

# **The City Energy Project: A Model for Rapid Energy Efficiency Policy Change in Major U.S. Cities**

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## **Abstract**

The City Energy Project (CEP or the Project) is a unique program capitalizing on the ripe policy opportunities in many diverse cities and is tackling energy efficiency market barriers through high-value partnerships with participating municipalities and local organizations, philanthropy, and the private sector. CEP's theory of change lies in the idea that no one policy, program or institutional action can single-handedly create lasting, large-scale change. That is why the Project created a comprehensive policy framework with mutually reinforcing components, as well as the "plug and play" tools, hands-on technical assistance, and resources for cities to bypass expensive and time-consuming startup activities. This joint approach, facilitated by the CEP Hub team, creates a forum for open communication across the city network, other early energy efficiency policy framework adopters, and key partners, which builds trust and motivation. The increased multi-city and cross-sector learning and policy alignment is creating epicenters of change in the policy environment and in the broader market. The rapidly shifting policy and technical environment is being powerfully affected by the efforts of the project. As energy performance data and transparency becomes widespread, it is expected to substantially influence market investments. Ultimately, the project is built on the expectation that this will lead to broader market transformation which will yield persistent energy savings and carbon reductions. This paper will describe the CEP model, lessons learned from participating municipalities and partners, and how the model can be replicated in other jurisdictions across the country.

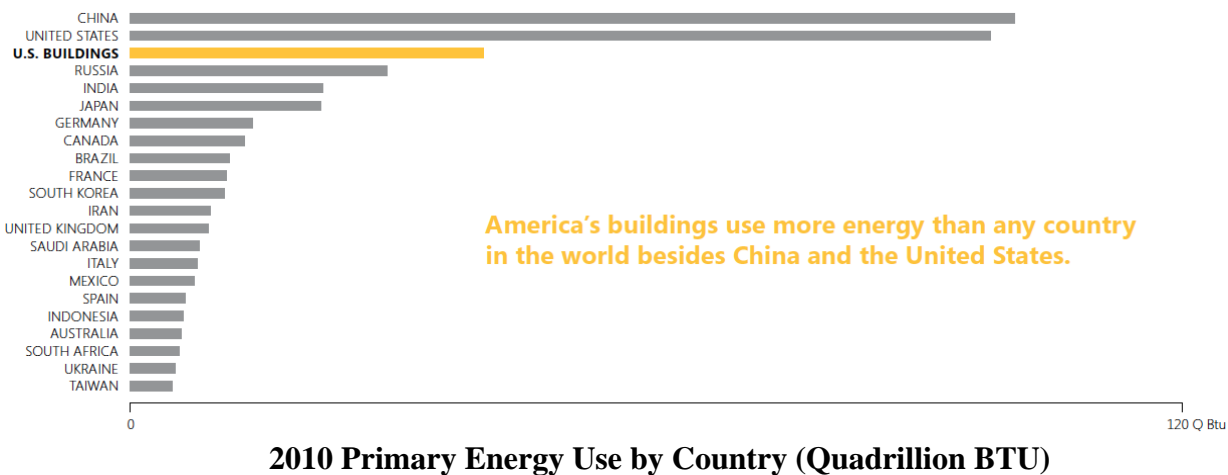
## **Introduction**

America's buildings use more energy than any country in the world besides China and the United States (see below graphic). Buildings consume more energy and are responsible for more greenhouse gas emissions in the United States than any other end-use sector, accounting for more than 40 percent of total energy consumption; approximately 75 percent of total electricity consumption; approximately 38 percent of total U.S. CO<sub>2</sub> emissions; and more than \$420 billion in annual energy bills for U.S. businesses, governments and consumers.<sup>1</sup> In most major American cities, buildings account for the majority of energy use and carbon pollution – even more than the transportation or industrial sectors. If cities want to be more competitive and more resilient against energy-related crises, they must boost the energy efficiency of their building stock. Usually, just a handful of large buildings account for a considerable portion of a city's total energy use. For example, in New York City, buildings over 50,000 square feet consume roughly 45% of New York City's total energy use. If all comparatively inefficient large buildings were brought up to just the median energy use intensity in their category, New York

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<sup>1</sup> Statistics from U.S. Energy Information Administration Energy Outlook 2011

City consumers could reduce energy consumption in large buildings by roughly 18% and GHG emissions by 20%. This translates into a citywide GHG emissions reduction of 9%. The owners and operators of these large buildings are often quite sophisticated, making compliance with building energy efficiency policies easier. Improving the energy performance of these large existing buildings in major U.S. cities will yield significant energy savings and associated GHG emissions. This premise is the foundation of the City Energy Project approach.



