25,000 sq. ft., a traditionally hard-to-reach market for efficiency programs, we turned towards more simplicity. These smaller buildings have two choices, due by 2025:

- Complete a lighting upgrade; or
- Install or buy solar to meet 20% of the building's energy usage

⁶ Crediting solar just based on its marginal emissions improvement compared to the grid would more accurately reflect actual greenhouse gas emissions reductions. However, for the Task Force, simplicity and flexibility for building owners took precedence.

The Task Force limited the choices to two, and identified these two measures in particular, for ease of implementation on the part of small business owners as well as city staff.

Manufacturing and Agricultural Buildings

The Task Force recognized that an EUI approach is not the correct metric or mechanism for manufacturing and agricultural operations. However, these buildings still contribute a significant part of Denver's overall greenhouse gas emissions, so they cannot be ignored completely. To address this, manufacturing and agricultural buildings will have their own rule that will be developed in a separate process with input from manufacturing and industrial stakeholders.

Step 7: Incorporate Zero-Emission Heating and Water Heating (Beneficial Electrification)

Detailed modeling presented and adjusted throughout the process demonstrated that the energy efficiency and renewable components alone wouldn't achieve the necessary greenhouse gas reductions. More needed to be done. The Task Force turned to another policy lever under the city's control: permitting for heating and water heater system replacements. In particular, swapping out gas-fired systems for high efficiency electric heat pump-based systems ("beneficial electrification") yields significant overall savings. Given recent and dramatic improvements in heat pump technology – both in terms of cold-climate performance and cost – heat pumps and heat pump water heaters have transitioned from a specialty product to a practical and increasingly common solution in the Denver metro area. Heat pumps are still less common from retrofits than for new construction, though, so a targeted approach was necessary.

Although many people understandably think of heat pumps as a heating solution, in Colorado they are especially useful as a cooling solution too. This is where the retrofit benefits are amplified: approximately 30% of Denver households do not have air conditioning, primarily in older buildings as well as most households in low-income communities. As temperatures rise, more residents will need air conditioning to stay healthy and safe. With the increase in air pollution from intense and frequent wildfires, longstanding Colorado cooling methods, like opening windows at night or using swamp coolers, are no longer healthy options. In addition, in 30% of low-income homes in Denver today, gas equipment fails carbon monoxide tests, compared to less than 5% of market rate homes, and the vast majority of these low-income homes lack carbon monoxide detectors. Thus, electrification has a strong equity component (Denver 2021a).

From an environmental, financial, and practical perspective, it only makes sense to switch each gas-fired system at the end of its useful life. For cost reasons, we accepted that supplementary gas heating should be allowed in retrofits for those extra cold days. Also, we recognized that some systems can more easily and cost-effectively convert to heat pump-based solutions than others. Finally, we also acknowledged that the market readiness will continue to rapidly improve in the next few years. Given these factors, the Task Force designed a nuanced and detailed electrification strategy for all commercial and multifamily buildings that gradually moves towards all-electric high-efficiency HVAC and water heating in the following phases:

- 2022: Provide incentives for heat pump and heat pump water heater feasibility reports compared to a like-for-like replacement with gas and begin getting incentives ready for heat pump installations.
- 2023: Offer incentives for heat pump installations for “easy to electrify” systems. Make the permitting process equal. (Permitting requirements for replacing gas equipment with electric are more costly and time-consuming than replacing like-for-like.) In this phase, getting a permit for a gas-fired system will require submitting an electrification feasibility report, testing and repairing gas leakage, and/or right-sizing the equipment.
- 2025: Switch incentives to only under-resourced buildings and “harder to electrify” buildings. Require heat pump-based systems at time of system replacement for the “easier to electrify” systems – furnaces, rooftop units, and water heaters. Requirements only apply when near cost parity (e.g., within about 10%, including the social cost of carbon) and where technically feasible.
- 2027: Require heat pump-based systems at time of system replacement for the “harder to electrify” systems – boilers, PTACs, and “other.” Again, these requirements only apply when near cost parity and where technically feasible.

