

Energy

SHREK THE MUSICAL
BROADWAY THEATRE

TNT

THE CROWD GOES WILD!
BEST MUSICAL
2006 TONY AWARD WINNER

HAIR
WINNER! BEST MUSICAL REVIVAL
2009 TONY AWARD

We're changing the overnight world.

WICKED
SO MUCH HAPPENED BEFORE DOROTHY DROPPED

Tonight belongs to...
PHANTOM
MAJESTIC THEATRE

LOVE WITH A CHANCE OF MAGIC
MAYRELLINE NEW YORK

TNT
THURSDAY

GIFTS

TADs

Sbarro

sbarro sbarro sbarro





KING OF AGES
A NEW MUSICAL

SOUTH PACIFIC

DIRECTED BY BARTLETT SHER
LINCOLN CENTER THEATER
TAKE THE SUBWAY TO...

GUEST SUITES

DOUBLE TREE GUEST SUITES

NO STANDING
ANYTIME

Credit: Matt R. Waide at Wikipedia / <http://en.wikipedia.org/wiki/User:UpstaterNYer>

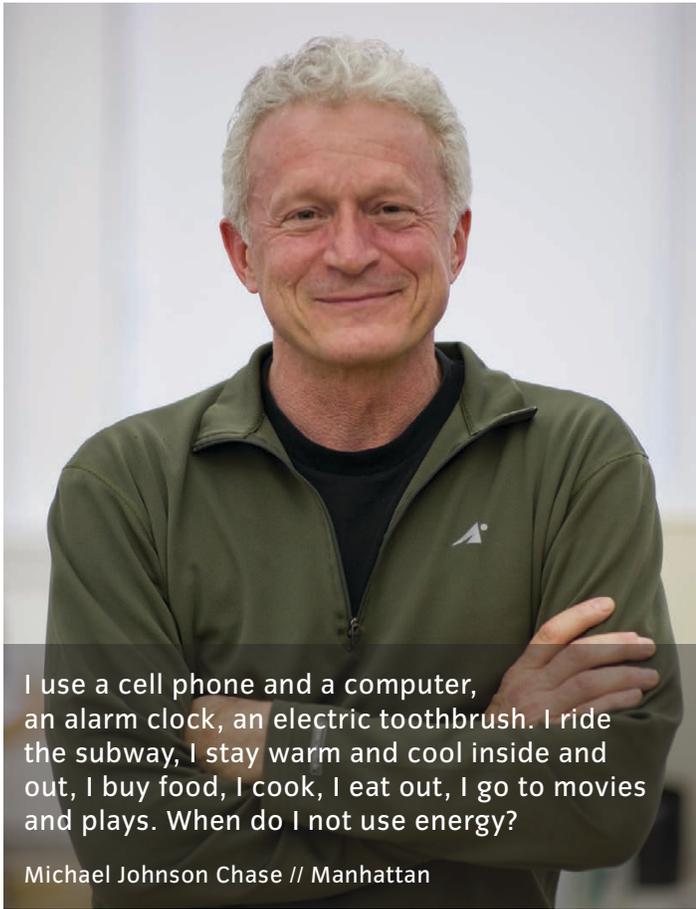
Together we can

Improve energy planning

Increase our energy efficiency

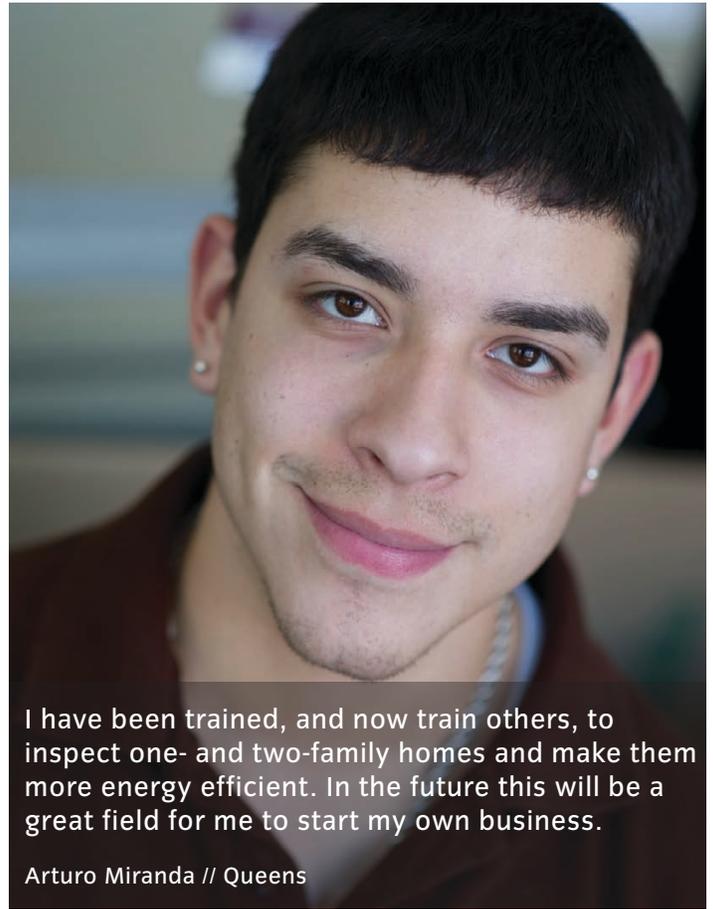
Provide cleaner, more reliable,
and affordable energy

Modernize our transmission
and distribution systems



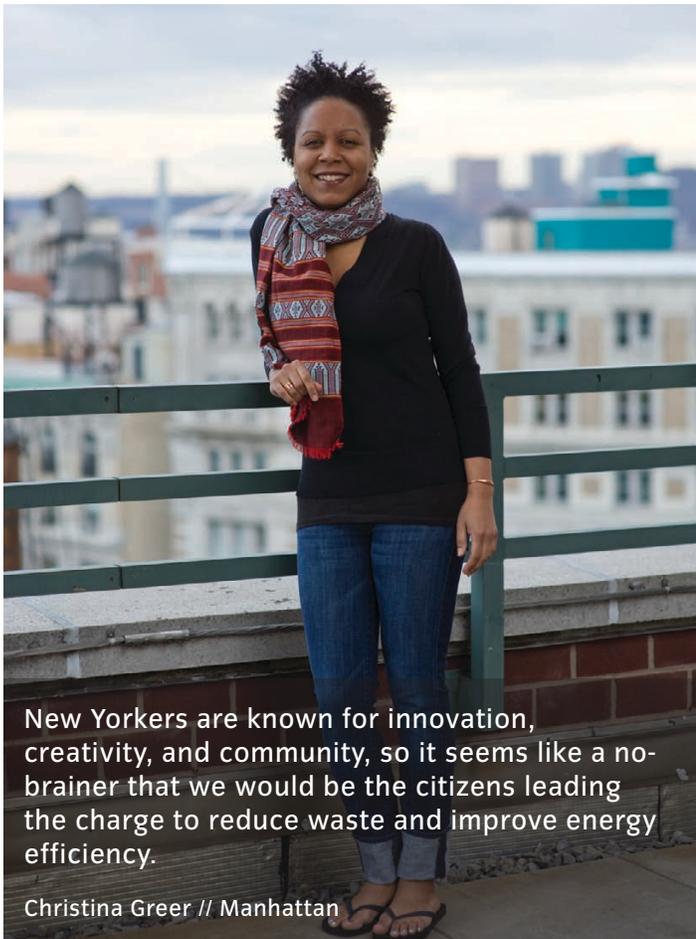
I use a cell phone and a computer, an alarm clock, an electric toothbrush. I ride the subway, I stay warm and cool inside and out, I buy food, I cook, I eat out, I go to movies and plays. When do I not use energy?

Michael Johnson Chase // Manhattan



I have been trained, and now train others, to inspect one- and two-family homes and make them more energy efficient. In the future this will be a great field for me to start my own business.

