



CITY  
ENERGY

A JOINT PROJECT of NRDC + IMT

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# LEADING THE WAY





# ABOUT CITY ENERGY PROJECT AND THE CITY ENERGY PROJECT RESOURCE LIBRARY

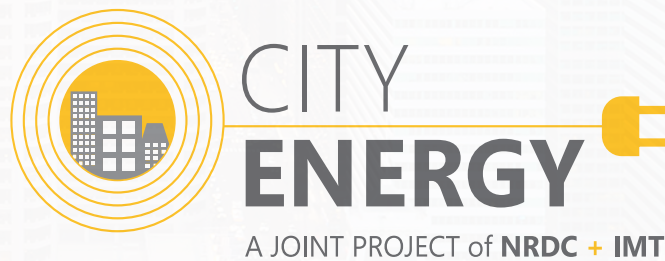
A joint initiative of the Institute for Market Transformation and the Natural Resources Defense Council, the City Energy Project supported bold yet practical ways to deploy energy efficiency at the city level to boost local economies, reduce pollution, and create healthier, more prosperous communities nationwide.

The project partnered with 20 local governments across the U.S. from 2013–2018 to design locally appropriate energy efficiency policies and programs. Building upon the past successes and innovation of cities, the City Energy Project established best-in-class practices for energy efficiency to be customized and replicated nationwide. Models and recommendations have been distilled into the City Energy Project Resource Library. This curated set of resources contains the necessary blueprints for a city government to craft and implement customized solutions to productively manage energy efficiency initiatives across commercial, multifamily, and public buildings in its jurisdiction.

For more information on the participating cities and counties in the City Energy Project, and to search the City Energy Project Resource Library, visit [cityenergyproject.org](http://cityenergyproject.org).

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# INTRODUCTION

Recognizing that they are on the frontlines of the impacts of climate change, cities are introducing ambitious policies and programs to reduce emissions related to climate change. As buildings typically are the largest source of greenhouse gas emissions in a city, addressing building energy use plays a key role in these policies and programs. In addition, these policies and programs often affect a significant swath of a city's privately owned building stock, which in turn requires cities to productively engage with their real estate and energy efficiency communities. However, for this engagement to be successful, it's important that the cities themselves demonstrate leadership and an understanding of common barriers to energy efficiency best practices.

This guide explains why a city government will first prioritize efficiency in public buildings before or in tandem to efforts to engage the private, commercial real estate sector. Culled from experiences of 20 jurisdictions of the City Energy Project, it explains what energy efficiency measures a city can deploy within its own structures, provides best practice guidance on how to actually do so, and explores how to ensure long-term accountability and return on investment.







# WHY CITIES PRIORITIZE ENERGY EFFICIENCY IN PUBLIC BUILDINGS FIRST

Reductions in energy consumed by municipal buildings benefits both a city government and the city's residents and businesses. In the short term, it showcases city leadership and a city's buy-in to the actions that are or will be requested of the private sector. The long-term benefit of this is that actions taken by the city in its own buildings lay the groundwork for moving the entire community towards a more energy-efficient future. Other benefits include reducing operational costs for city buildings, which in turn saves tax-payer dollars. Plus, by institutionalizing efficient building operations, the city can then ensure long-term savings for all parties. In addition, reducing energy waste in city buildings and the associated greenhouse gas emissions improves the resilience and health of a community as a whole.

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**THE BENEFITS OF ENERGY EFFICIENCY AREN'T SIMPLY TO SHOWCASE THE CITY'S LEADERSHIP BUT ALSO PROVIDE BENEFITS TO THE PUBLIC.**

Energy efficiency can help a city:

- ✓ Reduce operational costs (taxpayer dollars)
- ✓ Reduce energy waste and greenhouse gas emissions year to year
- ✓ Institutionalize efficient building operations, ensuring longevity
- ✓ Realize long-term savings



# BEST PRACTICES FOR ENERGY EFFICIENCY IN PUBLIC BUILDINGS

Cities can implement a wide range of operational, behavioral, and legislative measures to reduce energy use. Equipment upgrades produce measurable energy reductions but may require upfront capital costs. Utility incentives are commonly used to offset these costs. Behavioral and legislative measures typically take longer to implement and are harder to measure and verify but are equally important for deep energy reductions and to establish lasting cultural change.



## CITY EXAMPLE

### Salt Lake City funding created dedicated staffing positions through savings

In 2017, Salt Lake City created a full-time position in its facilities department dedicated to retuning. The role's primary responsibility was to monitor energy data from all city buildings and perform retuning as necessary. The city funded the position, along with a utility incentive that provided funding based on energy savings achieved. The incentive program required the retuning agent to work in partnership with the utility to develop sound energy strategies. Through this collaboration, the city saved enough in energy costs across 160,000 square feet of building space to more than cover the retuning agent's salary within the first year.