Grid capacity and grid emissions are common points brought up in electrification discussions. In Denver’s case, Xcel Energy’s electric system is already built to withstand high air conditioning load during the summer. Therefore, winter heating needs can shift to electricity without significant infrastructure build-out or capacity constraints at least through approximately 2030. Xcel Energy is also a key partner with cities and community groups in planning for the coming transition to all-electric heating and water heating, they are creating a new Beneficial Electrification Plan to maximize all cost-effective electrification (as required by state law) and is undertaking gradual capacity expansions through routine Public Utility Commission planning and approval processes. In addition, Xcel Energy is on track to be 80% renewable by 2030 (if not sooner) and is aiming for 100% carbon free by 2050, making high-efficiency all-electric HVAC and water heating a clear emissions win (Denver 2021a).

Step 8: Address Workforce Training and Labor

Even the best building performance standard will not work without a trained workforce to operate the buildings efficiently, or to design, plan, and implement improvement projects. Job opportunities from a building performance standard include building operators, energy modelers, and energy auditors, as well as sales technicians, installers, electricians, plumbers, and maintenance technicians for energy efficiency measures, renewables, and the market transition to high-efficiency heat pumps. What’s more, to have the highest benefit for the city, these new jobs resulting from the policy need to come with within city limits to the highest degree possible, need to bring in additional workforce from historically-disadvantaged communities, need to help existing workers transition from fossil fuel-based jobs to clean economy jobs, and need to provide livable, family-sustaining wages and benefits. The Task Force recommended that incentive dollars be prioritized for companies and organizations meeting some or all of those aims.

Targeted training programs and placement programs will complement the incentives and labor best practices. To maximize effectiveness of these, the City will work with local workforce partners, pre-apprenticeships, school districts/community colleges, and community-based

organizations to create training and certification opportunities and a long-term pipeline of workers.

As noted above, one the subgroups focused on workforce training and workforce needs, so the recommendations could provide robust, specific, and detailed pathways, partnerships, certifications, and research gaps.⁷

Step 9: Engage the Public Throughout

Keeping the process open and transparent, and making a concerted effort to engage the public every step of the way, ensured widespread community support and no “surprise” objections or backlash at the end. To accomplish this:

- Public meetings were livestreamed, recorded, and posted;
- All meeting materials and notes were posted;
- Written public comments were accepted throughout;
- Task Force members kept their own constituencies informed;
- The City helped Task Force members set up and present briefings and feedback sessions with their constituencies;
- Two public input sessions were held, one more general and one more technical, and these were recorded and posted;
- A public survey was widely distributed, including a concerted effort to reach historically underrepresented voices;
- City Council had additional opportunities to hear resident and business feedback; and
- A press release and press briefing explained the goals and outputs of the process with links to the appropriate materials.

Step 10: Plan for Implementation

The Task Force recommended, and the City plans to provide, extensive support for building owners and managers with compliance. In each step, under-resourced buildings will get extra support. Immediately upon passage, the City began standing up the Energize Denver Hub, a one-stop-shop for compliance information, how-to guides, checklists, case studies, incentives, utility rebates, and a Performance Portal (Denver 2021f). In addition, the City is providing targeted outreach and education to building owners, managers, and operators, and offering direct one-on-one technical assistance for under-resourced buildings. Finally, financial incentives will be available for electrification. Community engagement will be continued throughout.

Penalties are set in the ordinance to be just slightly higher than the cost of compliance. The intent, though, is to help building owners and managers at every junction to come into compliance, considering the various adjustments and options, in order to avoid penalties.

Building association and commercial real estate partners like BOMA Denver and NAIOP Colorado are also continuing to regularly inform and educate their members, through conference sessions, webinars, newsletters, and more.

⁷ Jodi Pincus and Betony Jones from Inclusive Economics supported the Workforce Workgroup and ran a jobs analysis for the Task Force that was included in the final recommendations.

Step 11: Get City Council Approval

If the Task Force representing such diverse stakeholder interests can reach consensus (or even near-consensus) on the recommended policy, then it's a fair assumption that City Council will be likely to approve it. That was the case with Denver – the Task Force's unanimously-approved recommendations lead to City Council's unanimous approval. It helps if City Council played a role in establishing the Task Force, is aware of how it relates to the City's goals, appoints one councilmember to serve as Task Force member, receives periodic briefings on the process and progress, hears the final recommendations presented jointly from city staff and several Task Force members, and hears from supportive public stakeholders. Had the Task Force not reached consensus or near consensus, the City staff would have neutrally presented to City Council the areas of agreement, the areas of disagreement, and potential pathways forward.

A note on the goal: the Task Force was originally charged with developing a policy that would meet net zero emissions in commercial and multifamily buildings by 2040. Instead, the final recommendations will lead to an 80% reduction in greenhouse gas emissions. While this does not achieve the entire original goal, it does achieve as much as the Task Force felt is reasonable and achievable for building owners and managers in Denver.