Arturo Miranda // Queens



New Yorkers are known for innovation, creativity, and community, so it seems like a no-brainer that we would be the citizens leading the charge to reduce waste and improve energy efficiency.

Christina Greer // Manhattan



Today's cogeneration technology has risen to a level of efficiency which now approaches 90%. Nearly all the fuel used in today's ultra-high efficiency cogen plants can be put to use producing electricity, high-temperature hot water, and chilled water for buildings.

John Bradley // Manhattan



Energy

Reduce energy consumption and make our energy systems cleaner and more reliable

From the birth of our gas distribution system in 1823, to Thomas Edison's creation of the first central power plant on Pearl Street in 1882, New York City has long been an innovator in urban energy systems. In turn, these systems have shaped our city. Electrically powered subways drove the city's expansion across the five boroughs, while elevators and district steam systems allowed the city to grow vertically into a breathtaking landscape of skyscrapers. Without energy, we would not have Broadway's bright lights, Astoria's movie studios, or Wall Street's trading floors. In short, these energy systems created a dense metropolis known for its high-energy lifestyle—"A City That Doesn't Sleep."

But compared to rest of the country, we are surprisingly low-energy when it comes to consumption. The average New Yorker is responsible for roughly one-third the greenhouse gas (GHG) emissions of the average American because our density makes for an extremely energy-efficient lifestyle. New Yorkers typically walk or take public transportation, rather than driving. And we inhabit smaller spaces, often in multi-family buildings with shared energy systems.

Yet, we can do better. Our once-innovative energy infrastructure needs to be modernized and our buildings are full of outdated equipment. Burning fossil fuels to create electricity, hot water, and heat contributes to air pollution and GHG emissions. As our summers get hotter and last longer, peak demand for electricity forces the activation of our dirtiest in-city power plants and causes stress to our electrical grid. Our energy is also expensive: New Yorkers pay among the highest retail energy prices in the nation, collectively spending more than \$15 billion each year. We must reduce our energy consumption and clean our supply to ensure that we have reliable, affordable, and clean energy over the coming decades.

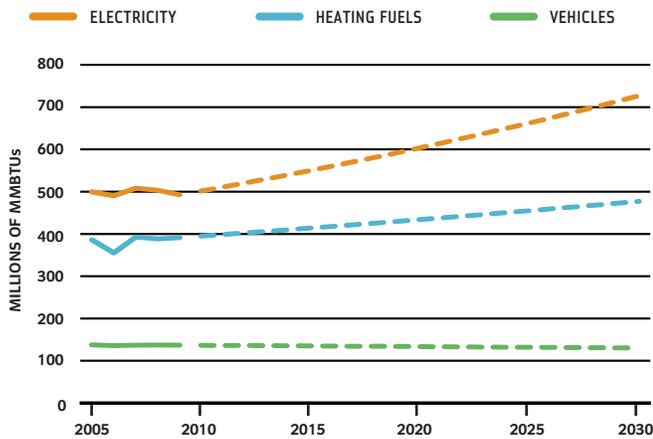
A central strategy for improving our energy system is to reduce energy consumption in existing buildings, which is the most cost-effective way to reduce GHG emissions. Energy use in buildings accounts for 75% of our GHG emissions, and up to 85% of the buildings that will exist in 2030 are already here today. Efficiency improvements will save money and energy, while also creating skilled, local jobs. But achieving this at the large scale will require transformational changes across the entire building industry.

We must also clean our supply of heating fuels and electricity. To create heat and hot water, roughly 10,000 of our largest buildings use residual oil, a viscous fuel that is nearly as dirty as coal. Eighty-six percent of soot pollution from buildings comes from the burning of residual oil—despite the fact that it is only used in 1% of our buildings. Eliminating the use of residual oil will require additional natural gas pipeline capacity to the city—which we have not received in over 40 years—as well as extensive upgrades to the local gas distribution system.

Our electrical supply, on the other hand, is already cleaner than the national average because we have access to low-carbon nuclear and hydroelectric power, as well as a portfolio of relatively clean natural gas-fired generation. Still we must go further. Older power plants can be retrofitted or "repowered" to achieve greater efficiencies. We can also encourage investments in efficient cogeneration, renewable power, and expanded transmission lines.

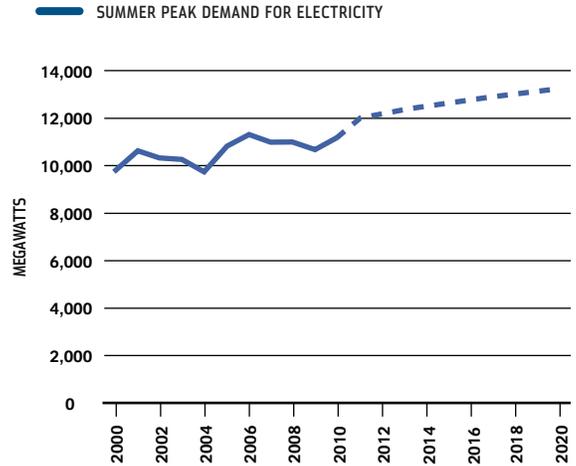
Attracting these investments has become increasingly challenging following the recession of 2008, which dampened growth in energy demand and prices. As our economy recovers, uncertainty about future consumption levels will affect the pace of private sector investments in modernizing our energy system. Further complicating matters is the potential closure of the Indian Point Energy Center, a nuclear power plant located in the Lower Hudson Valley

New York City Energy Consumption: Historic and Projected Business as Usual Scenario



Source: M. J. Beck Consulting, LLC

Peak Demand for Electricity: Historic and Projected Business as Usual Scenario



Source: New York Independent System Operator

that supplies up to 30% of our power virtually carbon-free. Removing this cornerstone of our electricity system could threaten reliability, increase prices, and jeopardize our GHG reduction efforts.

Since 2007, we have made significant progress to reduce energy demand. Working with the City Council, we passed the Greener, Greater Buildings Plan, the most far-reaching legislation in America impacting energy use in existing buildings. We also launched the Green Codes Task Force, which developed 111 specific proposals for sustainable improvements to our codes, many of which have already been enacted. We have also implemented an accelerated strategy to reduce GHG emissions from City government operations 30% by 2017, and nearly 30 major institutions have agreed to match us.

We have also made strides to improve the city's energy supply and distribution system. Con Edison, the regulated utility that serves most of the city, has made major upgrades to the electrical distribution grid to increase reliability. Two older power plants in the city have been repowered or replaced with more efficient technologies. Renewable energy investments have grown rapidly in response to new incentives, lower prices, and streamlined permitting. Together, these changes to our supply mix have made our electrical system more robust and reduced its GHG intensity by 26% since 2005.

This progress is encouraging, but we—the City, private and public utilities, state and federal regulators, financiers, and consumers—all need to do much more. Without continued energy efficiency improvements and investments in our supply and distribution infrastructure, we will not meet our energy, air quality, and GHG emission reduction goals.

Our Plan

We will build a greener, greater New York by reducing energy consumption and making our energy supply cleaner, more affordable, and more reliable.

We will pursue three general strategies to reduce energy consumption and improve efficiency: implementing and effectively enforcing the policies that we have already launched, broadening their reach to new sectors, and promoting the best new practices.