## RECOMMENDED ENERGY EFFICIENCY MEASURES FOR CITIES TO LEAD THE WAY

**BENCHMARKING** is the first step to understanding the energy performance of the city's buildings. It provides a clear picture across the entire municipal portfolio, identifying which buildings are already high performing and which buildings would benefit from cost-effective energy efficiency actions.

**RETROCOMMISSIONING** is often known as a "building tune-up" to improve a building's operations and maintenance procedures. Typically an engineer will look through the building automation system to optimize setpoints, scheduling, and equipment. This type of work does not require building upgrades but instead looks at software, scheduling, and maintenance as sources of energy savings. Most experts recommend buildings be tuned-up every 3-5 years. Ongoing commissioning, which as its name implies is a continuous process rather than one undertaken every few years, is an even better option. However, this requires dedicated full-time employees or constant third-party monitoring.

**BEHAVIORAL CHANGE PROGRAMS** include trainings and education that inform users and personnel about cultural changes needed in their day-to-day actions. Cities can run employee engagement programs and competitions around efficient behavior. Building facility personnel can take building operator training commonly provided by trade groups and professional associations such as the International Facility Managers Association and ASHRAE.



**RETROFITTING** improves existing buildings by upgrading to new technologies, replacing broken equipment, or repairing the building envelope can bring significant savings.

**UTILITY PROGRAMS** may offer attractive incentives for building upgrades, retrocommissioning, or building operator training. Utility energy efficiency program managers will often work hand in hand with city staff to bundle projects, target the most effective measures, and navigate the process to receive incentive dollars.

## STEPS TO DESIGN A MUNICIPAL ENERGY REDUCTION PLAN

Just as businesses face challenges with making energy efficiency a priority, cities face them as well. These challenges are often budgetary, administrative, or cultural. The items below list best practices to overcoming these obstacles.

### ✓ SET A PUBLIC COMMITMENT

A public commitment is often one of the first action items after aligning leadership and defining goals. This not only ensures accountability but offers a communication channel to stakeholders that can be used in the future to initiate conversations about accelerating energy efficiency in the private sector. The commitment should be backed by at least the mayor and sustainability department. Often city council, facilities, and other departments contribute their support publicly as well.

### ✓ SIGN EXECUTIVE ORDER OR COUNCIL BILLS

Bills and orders can codify the public commitment and be used effectively to initiate work and allocate budgets for projects. This legislation should be passed by council or the mayor to demonstrate commitment and leadership to the public. However, cities must take the time to establish departmental and staff buy-in and understand the capacity of personnel in order to execute on goals and mandates. A well-drafted executive order includes realistically ambitious goals that also offer flexibility to departments to find appropriate projects.



#### CITY EXAMPLE

**Orlando created robust plan for 50 percent carbon reduction and 100 percent renewable**

In 2012, Green Works Orlando created the Municipal Operations Sustainability Plan, which established interim and long-term goals for the substantial energy and carbon reductions necessary for the city to achieve its 2030 Climate Challenge commitment. The plan includes greenhouse gas neutrality for municipal operations and a 50 percent reduction in municipal electricity consumption, with 100 percent of the remaining consumption coming from renewable sources.





### ✓ **CREATE AN INTERNAL TASK FORCE OR WORKING GROUP**

Task forces in and across city departments can ignite action and align department missions to greater citywide sustainability goals. Willing champions can be found in buildings and facilities, procurement teams, sustainability offices, utilities, and even the police or fire department and the airport. The working group can share ideas and best practices, and collaborate to develop proposals to city leadership in order to find budget and support to execute work. The scope of work will depend heavily on the commitment and interest of the task force but should all drive towards meeting the city's public commitment.

### ✓ **BRING IN A CONSULTANT**

Consultants are a good way to outsource energy efficiency projects if city staff is limited but there is funding and buy-in to improve building performance. Consultants provide a wide range of services from defining scope of work by performing initial assessments to identifying energy efficiency measures and executing upgrades or tune-ups. Including measurement and verification in the scope of work is important in order to establish longevity and include this type of assessment cyclically. Care should be taken to find consultants who have experience working with municipalities and who are familiar with the local energy efficiency and utility incentive landscape. If the consultant is implementing energy efficiency measures, a performance contract can be used as a financial mechanism.