U.S. cities, leading nonprofits, and philanthropic foundations are the three key components to the City Energy Project (CEP). A joint initiative of the Natural Resources Defense Council (NRDC) and the Institute for Market Transformation (IMT), CEP is generously supported by Bloomberg Philanthropies, Doris Duke Charitable Foundation, and The Kresge Foundation. The City Energy Project creates healthier and more prosperous American cities by improving the energy efficiency of large, existing buildings. The participating cities are supporting innovative and practical solutions that cut energy waste, boost local economies, and reduce greenhouse gas emissions. The pioneering actions of the original ten participating cities are becoming models for communities nationwide and around the world. The first round of geographically, economically, and politically diverse City Energy Project cities are: Atlanta, Boston, Chicago, Denver, Houston, Kansas City, Mo., Los Angeles, Orlando, Philadelphia, and Salt Lake City.

**Cities are Climate Leaders.** Urban centers account for more than 70 percent of global greenhouse gas emissions – as big contributors to climate change, cities also hold the key to fighting back effectively. Buildings in the U.S. are among the largest global energy consumers, coming third only to China and the United States as a whole. CEP works to help American cities reduce climate change pollution from buildings by harnessing energy savings. Cities are on the vanguard of climate leadership, employing actions in key sectors such as buildings, transportation, and waste. They are in prime position to effect political change on the local and global level. Mayors are able to enact efficient and effective policies without congressional roadblocks that hinder progress on the national level. And as the home to the majority of the world's population, cities are able to bring climate action to a personal level, where ideas and solutions are discussed and acted upon collaboratively.



## The City Energy Project Model

Working in partnership with major U.S. cities, CEP supports the adoption and implementation of a suite of policies and programs by leading U.S. cities to address these market failures. This approach highlights the unique value that a City holds. Each City has an interest in improving the building stock through comprehensive policies and programs and can chart the way with both leadership and regulation. As the hub of the local business environment, the City can convene stakeholders readily to educate them about the value of energy efficiency, socialize different policy constructs, and receive market feedback. Furthermore, cities can implement programs and incentives that help tenants and buildings fully realize the value of energy efficiency improvements in their spaces. These strong market engagement efforts coupled with transparency policies that feed building energy data into the marketplace work together to correct market failures. Through its efforts, the Project seeks to achieve the following long-term goals:

1. Create permanent and sustainable energy efficiency retrofit markets in major U.S. cities through the design and implementation of customized policy frameworks, energy efficiency incentives, and financing programs.
2. Reduce building energy consumption and CO<sub>2</sub> emissions and contribute to economic growth in each participating city.
3. Catalyze widespread development and deployment of energy efficiency systems and standards, technical tools, and stakeholder support that advance energy efficiency retrofit markets.
4. Catalyze the widespread adoption of policies and programs that create permanent retrofit markets at the national level, or in cities, states, and local jurisdictions that are not directly supported by the Project.

The Project will achieve its long-term goals by implementing solutions at the local, regional and national levels. CEP is expanding and will support more than the ten original major U.S. cities in the design, adoption and implementation of customized policies and programs that integrate multiple strategies to address energy performance transparency, awareness, split-incentives, accountability, inertia, lack of capital and other market barriers. The Project is leveraging best practices in policy and program design, adoption and implementation from various policies and efficiency programs that have already been adopted by cities that include New York, San Francisco, Austin, Seattle and the District of Columbia, as well as leading CEP cities like Boston, Chicago, and Philadelphia.

To better prepare cities for the challenges of policy passage and program implementation, the CEP operates with a Hub-and-Spoke approach. The CEP “Hub” (IMT and NRDC staff) provides technical resources, policy guidance, and assistance in developing local and national partnerships that aid in policy passage as well as implementation. To build the capacity of the individual cities, and to accelerate the process, the Project also funds a staff person for each participating city. These “City Advisors” are employees of IMT and NRDC, but are embedded in city government—typically reporting to the Sustainability Director, who often reports to the Mayor. Hub staff facilitates peer to peer exchange of City Advisors through regular phone calls and occasional in-person convenings. In addition to adding capacity and speed to the process, City Advisors have allowed the Project to capture lessons learned and share them with other cities through similarly-focused peer-to-peer networks, conference presentations and speeches, etc. The dissemination of success stories and related resources is critical for replication of energy efficiency solutions in cities outside of the project.