Our plan for energy:

Improve energy planning

- 1 Increase planning and coordination to promote clean, reliable, and affordable energy

Increase our energy efficiency

- 2 Implement the Greener, Greater Buildings Plan
- 3 Improve our codes and regulations to increase the sustainability of our buildings
- 4 Improve compliance with the energy code and track green building improvements citywide
- 5 Improve energy efficiency in smaller buildings
- 6 Improve energy efficiency in historic buildings
- 7 Provide energy efficiency financing and information
- 8 Create a 21st century energy efficiency workforce
- 9 Make New York City a knowledge center for energy efficiency and emerging energy strategies
- 10 Provide energy efficiency leadership in City government buildings and operations
- 11 Expand the Mayor's Carbon Challenge to new sectors

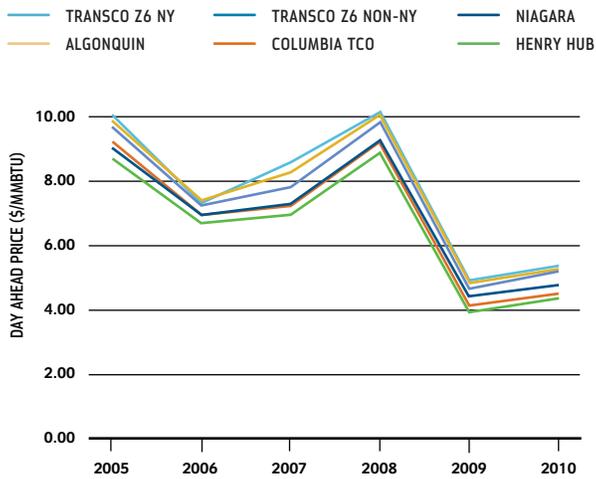
Provide cleaner, more reliable, and affordable energy

- 12 Support cost-effective repowering or replacement of our most inefficient and costly in-city power plants
- 13 Encourage the development of clean distributed generation
- 14 Foster the market for renewable energy in New York City

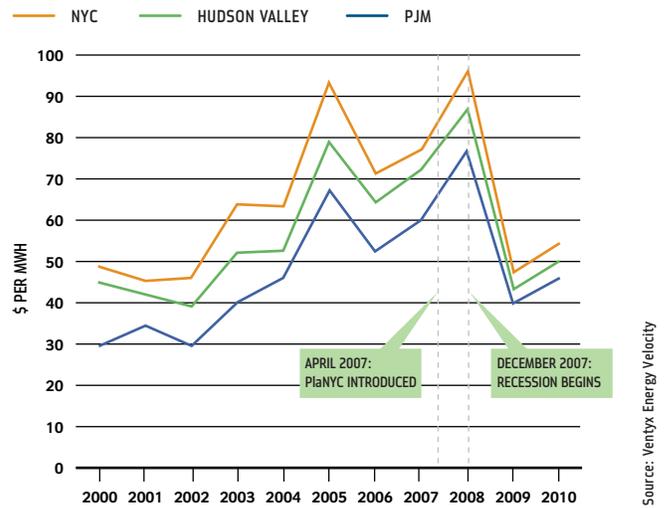
Modernize our transmission and distribution systems

- 15 Increase natural gas transmission and distribution capacity to improve reliability and encourage conversion from highly polluting fuels
- 16 Ensure the reliability of New York City power delivery
- 17 Develop a smarter and cleaner electric utility grid for New York City

Annual Average Day-Ahead Natural Gas Prices (Northeast Region and Henry Hub)



Average Annual Wholesale Electricity Price



To ensure the successful implementation of the Greener, Greater Buildings Plan and the Green Codes Task Force proposals, we will work to provide the building industry the resources it needs to comply. We will create an energy efficiency corporation to provide financing for energy upgrades in private buildings that will pay for themselves. We will remove barriers in our codes and regulations, and overcome split-incentives that are embedded in real estate leases. And we will collaborate with our partners to ensure that building owners and managers make informed decisions about their energy use and that we have a sufficiently skilled workforce.

We also need to expand our efforts beyond the largest buildings we initially targeted. We will work to increase the energy efficiency of our one million small and mid-sized buildings and in our historic building stock. And we will adopt the latest, more stringent national model codes for new construction and renovations.

Finally, we will continue to lead within our own building portfolio to accelerate GHG emission reductions and employ visionary technologies and design strategies. By partnering to create a world-class energy engineering program, a data clearinghouse on large building energy use, and venues to test cutting-edge practices, we will once again make New York City a knowledge center in urban energy innovation.

Changes to our energy supply portfolio can either advance or derail our efforts to reduce GHG emissions and improve air quality. For this reason, we will support the continued safe operation of Indian Point.

We will also encourage a more diversified portfolio of private sector-driven supply and transmission investments to ensure that future New Yorkers have access to clean, affordable, and reliable power. We want to attract the best ideas and world-class investments. We will offer support in

the regulatory and permitting process for clean energy projects that will benefit New York City, including utility-scale renewable projects.

To foster the growth of smaller-scale clean energy technologies we will make targeted and cost-effective investments at City-owned facilities, and seek partnerships with the private sector to reduce direct costs to the city while capitalizing on best available practices. We will also work with utilities to encourage these types of investments across the city by streamlining permitting and interconnection processes.

Finally, we will accelerate the phase-out of highly polluting residual heating oil and mitigate future supply constraints by aiding in the development of appropriately sited natural gas transmission pipelines. To create economies of scale that will lower conversion costs, we will work with utilities and key stakeholders to cluster buildings in underserved neighborhoods where gas distribution upgrades can have the greatest air quality benefits.

Together, these strategies will enable us to invest wisely in our future. New Yorkers will save money. Our economy will grow. And we will make progress toward our clean air and GHG reduction goals.

Improve energy planning

We only have so much ability to influence our energy system. Unlike water and sewer infrastructure, the electric, gas, and steam systems in New York City are investor-owned and regulated by the state and federal governments, not the City. We can use building and energy codes to encourage efficiency and regulations to require cleaner fuels. But ultimately the decisions of millions of individual households and businesses will determine how energy is used. For this reason, it is essential to partner with utilities, regulators, state energy agencies, and other key stakeholders to align our goals, policies, and incentives.

INITIATIVE 1

Increase planning and coordination to promote clean, reliable, and affordable energy

No single entity oversees New York City's complex energy systems. Con Edison manages the entire electrical grid and steam system, National Grid and Con Edison share natural gas distribution, and dozens of companies provide fuel oil. The New York State Public Service Commission (PSC) regulates the electricity, natural gas, and steam distribution systems, while several state and federal regulators approve new energy infrastructure development. The New York State Energy Research and Development Authority (NYSERDA), Con Edison, and National Grid all manage programs to encourage energy efficiency and renewable energy. The City administers the energy code for buildings.

While the City is not in the energy business, we do have a compelling interest in ensuring that New Yorkers can access clean, reliable, and affordable energy today and in the future. To achieve these goals, we need to think holistically about the energy spectrum, from the largest power plants and transmission lines down to the heating systems in individual buildings. Clearly, this will require engagement, collaboration, and the sharing of information with the large number of public and private parties involved.

Energy supply projects take years to develop and decisions made by the energy industry stay with us for decades, impacting the cost of doing business in the city. To coordinate on strategic and regulatory issues, we established the New York City Energy Planning Board, consisting of the City, the State, and the utilities. In 2009, the Energy Planning Board presented for the first time a unified vision in its collective comments to the New York State Energy Plan and recently members helped shape the City's study on the potential impacts of an Indian Point retirement.



Credit: Empire State Building is a registered trademark and used with permission

An energy retrofit will reduce the Empire State Building's energy consumption by 38%

We have also created an Energy Policy Task Force to bring together a broader range of stakeholders to advise us on energy issues. We will rely on this group for guidance on topics such as the building out of the city's natural gas distribution system and public-private partnership models for financing clean distributed generation and renewable energy projects.

We will continue to work with the Planning Board and Task Force to encourage clean energy supply investments, effective incentive programs, shared data collection and management, and coordinated energy forecasting.

Increase our energy efficiency

In the past four years, New York City enacted the nation's most comprehensive set of policies to improve energy efficiency in buildings. We must successfully implement these policies, which include training tens of thousands of building managers, architects, and electricians. We will also combine federal funds with private dollars to provide building owners with access to capital for energy upgrades.

Energy efficiency practices must be expanded to address the one million smaller buildings not covered by the Greener, Greater Buildings Plan (GGBP). This expanded effort could include requirements for energy transparency measures for all buildings.

New York City must also continue to develop visionary building practices. We will work to streamline the approval of new technologies, and we will strive to make New York City a leader in the emerging discipline of energy efficiency.