Step 12: Celebrate

The tremendous collaboration, patience, stretching-of-comfort-levels, attention to detail, high stakes, and robust final product made the conclusion all the sweeter. A much-deserved happy hour outside of Denver's iconic Union Station allowed the Task Force to reflect back and look ahead. In fact, since the Task Force process occurred throughout pandemic-related limitations on in-person meetings, the City Council presentation and final happy hour were the first chances for some members to meet face to face.

Step 13: Expand to the State Level

State leaders in the legislature, energy office, and governor's office took notice of the both the potential for and necessity of a statewide effort. Fort Collins and Boulder have benchmarking programs similar to Denver's, and Boulder has some upgrade requirements as well. In all, about one-third of Colorado's large buildings over 50,000 sq. ft. were already benchmarking through one of those three cities, and some other buildings were already benchmarking voluntarily – on the one hand demonstrating that it is feasible and viable, and on the other hand indicating a wide opportunity to reach the remainder. In response, lawmakers proposed and passed Colorado HB 21-1286: Energy Performance for Buildings (Colorado General Assembly, 2021). The new law requires all commercial and multifamily buildings over 50,000 sq. ft. to annually benchmark and report their annual energy use to the Colorado Energy Office through ENERGY STAR Portfolio Manager energy use (CEO, 2022a).

The new law also requires building performance standards to meet 7% greenhouse gas savings in covered buildings by 2027 and 20% by 2030. After seeing the positive results from a collaborative process in Denver, and after gentle imploring from stakeholders of all types, lawmakers were convinced to implement a similar effort. The Colorado Building Performance Standard Task Force is meeting monthly through 2022, and the Colorado Air Quality Control Commission will ultimately conduct a rulemaking to put the recommendations into force (CEO,

2022b). Since Denver’s policy is already passed and underway, the statewide Task Force is basing its own plans on that.

Conclusion

Cities are on the forefront of the nation’s transition to climate resilient buildings. Denver leapfrogged other major cities in establishing and launching a robust building performance policy and took a leadership position as the first city in the country to implement zero-emission heating and water heating upgrade requirements for existing buildings at the time of system replacement. Because of this, emissions from Denver’s existing buildings – 49% of the city’s overall greenhouse emissions – will be cut to a fifth or less of their previous levels. The carefully-constructed and comprehensive approach sets the new standard for other local and state governments to achieve.

References

- City and County of Denver (Denver). 2021a. *Energize Denver Renewable Heating and Cooling Plan*. www.denvergov.org/files/assets/public/climate-action/documents/hpbh/renewable-hampc/denver-renewable-heating-and-cooling-plan_june-2021.pdf.
- . 2021b. “Climate Protection Fund.” www.denvergov.org/Government/Agencies-Departments-Offices/Agencies-Departments-Offices-Directory/Climate-Action-Sustainability-Resiliency/Climate-Protection-Fund.
- . 2021c. “Climate Protection Fund Five Year Plan.” https://denvergov.org/files/assets/public/climate-action/cpf_fiveyearplan_final.pdf.
- . 2021d. *Energize Denver Task Force Recommendations*. Denver: Energize Denver Task Force. www.denvergov.org/files/assets/public/climate-action/documents/hpbh/energize-denver/task-force/edtf-recommendations-8-31-final.pdf.
- . 2021e. *Energize Denver Community Briefing Presentation*. Denver: City and County of Denver. www.denvergov.org/files/assets/public/climate-action/documents/hpbh/energize-denver/energize-denver-case-studies/edtf-community-briefing-9-29-2021.pdf.
- . 2021f. “Energize Denver Hub.” www.denvergov.org/energizedenver
- . 2022. “Energize Denver Benchmarking Map.” www.energizedenver.org.
- Colorado Energy Office (CEO). 2022a. “Building Benchmarking.” www.energyoffice.colorado.gov/climate-energy/energy-policy/building-benchmarking.
- Colorado Energy Office (CEO). 2022b. “Building Performance Standards.” www.energyoffice.colorado.gov/climate-energy/energy-policy/building-performance-standards.
- Colorado General Assembly. 2021. *HB21-1286: Energy Performance for Buildings*. Denver: Colorado General Assembly. <https://leg.colorado.gov/bills/hb21-1286>.