Each city joins CEP with a sense of the policies and programs they are interested in creating and a supportive Mayoral commitment. The “Hub” team (IMT and NRDC staff) then provides strategic and technical support to assist the cities in achieving their plans. Before entering the project, cities have evaluated the carbon reduction potential of their intended efforts, based on an assessment of the city’s building stock and the energy supply mix of their region. As engagement with the cities commences staff from the Hub team work with the cities to flesh out policy and program details, engage stakeholders, and lay the groundwork for successful implementation. This partnership between Hub staff and Advisors continues throughout the course of the project with Hub staff, each with particular expertise (e.g., advocacy, stakeholder coalition building, policy design, communications, data access and visualization, implementation, compliance, etc.), working across all Advisors based on where their assistance is required.

## **Key Outcomes**

In the first three years of CEP (Phase I: 2013 - 2015), IMT and NRDC activities centered on overall project and resource development, city recruitment, staff onboarding, policy and program design and policy roll out. As such, the key outcomes of Phase I lay the groundwork for achieving the overall project goals in Phase II (2016-2018). Accomplishments of Phase I include:

- Benchmarking and transparency policies are passed and undergoing implementation in five CEP cities, all with a focus on using policy and programs to accelerate private market demand for energy efficient buildings.

- Voluntary energy efficiency programs have been launched in all CEP cities—including city Challenges, broker education on green leases, code compliance assessments, etc.
- An audit policy was conceived of and adopted in Atlanta that requires water audits along with energy audits—the first policy of its kind in the southeast and a critical model for increasingly water-constrained jurisdictions outside of the project.
- Stakeholder coalitions have been developed in all participating cities and City Advisors have identified complementary organizations with which to partner—resulting in greater participation and engagement of the market, more informed policy and program design, greater assurance of policy and program longevity, and ultimately the accelerated development of energy efficiency retrofit markets in their respective locations.
- City Advisors and their city government peers have formed an official network—establishing a safe space for exchanging ideas and, as importantly, developing a cadre of skilled and motivated policymakers dedicated to creating a market for energy efficient buildings.
- A shared energy efficiency policy agenda, goals, and strategy now exist among leading cities and partner organizations—ready for adoption by cities outside of CEP.
- CEP has demonstrated initial success to key market actors through cities that have passed policies, defeated opposition, and used strong political will to persist and achieve success.

## Lessons Learned

### City Energy Project Hub (NRDC and IMT) Perspective

Several key lessons during Phase I have informed IMT and NRDC’s approach to the project’s expansion in Phase II (2016 - 2018).

**Measuring impact takes time and resources.** There is still work to be done to set up the internal city processes, establish protocols, provide stakeholder education, and develop local programs in participating cities. Once implemented, it will take time for the policies and programs to begin generating the data with which to measure their impact. Measuring impact in terms of carbon and energy savings achieved will not be feasible by the end of the project; projections will measure anticipated impact. Through the project, cities and Hub staff have learned that other metrics -- such as those that gauge non-energy benefits, market awareness, economic development, dollars invested in buildings, number of jobs created, etc. --will be important indicators of success need to be defined up front, the baseline measured, and a protocol for collecting future data developed. However, resources need to be set aside in order to enable this.

**Benchmarking and transparency are foundational markers of success.** Observing concrete impact is critical. The need for measurement and verification serves as a validating and motivational force for current cities and an appealing reason for new participants to join. Since these policies were first wave, validation of the market influence of benchmarking plays a substantial role in convincing cities to remain engaged and committed.

**The importance of data management tools cannot be understated.** Energy benchmarking and transparency ordinances are opening the door to a new era of data-driven

decision making by a range of stakeholders. Access to building performance metrics can transform the way that the market values and invests in energy efficiency in buildings, by making the information freely available so it can factor into decision making processes. For example, a 2012 U.S. EPA analysis of 35,000 benchmarked buildings found average annual energy savings of 2.4 percent. The analysis also found that buildings which had benchmarked for three straight years saved an average of 7 percent over the course of that time.<sup>2</sup>