INITIATIVE 2 Implement the Greener, Greater Buildings Plan

In December 2009, the City Council passed four laws, collectively known as the GGBP, that require energy efficiency upgrades and energy transparency in large existing buildings. Specifically, these laws call for annual benchmarking, energy audits, retro-commissioning, lighting upgrades, and sub-metering of commercial tenant space.

Three out of these four laws only impact the city's largest 16,000 properties, both public and private, that compose half the built area in the city. By 2030, these laws will reduce GHG emissions by at least 5% citywide, save New Yorkers more than \$750 million per year, and create almost 18,000 construction-related jobs.

These laws will transform the building industry by making energy efficiency common practice. Transforming an industry involves developing new regulatory procedures—terms must be legally defined, procedures codified, and rules made comprehensive enough to cover a range

of conditions. Working with the real estate industry, we will develop rules and guidelines to implement and fully enforce these new laws.

The Greener, Greater Buildings Plan requires the city's largest buildings to annually measure their energy use, called benchmarking, and for this information to be made public. We benchmarked 2,700 City government buildings and this data will be shared. To measure the effectiveness of the new benchmarking law and to understand energy use in buildings, we will analyze and report on benchmarking results for the first three years the law is in effect.

INITIATIVE 3 Improve our codes and regulations to increase the sustainability of our buildings

Buildings have a significant impact on New York City's environment. Energy use in our buildings is responsible for 75% of our carbon emissions, 94% of our electricity use, and 85% of our potable water consumption.

Green building and operating techniques can dramatically improve the performance of our buildings. We must ensure that the most cost-effective, sustainable, common-sense strategies become common practice by "greening" New York City's codes.

At the request of Mayor Bloomberg and Speaker Quinn, the Urban Green Council (UGC) assembled the New York City Green Codes Task Force, consisting of more than 200 experts in design and construction. The task force developed 111 proposals to green the City's codes. These proposals would modify City codes and regulations that impact buildings or impede green building practices.

Twenty-two Green Codes Task Force proposals have already been adopted through law, rule, or change to practice. We will complete the incorporation of the Green Codes Task Force proposals into our regulations. We will also refine a group of proposed changes to the Zoning Resolution to remove barriers to energy efficient building envelopes and the siting of clean energy on buildings. Going forward, it will be important to work with technical experts and industry and regulatory authorities to ensure that the new codes are cost-effective and achievable, while ambitious enough to bring the benefits of green building to all New Yorkers.

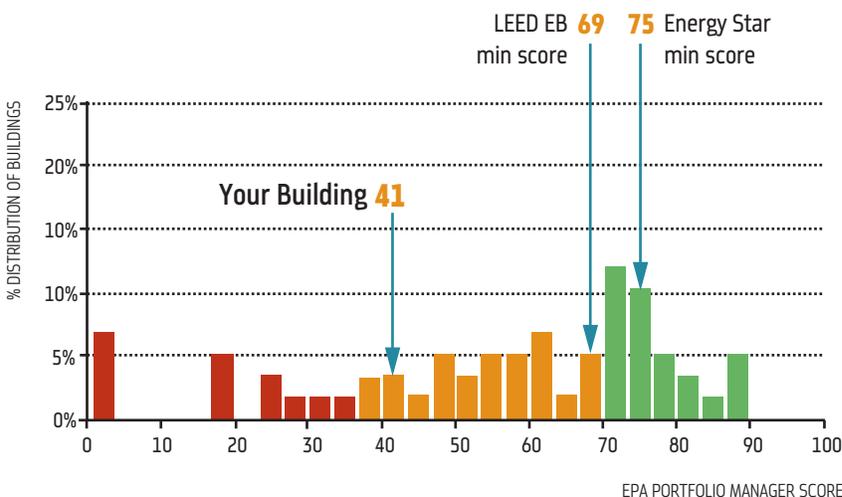
Concurrently, there have been national efforts to create comprehensive green codes that could apply across the country. These efforts culminated in the International Green Construction Code (IGCC) and ASHRAE 189.1. We will work with the International Code Council (ICC) and the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) to bring New York City's codes and these model green codes into greater alignment.

Efficiency of new construction and renovations can also be improved by adopting the next iteration of the model energy codes, which are national standards. These codes are 30% more stringent than the 2010 City codes. We will amend the model energy codes to reflect the unique conditions of New York City and work with the City Council to adopt them.

We have also established several boards to approve new technologies and ambitious projects not addressed by current codes and regulations. This includes a Building Sustainability Board to develop building code and product standards for new technologies, an Innovation Review Board to bring together multiple agencies to review new codes or technologies, and the Interagency Green Team to address broader issues. We will continue to convene these entities to review and facilitate the use of new technologies.

41 Your Benchmarking Score:

Compared to the EPA Portfolio Manager Scores of other buildings in New York State



Source: New York State Energy Research and Development Authority

INITIATIVE 4 Improve compliance with the energy code and track green building improvements citywide

We have taken great strides to increase energy efficiency through our codes. Architects and engineers must now submit energy analyses and drawings to show how a design meets current energy code requirements, and we are requiring progress inspections during construction. We will aim to achieve 90% energy code compliance by 2017 through stringent enforcement and by providing energy code training for designers.

To track citywide impacts and provide better information to the public, we will develop a "Green Building Report Card" and an online tracking tool to show which buildings are making green improvements, such as installing a cool roof or converting boilers to cleaner fuels.

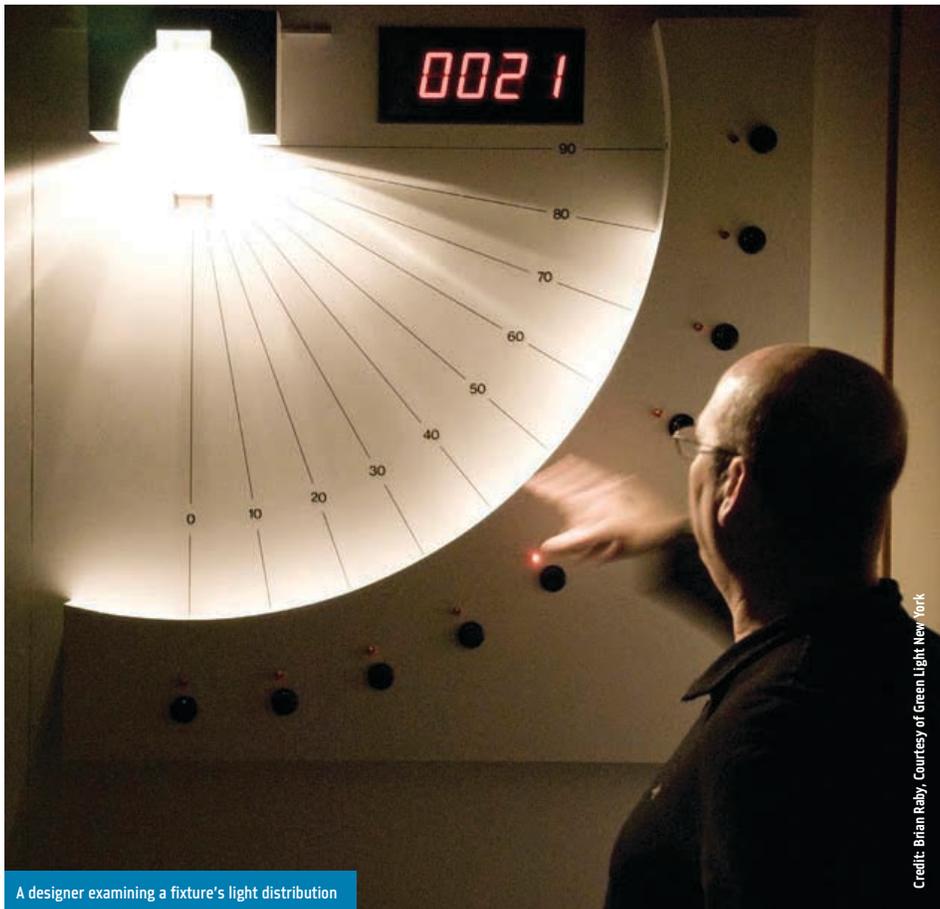
INITIATIVE 5 Improve energy efficiency in smaller buildings

The Greener, Greater Buildings Plan addressed energy efficiency in buildings over 50,000 square feet, which collectively constitute about half the floor area of the city. To meet our carbon reduction goal, we must also address the efficiency

of the buildings that account for the other half of our inventory, which includes more than one million homes and small- to mid-sized buildings.