## **FINANCING RESOURCES**

Funding for efficiency projects can be difficult given the bureaucracy of city governments. The **FINANCING RESOURCES** explore ways to finance city energy efficiency projects. You'll find detailed information on common funding mechanisms such as:

- Energy service companies (ESCOs)
- Performance contracting
- Commercial property assessed clean energy loans (C-PACE)
- Revolving loan funds

[VIEW RESOURCES >](#)



# GROW ACCOUNTABILITY, TRANSPARENCY, AND LONGEVITY

After the city has set goals, aligned leadership, and outlined a path to act on energy efficiency, it is important to communicate these efforts to the public. When cities don't communicate their actions meaningfully to the community, their work is often discounted, and it undermines efforts to push the real estate community towards more aggressive energy efficiency action. Cities should take care to report to the public from inception of projects to the end and beyond.



## CITY EXAMPLE

**Houston set a goal of achieving 20 percent energy savings from its portfolio of municipal buildings by 2020.**

In pursuit of the goal, the city benchmarked and released energy data for all of its buildings that are bigger than 25,000 square feet in size. In addition, Houston has used performance contracting to retrofit 5.2 million square feet of municipal space, resulting in energy reductions of nearly 30 percent with average payback time of 10 years.

## SHARE PROGRESS AND RESULTS ON MUNICIPAL EFFORTS

**MEASUREMENT & VERIFICATION** are critical pieces in ensuring accountability and can provide statistics or other data that can be communicated across multiple platforms, from social media to press releases to public speaking engagements and media interviews. When the city as a whole or a department takes any action, there should be clear guidelines for M&V. An employee behavioral engagement program can report on the number of employees engaged and the behaviors targeted. For example: City received 100 survey responses to its “turn off computer during lunch” campaign in March. Retrofits and tune-up work must report on energy and cost savings at least a year after completion.

**SOCIAL MEDIA AND BLOG POSTS** are effective for event announcements and snapshots on progress made by the city. Often, these highlight interesting storylines and should be used to report on successes. Cities can spotlight employees who helped make a significant difference, progress on energy retrofits, or new ideas formed by the committee. It's important to add color to these announcements by not just listing numbers. Communications departments must be involved to develop a strategy which showcases the city's leadership, inspires action in others, and highlights the value received from relatively simple and straight-forward actions.

**WRITTEN REPORTS** such as case studies or year-in-review reports, are used to document large projects and annual progress. These reports are usually comprehensive and discuss what the city did, why the city pursued projects, and the results (in energy savings, associated emissions reductions, or other tangible metrics) of said projects. Often, measurement and verification of energy efficiency projects will be included along with how these translate to progress on broader climate goals. Consultants or other outside parties such as a graphic designer or data analysis firm are typically involved in writing these reports. These reports provide an avenue to highlight successes and document best practices for future use.

## BUILD COMMUNITY SUPPORT AND MAKE IT LAST

The ultimate goal of any of the above actions is to institutionalize energy efficiency. Cities may choose to embed efficiency into climate action plans or facility maintenance responsibilities. Leading the way means energy efficiency becomes a normal part of routine operation and city culture so staff understand the expectations for building efficiency and become a shining example to the rest of the community.



### LEARN MORE

#### Private Sector Challenges Guide

The City Energy Project Resource Collection features the **PRIVATE SECTOR CHALLENGES GUIDE**, designed to help a city implement an energy efficiency strategy focused on private buildings.

[VIEW GUIDE >](#)





# ABOUT THE INSTITUTE FOR MARKET TRANSFORMATION AND THE NATURAL RESOURCES DEFENSE COUNCIL

## **ABOUT THE INSTITUTE FOR MARKET TRANSFORMATION**

The Institute for Market Transformation (IMT) is a national 501(c)(3) nonprofit organization that catalyzes widespread and sustained demand for energy-efficient buildings. Founded in 1996 and based in Washington, D.C., IMT specializes in driving the intersection of real estate and public policy to make buildings more productive, affordable, valuable, and resilient. A trusted, non-partisan leader, IMT focuses on innovative and pragmatic solutions that fuel greater investment in energy-efficient buildings to meet local market priorities. IMT offers hands-on technical assistance and market research, alongside expertise in policy and program development and deployment and promotion of best practices and knowledge exchange. Its efforts lead to important policy outcomes, widespread changes in real estate practices, and lasting market demand for energy efficiency—resulting in greater benefits for all people, the economy, and the environment. Visit us at [www.imt.org](http://www.imt.org) and follow us on Twitter [@IMT\\_speaks](https://twitter.com/IMT_speaks).



## **ABOUT THE NATURAL RESOURCES DEFENSE COUNCIL**

The Natural Resources Defense Council (NRDC) is an international nonprofit environmental organization with more than 3 million members and online activists. Since 1970, our lawyers, scientists, and other environmental specialists have worked to protect the world's natural resources, public health, and the environment. NRDC has offices in New York City, Washington, D.C., Los Angeles, San Francisco, Chicago, Bozeman, MT, and Beijing. Visit us at [www.nrdc.org](http://www.nrdc.org) and follow us on Twitter [@NRDC](https://twitter.com/NRDC).







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