**Partnership is the key.** The partnership investment between NRDC and IMT, and with local and national partners, is the key to driving change. Phase II will see ongoing investment in strategic partnerships with additional cities. In Phase II, CEP will also play a lead role in coordinating with, providing capacity to, and disseminating resources through local, national, regional and other multi-city networks, coalitions, and partnerships to gain traction in the market. Through the administration of Phase I, it has become clear that each city's ambitions and regional specificity require local partners specialized in certain policy areas. For example, the alignment of air quality and energy efficiency as complementary policy issues could be better articulated and addressed by local NGOs. Hub staff were able to facilitate the partnership and provide financial support, and then share resulting products and messaging with other City Advisors, but Hub staff did not directly provide expertise or assistance. Scaling in the other direction, national partnerships can be helpful for reaching large audiences and efficiently disseminating messages. For example, a partnership with the International Facility Management Association has been helpful in raising awareness and bringing educational opportunities to facilities managers who have significant responsibility for and influence over the efficiency of large urban buildings.

**Others want to learn from and replicate the CEP model.** A growing number of domestic and international cities and partners are showing interest in the CEP model, whereby change agents within each city are supported by local stakeholders and by central Hub staff with technical expertise. One focus for Phase II will be to capture and share the lessons learned from developing and implementing this model.

**The engaged network of city staff, local partners, and City Advisors is a major project asset.** CEP's facilitation of the network of City Advisors encourages information exchange, peer mentorship and competition. This multi-city collaboration fosters productive relationships and is establishing a new cohort of building energy efficiency experts across the country. The value of a network of City Advisors, all of whom are focused on policy and program design and implementation, is irreplaceable. The City Advisors and CEP-funded partners are already being seen as primary local points of contact and leaders in the field. This is evidenced, for example, in the dozens of requests for speaking engagements, presentations, and media interviews they received last year. Many City Advisors are also taking leadership roles in organizations such as the Urban Sustainability Directors Network and C40, other peer to peer learning networks. This "community of practice" is transforming the nature of policy discussions beyond the boundaries of the CEP reach. In Phase II, CEP will engage the network to disseminate best practices and tools through their local channels.

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<sup>2</sup> United States Environmental Protection Agency. October 2012.  
[http://www.energystar.gov/ia/business/downloads/datatrends/DataTrends\\_Savings\\_20121002.pdf?3d9b-91a5](http://www.energystar.gov/ia/business/downloads/datatrends/DataTrends_Savings_20121002.pdf?3d9b-91a5)

**Significant resources are required to provide high quality support for participating cities while advancing the project goals in the broader market.** Central Hub staff, City Advisors and the resources they develop remain critical to the success of the project. Demands on the Hub since the onboarding of the local personnel include: operational assistance, multi-city network facilitation, communications assistance, technical and advocacy support, and involvement in important national supporting efforts. As the project evolves toward a more sophisticated backbone model and engages more cities, consistent and possibly growing demands on project staff could be required.

**Successful implementation has been contingent upon pre-existing political conditions in cities.** Conditions such as mayoral re-election and city council election timing are key, as well as the timing of cities' engagement and disclosure to key stakeholders of their plans for a policy agenda. For policies and programs to work, leadership from the top is essential.

**Project progress varies across participating cities.** Although all ten original cities signed on to City Energy Project in January 2014, they are at different points in their policy and programmatic roll out. A few major factors that have contributed to this variability include: pre-existing energy efficiency initiatives; the timing of City Advisor and consultant hires; and some cities' preference to lay political groundwork and achieve private sector support for ordinance introduction by first launching voluntary programs. While not always a directly contributing factor, some cities have resources and infrastructure already in place (e.g., a sustainability plan that includes a commitment for efficiency in the built environment and a sustainability director that has been in place for several years), which puts them ahead of the curve.

## **Local Partner Perspective**

The City Energy Project has benefited from the collaboration of local partners in each of the participating cities. Local partners primarily include other like-minded nonprofits with deep local connections that have long preceded CEP. Although most partners have had a prior stake in energy efficiency, some have worked on it more actively than others. The Project has observed and realized the following benefits from working with local organizations and partners.

**Building strong relationships with the right stakeholders.** Many CEP City Advisors began their CEP work without much context or experience in their particular local market. With the exception of one Advisor, none had worked in the local governments in which they were placed. As such, they had a steep learning curve and had to develop contacts from scratch. This can be especially hindering and decelerating in such a role, where identifying and compelling stakeholders is crucial for success. Working with local partners has helped the City Advisors tremendously, since these organizations already had strong relationships with key allies. In addition, they knew the landscape of likely opponents and could introduce Advisors to these important stakeholders so that they could better understand their objections.