Several other cities and states have implemented policies to increase the energy efficiency of buildings by providing information to potential buyers at the time a building is sold. Austin, Texas requires energy audits for small residential properties; California requires benchmarking of all commercial properties; Montgomery County, Maryland mandates the disclosure of energy use and costs for residential properties. These requirements allow prospective building owners to learn about the energy efficiency of the property they are considering and have information about potential energy upgrades at the same time they are financing and planning other improvements. We will work with the City Council and other stakeholders to develop a strategy to increase the energy efficiency of smaller buildings.

To encourage energy efficiency in buildings at the time of change in ownership, we will launch a series of energy efficiency public education campaigns. These efforts will leverage the NYC Green House program and GreeNYC campaigns to educate New Yorkers about reducing energy consumption. We will also launch an energy efficiency competition between residential neighborhoods throughout the five boroughs.



A designer examining a fixture's light distribution

Credit: Brian Raby, Courtesy of Green Light New York

CASE STUDY Green Light New York

"Bright Lights, Big City" couldn't be more appropriate. In New York City, 27% of our electricity is used to light buildings, accounting for 12% of our overall carbon emissions. Fortunately, efficiency gains from lighting can be made cost-effectively and quickly because of dramatic, ongoing advancements in lamp efficiency and in sensors and controls that turn lights off when they aren't needed. In response, the national model energy codes have doubled in stringency over the past 20 years. The Greener, Greater Buildings Plan will bring these improved standards to buildings throughout New York City.

Designing lighting that meets the stringent requirements of the new codes and still provides a workable, pleasant environment isn't easy. Lighting strategies must be seen to be understood and evaluated. A large number of professions are involved in lighting decisions, including architects, engineers, interior designers, lighting designers, building owners and managers, contractors, distributors, and electricians—over 50,000 people in New York City. According to a recent poll, few of these decision-makers are familiar with basic lighting concepts, the new codes, or new technologies.

To overcome these barriers and reap the efficiency benefits of the regulations, New York needs a lighting resource center—a physical space where exemplary lighting designs can be seen, classes taught, and lighting strategies mocked up and demonstrated. In California and Washington, such centers have effectively supported advanced energy codes for over 20 years. In partnership with the National Resources Defense Council, New York State authorities, and the professional associations, we have helped create a not-for-profit, Green Light New York, to be a resource center to support the New York lighting industry.

Green Light New York will demonstrate lighting solutions with a mock up space, exhibits, a day lighting lab, and interactive examples of best practices and solutions. It will also provide a venue for lectures, demonstrations, and classes in energy efficiency. By providing a physical center for this exchange of knowledge, Green Light New York can accelerate progress toward our energy and carbon goals.

INITIATIVE 6 Improve energy efficiency in historic buildings

Architecturally and historically significant buildings are important for preserving New York City's identity. The style, design, and façades of our buildings merit protection—but their inefficient energy systems could sometimes benefit from modernization, without compromising external visual character.

The national model energy codes exempt national and state landmarks from complying with current standards. But the intention behind this exemption doesn't mean we should necessarily preserve inefficient lighting, leaky envelopes, and wasteful heating and cooling systems. In many cases, the integrity of historic buildings can be kept when hidden energy-using systems are modernized. We will work with the historic preservation societies to reconcile energy codes with preservation requirements. We will also partner to create a handbook of energy efficiency strategies for historic buildings, which will help design professionals retrofit such buildings more effectively.

INITIATIVE 7 Provide energy efficiency financing and information

To make energy efficiency upgrades, building owners need access to capital and information. Historically, banks have been reluctant to lend money for energy efficiency projects because the loans are relatively small and difficult to manage.

To overcome these obstacles, we will create a not-for-profit corporation, the New York City Energy Efficiency Corporation (NYCEEC), capitalized with federal stimulus funding and organized to partner with the commercial lending industry and philanthropic sources. NYCEEC will make energy efficiency financing less risky for lenders and more accessible to property owners.

New York State and the federal government have increased funding for energy efficiency programs roughly six-fold in recent years. However, the rules can be bewildering, and programs are run by different agencies and utilities. As a result, they often overlap or leave critical gaps for funding.

Through NYCEEC, we will create an information center to provide comprehensive, updated information on energy efficiency funding and tax incentives. We will also work with the State PSC, NYSERDA, and our utilities to ensure that state efficiency programs support our carbon

CASE STUDY Amalgamated Green

For the Greener, Greater Buildings Plan (GGBP) to transform the building industry and reduce energy use, the owners and managers of 16,000 properties and their workforce need training in the new specialties of energy efficiency.

City government can't assess these needs or deliver the trainings on its own, but we can convene the people with knowledge and resources. We helped create Amalgamated Green, a group of 30 stakeholders, including the unions, the Real Estate Board of New York (REBNY), City University of New York (CUNY), professional societies, and energy training providers to build these resources. For each GGBP law, the group analyzed training needs and how best to meet them. Through Amalgamated Green, resources have been created for outreach on the Greener, Greater Buildings Plan and for trainings in the NYC Energy Code and benchmarking.

For example, funded by Con Edison and NYSERDA and aided by a pro-bono market analysis by the firm of HR&A, Urban Green created a presentation about the GGBP and is managing volunteers who will deliver it to owners and managers. To educate the design community about the new energy code, NYSERDA has funded Urban Green to develop a class that will be delivered by American Institute of Architecture (AIA) chapters.

Benchmarking is another example. The largest buildings in New York are now being benchmarked thanks to the teamwork of organizations throughout the industry. Owners can now get aggregated building data from Con Edison and National Grid. The U.S. Environmental Protection Agency's online tool addresses multi-family buildings and tracks benchmarking data. NYSERDA funded the Association for Energy Affordability to hold benchmarking trainings twice a week, and CUNY students are managing a hot line to answer questions. Finally, Urban Green and the Related Companies have developed a step-by-step explanation of how to comply, and REBNY has hosted several comprehensive information sessions.

As we implement the Greener, Greater Buildings Plan and adopt the proposals of the Green Codes Task Force, we will continue harnessing the resources of our building industry through Amalgamated Green—now a proven resource.



Trained building operator using new skills learned in energy efficiency program

Credit: Clark Jones

reduction initiatives, become more transparent and accountable, and are fairly apportioned to New York City.

INITIATIVE 8 Create a 21st century energy efficiency workforce

Achieving large-scale energy efficiency requires transforming the knowledge, skills, and practices of the entire building industry. Architects and engineers must understand the energy code. Building managers and superintendents must learn to benchmark and operate their buildings more efficiently. Electricians must know how to correctly install advanced sensors and controls.

In 2010, we launched Amalgamated Green, a group including universities, unions, and professional associations focused on identifying and developing skills needed to achieve our goals. As the demand for workers with the skills to implement our sustainability policies evolves, we will work with this group to ensure we have a qualified workforce. Working with public and private partners, we will also help launch Green Light New York, an energy education center that will initially focus on lighting training for designers and other real estate professionals.

Because electricians will need to install advanced energy systems, we will incorporate the energy code into the licensing exam and continuing education curriculum for electricians.

A lack of national standards in energy efficiency professions is hampering progress. We are working with the U.S. Department of Energy and the National Renewable Energy Laboratory to help develop national certification standards. Once national standards are in place, we will adopt them.

To encourage builders to upgrade their skills, we will develop and implement a sustainable contractors designation program for electricians, plumbers, and general contractors that demonstrate knowledge in green practices and technologies.

INITIATIVE 9 Make New York City a knowledge center for energy efficiency and emerging energy strategies

To make our city a national knowledge center for energy efficiency, we need an energy engineering program, a consolidated database of information on energy use in buildings, and broader exposure to new technologies.