**Carrying key messages and engaging in frank feedback.** Certain messages are better carried by and received from non-City officials. Local partners can be a helpful voice that relay messages with fewer constraints and are perceived differently than their government official counterparts. Those working in or representing City government, such as City Advisors, have an

obligation to represent the city's best interests at all times and, as such, must often err on the side of communicating conservatively. Similarly, they are limited in the conversations in which they can engage when sensitive relationships or procurements are at stake. These conditions can limit the candor and productivity of feedback solicited and received. Local organizations without such constraints can more readily dig into sensitive and controversial topics, making them valuable messengers, listeners, and negotiators.

**Diversifying the project team's skill sets with complementary talents and experience.** CEP typically placed one staff Advisor in each city. A spectrum of skills is required for a City Advisor to be effective: an aptitude for political strategy as well as a keen mind for developing technical policies and implementation mechanisms. It is challenging to find individuals who have a proclivity for both. CEP has had success in many cities where the local partners brought complementary skills. In Houston, for example, the City Advisor has a wealth of energy policy expertise; her partners at the Houston Advanced Research Center, with their deep analytical skills and connections to a strong research university complement her background and make her more effective.

**Ensuring the staying power and longevity of policies and programs.** With finite project funding, yet a long-term time horizon for effective policy implementation, it is critical that local partners feel ownership and are accountable for the policies and programs initiated by the project. Local organizations can serve a variety of roles in ensuring long-term staying power of the policies including: applying pressure to maintain political will; assisting with implementation and compliance; keeping stakeholders engaged and supportive; building future policies and programs that use the Project's success as their foundation; and contributing or attracting future funding.

## **Local Government Perspective**

A key component of the City Energy Project is to provide in-house support to local governments. As opposed to federal or state government, most U.S. municipalities have the unique legal authority to regulate the private building stock. They also typically own their own facilities and have large, diverse portfolios. Leveraging this position, cities have the opportunity to create transformational policies and programs and to lead by example, but they don't often have the capacity and/or technical expertise to develop these initiatives. The City Energy Project is filling this void and cities are seeing the benefits.

**Capacity to tackle building efficiency.** There are a wide variety of functions a city must carry out, and it is almost always the case that cities have insufficient resources, which results in understaffed departments, including mayors' offices. During the Great Recession, many cities were forced to lay off a significant number of employees. During the last few years, cities have been trying to rebuild that original capacity. Most of that rebuilding is for positions that had already existed. Bringing on staff for a sustainability office (which is usually a new office) or creating a role for an energy manager is extremely difficult to get approved during the budget process. CEP has been able to hire individuals with relevant skills to work in, or alongside, city government. This additional capacity allows the CEP advisors to focus specifically on making the local building stock more efficient. Whether they are helping develop new programs and



policies from the ground up, or focused on implementing existing efforts, the CEP Advisors play a critical role making sure the city is helping move the needle on existing building energy efficiency.

**Mayoral leadership.** While it is previously noted that certain messages are better carried by non-City officials, high level buy-in and messaging from the Mayor also plays an important role. By participating in the City Energy Project, U.S. mayors publicly committed to addressing energy efficiency in existing buildings, meaningfully elevating the issue. Having mayoral support for energy efficiency goals in a sustainability/climate action plan, a piece of legislation, or their own program, informs building owners, engineers, electricians, and the public that the city sees this topic as a priority. It also sends a message to city departments. The city itself has a big role to play: leading by example with the municipal buildings stock; enforcing legislation; providing building owners with support; and in the case of municipal utilities, providing energy/water data and incentive programs. The mayor's office can get the city departments on board and provide the political cover they need to take action.

**Cities as conveners.** By participating in CEP and taking a formal stance to address existing buildings, cities put themselves in a powerful role as the convener. Traditionally, there are a number of ways policies can be initiated – private sector pushing government to act on a certain issue, nonprofits rallying for a particular cause, or in the case of CEP, the city can be the advocate on a topic and work with both the private and nonprofit sectors. With the city leading on policy and program development, it brings multiple parties to the table, creating a truly collaborative process. Many CEP cities have created task forces, initiated working groups or hold public meetings to gather input on policy development or program design. This allows building owners, who will be impacted by the policies or utilize the programs, to share with policy makers what is realistic in regards to requirements and what is needed in regards to support. It lets engineers, architects, electricians and other trade professionals share the latest strategies and technologies that are feasible and can transform the market. It provides a forum for non-profits to advocate for bold energy efficiency goals. Having the city and various sectors actively engaged sets the stage for energy efficiency policies and programs to be successful because they are designed with stakeholder input. What will be critical is the continued engagement to ensure follow through.