While New York City has many skilled practitioners in energy efficiency, we don't have a major degree program in energy efficiency engineering. We will partner with a university to develop a program in energy efficiency engineering and building science. The program will train the next generation of building energy specialists and

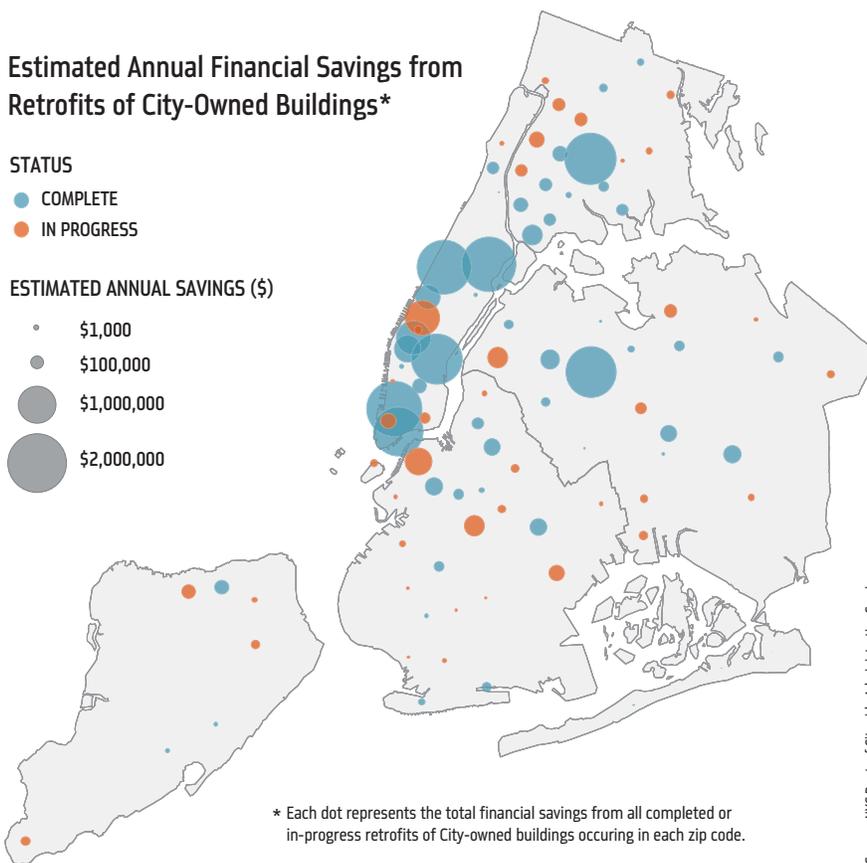
Estimated Annual Financial Savings from Retrofits of City-Owned Buildings*

STATUS

- COMPLETE
- IN PROGRESS

ESTIMATED ANNUAL SAVINGS (\$)

- \$1,000
- \$100,000
- \$1,000,000
- \$2,000,000



Source: NYC Dept. of Citywide Administrative Services

and hundreds of occupancy sensors have been installed, along with other energy conservation measures. The museum is saving \$356,400 from their annual utility bills, and reduced its annual GHG emissions by 1,431 metric tons.

Improving the operation and maintenance (O&M) of our buildings will reduce energy consumption. A pilot project in City buildings found that no-cost operational changes, such as turning off lights and setting thermostats correctly, reduced energy consumption by an average of 17%. By implementing our O&M plan, we can capture this low cost operational savings potential.

City agencies currently have little incentive to prioritize energy efficiency, because energy bills are paid centrally. We will create incentives to ensure that agencies prioritize conservation and proper energy system management practice.

We can also accrue savings by ensuring that interior renovations done to City facilities are more efficient. We will create standards and a handbook for green renovations of City facilities. Working with the City Council, we will also create a board to assess the merits of new technologies and pilot them in City buildings.

We will help the private sector address these opportunities for efficiency too. Under some leases, landlords are not motivated to make long-term capital improvements for energy efficiency because tenants pay the energy bills. To enable both parties to share in the benefits of energy efficiency, we have worked with the real estate industry to develop voluntary model lease language. We will incorporate this energy-aligned lease language in new City leases where the City is the tenant, and work with the private sector to make this standard practice in New York City.

Today's industry leaders are going even further, creating new buildings that use little to no energy through techniques known as net-zero or Passive House. They are trying to dramatically cut energy consumption in existing buildings through "deep energy retrofits." By piloting at least one net-zero school, a Passive House building, and a deep energy retrofit project, we will continue to be at the forefront of building practice.

INITIATIVE 11 Expand the Mayor's Carbon Challenge to new sectors

Institutions, such as hospitals and universities, are poised to reduce their energy consumption quickly. They have the long-term perspective of owning and operating their properties for many

host a research program to identify and address the most common and serious energy issues that affect our building stock.

Understanding how our building stock uses energy and the effectiveness of various efficiency strategies has been hindered by a lack of data. This is about to change. All of our energy efficiency efforts, including private sector benchmarking, audit reports, the upgrades to municipal buildings, energy projects funded by NYCEEC, and the Mayor's Carbon Challenge, will provide us with robust data. We will partner with one or more institutions to develop a standardized energy database and make this information available to the real estate, technical, financial, and business communities.

Finally, we need to encourage the best new practices in the private sector. New York City has long been a national leader in green design, from the first green skyscraper in Times Square, to the first green residential high-rise in Battery Park City. We need to quicken the cycles between the generation of new ideas and their incorporation into projects, and we need to broaden familiarity with new strategies in order to facilitate more widespread adoption. We will partner with our cultural institutions to create exhibits where the public and decision-makers alike can see and experience the best new strategies.

INITIATIVE 10 Provide energy efficiency leadership in City government buildings and operations

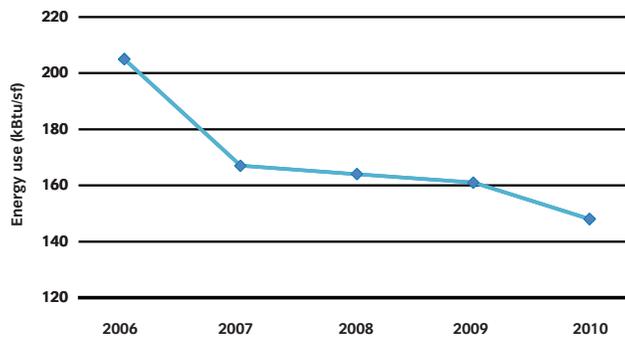
New York City will continue playing a leading role both in piloting innovative technologies and in implementing our aggressive plan to cut municipal GHG emissions by 30% below FY 2006 levels by 2017 (30x17). As a leader, we will develop industry capacity and promote best practices.

New York City government uses energy in diverse ways. This includes operating 14 wastewater treatment plants, a large vehicle fleet, thousands of streetlights, and 4,000 buildings. Our 30x17 program addresses all of these uses.

Since 2007, the equivalent of 10% of our energy budget has been allocated to energy efficiency investments. This commitment is being supplemented by \$700 million received to fund energy efficiency work in schools. To further ramp up our efforts, we will pursue a variety of procurement mechanisms, including Energy Savings Performance Contracting.

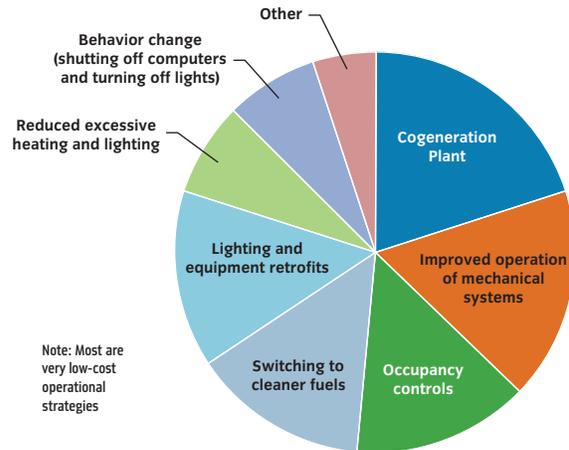
As part our 30x17 program, the American Museum of Natural History underwent a comprehensive energy audit and received a series of energy efficiency upgrades. Lighting fixtures have been retrofitted throughout the museum

New York University's Energy Reductions



Source: New York University

Key Components of NYU's Energy Reduction Strategy



Source: New York University

decades. In 2007, Mayor Bloomberg issued a challenge to the city's largest universities and hospitals to match the City's goal of reducing carbon emissions 30% in ten years.

Twenty-nine institutions have accepted the Mayor's Challenge. They have created GHG inventories and action plans for emissions reductions, and they meet regularly to share information. The institutions participating include many of the city's largest energy users and collectively account for more than 75 campuses and roughly 80 million square feet of real estate.

Only three-and-a-half years into the Challenge, many institutions are on track to achieve their 30% reduction well in advance of the ten-year timeline. Several universities and hospitals have already surpassed the goal and are eager to commit to a more ambitious target. We will continue to support the University and Hospital Challenges, and will develop "stretch goals" including setting a new carbon reduction goal for the next decade.

Building on our success with universities and hospitals, we will expand the Challenge program to at least two new sectors. Housing cooperatives and condominiums, large commercial tenants, hotels, religious institutions, and similar entities are good candidates. They compose a significant amount of real estate, and their ownership structures facilitate concerted management of energy efficiency.

The cooperative housing sector, for example, includes one in ten New York City housing units. It accounts for more than 350 million square feet of real estate, and is responsible for 1.7 million metric tons of GHG emissions per year. If 40% of the cooperatives in the city met the goals of a Mayoral challenge, by 2021 this could lead to an annual GHG emissions reduction of 206,000 metric tons. This is equivalent to making 35,000 New Yorkers carbon neutral.

Provide cleaner, more reliable, and affordable energy

We are working to make our energy supply portfolio cleaner, more reliable, and more affordable. New York City is fortunate to have an electricity supply that is already cleaner than the national average. Most in-city power plants are gas-fired and our imports are primarily carbon-free nuclear and hydropower. However, many of our in-city generation resources are old and inefficient, and congested transmission lines limit our ability to import larger amounts of clean electricity. And we have one of the highest wholesale electricity prices in the nation.

Complicating matters is the potential closure of the Indian Point Energy Center in the Lower Hudson Valley. Closing Indian Point without a viable and relatively clean replacement option would jeopardize reliability, significantly increase prices, worsen local air quality, and make it very challenging to achieve our goal of reducing GHG emissions 30% by 2030. For these reasons we will support the continued safe operation of Indian Point.

To ensure that future New Yorkers have access to clean, reliable, and affordable energy, we will also seek to diversify our supply portfolio and make existing generation in the city more efficient. This will require more robust electric and gas networks, better incentives for modernizing generation assets, targeted investments in cogeneration and renewable energy, and longer-term transformational options for harnessing cleaner resources outside the city. The development of two state-of-the-art gas-fired plants in the New York City area that will come online soon indicates that private developers can be attracted to build projects that improve air quality and increase system reliability. We will work with utilities, regulators, and the private sector to encourage more of these investments.

INITIATIVE 12

Support cost-effective repowering or replacement of our most inefficient and costly in-city power plants

Given the relative lack of available building sites in the city that are suitably zoned for power plant construction, one of the most promising means to increase energy production while improving affordability and environmental outcomes lies in repowering existing plants.

Repowering means replacing old generation units with new units that burn cleaner fuels, increase capacity and efficiency, and improve operational flexibility. Well-designed retrofits emit far fewer pollutants, use far less fuel, and can significantly reduce cooling water consumption. The result is cleaner air and water, as well as lower energy costs. Repowering is our first policy choice for cleaning our energy supply because it produces demonstrable benefits at current industrial sites.

Leaving older and dirtier power plants in place is simply too costly for New Yorkers' health and pocketbooks. Unfortunately, some energy market rules can deter potential developers from entering the market with new generation resources. For that reason, we support a wholesale energy market design that encourages sensible repowering and new generation projects. We will advocate that the New York Independent System Operator (NYISO) and the Federal Energy Regulatory Commission (FERC) adopt energy and capacity market rules designed to best serve the interests of ratepayers, while also recognizing the needs of energy infrastructure developers to obtain a fair return on their investments.

CASE STUDY

Public-Private Partnerships To Capture and Utilize Methane

Our 14 wastewater treatment plants utilize stomach-like “digester” units to remove solids from wastewater, while making methane gas as a by-product. Methane is a potent GHG when released to the atmosphere but, if captured, it is a relatively clean energy source known as natural gas. We currently capture and use about 30% of methane from treatment plants to meet on-site energy needs. However, we still emit large quantities, equivalent to over 250,000 tons of carbon dioxide annually. Public-private partnerships will allow us to put more of this gas into productive use at minimal direct cost to the City—thereby reducing our GHG emissions cost-effectively.

At the Newtown Creek Wastewater Treatment Plant we are partnering with National Grid to develop one of the nation’s first “waste-gas-to-grid” projects. When completed in spring 2012, the project will inject purified digester gas into National Grid’s distribution system, which serves Brooklyn, Queens, and Staten Island. The project will inject enough gas to heat 2,500 homes and will also reduce our GHG emissions, the same savings as removing 3,000 vehicles from the road.



National Grid is funding all capital costs in exchange for a guaranteed annual stream of gas. The delivery of any additional gas will generate revenue for the City. This innovative agreement will bring to market a cost-effective source of renewable gas and will serve as a replicable model for other urban sites.

We are also pursuing a partnership at the Wards Island Wastewater Treatment Plant that accomplishes multiple goals at once. Buildings on Wards

Island are served by a 75-year old centralized heating system that must be replaced. We are exploring a private partnership to develop a cogeneration system at the Wards Island Wastewater Treatment Plant that would reduce direct costs to the City while providing necessary infrastructure and reducing emissions.

This system could use digester gas supplied by the treatment plant to produce district heat while also generating 10 to 30 MW of electricity.

INITIATIVE 13

Encourage the development of clean distributed generation

Clean distributed generation (clean DG) enables properties to create their own power with higher efficiencies and less environmental impact than central plants. For example, cogeneration systems can achieve high efficiencies by capturing the heat by-product of electricity production and reuse it for heating and cooling, thus reducing GHG emissions. Clean DG systems also help lower peak demand for electricity and improve the reliability of our electrical grid. We will seek to develop 800 megawatts (MW) of clean DG.

We have ample opportunities to develop clean DG at City-owned sites. We expect clean DG to contribute up to 10% of the GHG emissions reduction needed to achieve our 30x17 goal. We are currently developing cogeneration plants at Rikers Island and the new Police Academy in College Point, Queens, totaling over 15 MW in capacity. We are also examining cogeneration at the North River Wastewater Treatment Plant, at a complex of government buildings in Lower Manhattan, and at other sites, possibly in partnership with the private sector. We will also explore the feasibility of clean DG as part of the renovation of City Hall.

Many private building sites are also ideal for cogeneration, but private developers often face steep obstacles bringing projects to fruition. We will work with utilities and project developers

to streamline permitting and interconnection processes. We will also encourage utilities to improve coordination of electric and gas distribution planning. This will help ensure that most residential clean DG sites have adequate gas supply and are able to provide demand reduction or emergency backup power benefits. Finally, we will continue to advocate for cost-effective ratepayer-funded incentives to catalyze clean DG development.

INITIATIVE 14

Foster the market for renewable energy in New York City

Nationwide, installed capacity of renewable energy has more than doubled in the past four years to over 53,000 MW. New York City’s densely built environment makes it more difficult to develop large-scale renewable energy projects. However, the city does have some key opportunities to attract private investment and integrate renewable energy into our energy supply mix.