## HOW DO WE SCALE?

**Replicating the model.** The idea behind City Energy Project is scalability; effecting large scale change that will reduce energy use and decrease greenhouse gas emissions across the country's largest source. During Phase I of CEP, project infrastructure was established through the creation of the CEP Hub, the City Advisor Network, and strategic resources such as model policy language; webinars on relevant and complex issues affecting policy implementation (e.g., data collection and management, utility relationships, compliance strategies, establishing a help center, etc.); and more specific guides (e.g., Benchmarking Implementation Guide). The resources with the greatest uptake have been those that were conceived of, requested by, and/or developed by City Advisors in conjunction with Hub staff.

**City Energy Project Phase II.** The focus for Phase II will be to catalyze market transformation through city-level policy and program support in the original ten cities and up to

ten more cities; to measure real market impacts; to capture and share lessons learned / best practices to reduce barriers for future cities that pursue similar policies and programs; and to grow awareness of the value of energy efficiency.

**Expand the City Energy Project network of cities.** Phase II will promote best practices and successful approaches for policy and program replication and implementation in ten additional cities and in the broader market. Because of the work done in the original ten cities, CEP will be able to provide model frameworks, resources, and tools for cities across the country. Examples include: technical tools and data systems that support policy and program implementation; political support for policy and program adoption; and the creation of measurement protocols for policy and program evaluation. As the original ten participating cities reach new milestones in Phase II, CEP will develop and disseminate new case studies, lessons learned, best practices, proven strategic approaches, and standard tools for building energy efficiency policy and program implementation. These materials will help reduce barriers to entry for ten additional cities beyond the original ten and will aid both replication of the policies and market-wide energy efficiency activity.

**Leverage key relationships and partnerships.** Through the efforts of Phase I, CEP has seen the stimulation of broader market adoption of energy efficiency policies and programs by establishing meaningful working relationships with other groups and networks that have similar sustainability and clean energy orientations. Many other organizations offer broad goal alignment, but allow the participating cities a variety of ways to achieve the goals. By clearly defining a strategy to address building energy use, CEP can offer its tools and resources as a pathway to drive market transformation in the built environment – just one sector that needs to be addressed to achieve the ambitious climate goals set out by many of the city-focused groups. During Phase II, CEP will be expanding relationships with strategic partners and working to cross-promote resources. There are a few approaches CEP can take with new partners – including train the trainer, ask the expert, and peer-to-peer networking/mentoring – which will be determined and pursued on a case by case basis.

**Foster the growth of a new breed of city-based energy efficiency practitioners.** By working in the original ten cities and tapping into the experience of other cities around the country, CEP has created a new cohort of energy efficiency professionals focused on city-led building energy efficiency policies and programs. It has established a community of practice that did not exist previously. By scaling up, the CEP effort is providing experience and expertise to local energy efficiency professionals from a diverse cross sector of government, nonprofits, and other professional organizations. As the project expands so will the learning network of city-based energy efficiency leaders. These local professionals' efforts are serving as examples for cities around the country and the world. As cities look to launch building energy efficiency initiatives, they are watching the progress and learning from CEP city governments and local partners.

## CONCLUSION

In the current political and environmental landscape, we are at a critical juncture to build upon the City Energy Project's momentum and stimulate climate action. The case for scaling up

is simple – the climate change crisis is urgent and demands immediate and robust action at all levels of government and in the private sector. It can seem overwhelming to contemplate climate change in global terms, but much can be done at the local level and leadership from cities can lay the foundation for states and countries to take even stronger climate action.

By 2018 the work of the City Energy Project will no longer be pioneering. The Project will have created for the market: a proven approach to working with cities to advance high impact policies and programs; a network of experienced practitioners; durable coalitions; field-tested resources; emerging proof-of-concept data on policy impacts; media; political coverage and local-level corporate and philanthropic support. Future cities that undertake building energy efficiency and emission reduction activities will be the beneficiaries of CEP's pioneering work. Consequently, their barriers of entry for such activities should be lower than that of the original CEP cities.