A recent GreenNYC study found that over 60% of New Yorkers would be willing to purchase renewable energy at a premium. We will explore possibilities for pooling consumer purchasing power to drive the development of local renewable energy resources. We will also promote consumer awareness about renewable energy options and work with energy service companies to account for the GHG reductions that result from consumer purchases.

Solar

Solar photovoltaic (PV) is ideal for an urban environment because it can be located near end-users, reducing the need for expensive transmission upgrades. Last year alone, New York City’s installed solar capacity doubled from 3 MW to 6 MW. The City’s solar property tax abatement and expanded “net metering” rules have significantly improved the economics for solar PV projects. Lower installation costs, improved technology, and streamlined permitting processes have also driven growth.

We expect to see even more growth over the next four years because of state and local incentive programs. The Public Service Commission (PSC) forecasts that a new five-year \$125 million program for large-scale renewable energy projects in the New York City area will add more than 60 MWs of solar PV to Con Edison’s service territory by 2015. We also expect continued growth in applications for the City’s solar tax abatement, and we will evaluate the cost-effectiveness of this program in the coming years.

To support this growth, we will create an online solar map that will enable New Yorkers to determine the potential for generating solar power on their rooftops. We will also work with Con Edison, the National Renewable Energy Laboratory, and the private sector to create a performance monitoring system linked to over 100 solar PV installations across the city. This system

Clean Energy Projects at City-Owned Sites: Planned or Under Development

CLEAN ENERGY PROJECTS AT CITY-OWNED SITES

- COGENERATION
- WASTE-GAS-TO-GRID PROJECT
- WIND TURBINE
- SOLAR PV
- SOLAR THERMAL
- SMALL HYDROELECTRIC

↑
● Hydroelectric power at upstate DEP water facilities





The Pennsauken, N.J. renewable energy park, built on a landfill

Credit: PPL Renewable Energy



The Nysted Offshore Wind Farm in Denmark

Credit: NRG Bluewater Wind

will provide insight on how distributed solar resources interact with the electrical grid and can aid peak demand reduction.

Solar projects are currently subject to a complex permitting and interconnection process involving numerous entities. To streamline this process, we will work with Con Edison, NYSERDA, and other parties to explore the development of a centralized website for permit application and tracking. We are also modifying City codes and regulations to remove barriers to solar investments while maintaining necessary safety standards.

The City will also use its own assets to drive solar development. We currently have 15 photovoltaic and solar thermal projects in design. We are installing small-scale solar PV and solar thermal projects at City-owned sites and plan to release a Request for Proposals for third-party installation and ownership of 3 MW in 2011.

We will explore public-private partnerships to develop larger renewable energy projects, including utility-scale solar energy projects at capped municipal landfills. City landfills can accommodate more than 50 MW of solar power on only a small fraction of available land. These projects can be sensitively developed to complement habitat restoration efforts and longer-term plans for recreational use. Installing solar power at these sites could significantly improve local air quality by reducing generation at the city's dirtiest plants during periods of peak summer demand.

Wind

New York State is a leading location for wind energy in the Northeast, with nearly 1,300 MW installed. However, most wind projects were built far away from New York City, and we are unable to access these sources of carbon-free electricity. By using City assets and thinking creatively, we can create closer opportunities to build both small and large wind projects to serve New York City.

We are exploring the development of small wind projects at City-owned sites. These projects must be technically feasible, cost-effective, located near load centers, and compatible with local community needs. For example, the Oakwood Beach Wastewater Treatment Plant in Staten Island may provide an ideal location for a wind turbine, and we are studying the feasibility of developing a 1.5 MW project at the site. The Fresh Kills Landfill in Staten Island is also being studied by private developers for the feasibility of wind turbines.

Offshore wind projects present a potentially transformative opportunity to develop utility-scale renewable energy that will feed directly into the city. European countries have developed nearly 3,000 MW of offshore wind and the U.S. Department of Energy concluded that the mid-Atlantic area has vast potential. However, no offshore wind project has been successfully completed in the United States.

The City is an active party in an offshore wind development collaborative with Con Edison, the Long Island Power Authority (LIPA), and the New York Power Authority (NYPA). The collaborative seeks to develop several hundred megawatts of wind power more than ten miles off the coast of the Rockaways in Queens. Private developers are exploring additional areas for wind arrays and transmission interconnection options off the Atlantic coast. We will work with state and federal regulators to support cost-effective proposals for both public and private offshore wind projects that will benefit New York City.

Hydropower

The City's upstate watershed and downstate water distribution system provide opportunities to develop clean hydroelectric power.

We currently operate five hydroelectric power facilities at the City's upstate drinking water reservoirs. We have studied the economic and environmental feasibility of four additional generation facilities that could provide approximately 15

MW of power at those locations. We are working with energy developers and will develop generating capacity if sufficient commercial interest and public benefit is demonstrated, and if we can ensure that projects can be developed in an environmentally sensitive manner.

We will also investigate how to generate energy from the large volumes of water that flow through our water distribution and wastewater treatment systems. Additionally, we will evaluate the prospects for tapping into "geothermal" resources, such as sewer systems and groundwater, to serve heating and cooling loads at nearby buildings.

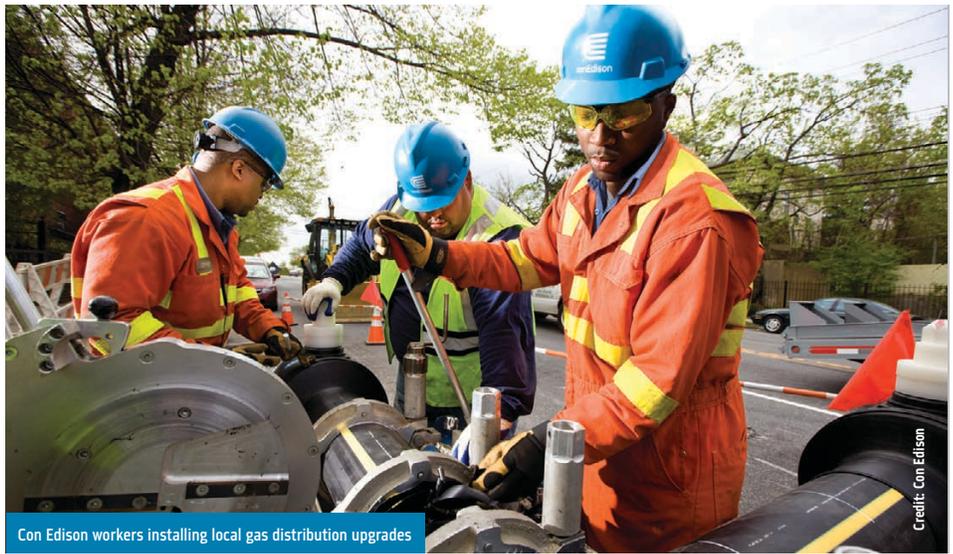
Biogas

Approximately 7% of the City government's GHG emissions come from methane that is vented and flared at wastewater treatment plants. If captured, this gas could be injected into the natural gas distribution system or productively reused as fuel for on-site power and heat generation for our buildings. We are pursuing innovative cogeneration and waste-gas-to-grid projects at the Newtown Creek and Wards Island Wastewater Treatment Plants. These projects can reduce GHG emissions with minimal direct cost to the City and will establish a financial model that can be replicated at other urban sites. By 2017, we will reuse 60% of the anaerobic digester gas produced in our wastewater system.

Modernize our transmission and distribution systems

New York City's energy infrastructure consists of a complex and interwoven network of power plants and electricity, steam, and gas transmission and distribution systems. Much of this infrastructure is in need of modernization to achieve our goals and to sustain New York City as a global financial and commercial hub. Investment by building owners and utilities in advanced

distribution and energy management systems improve demand reduction capabilities and the integration of distributed energy resources. The city's natural gas supply must be reinforced with new transmission capacity connecting to gas resources outside of the city, and distribution upgrades are needed within the city to keep up with growing demand. The city faces a number of reliability challenges and opportunities, including the possible closure of Indian Point and the development of new transmission lines that could one day deliver cleaner and less expensive electricity.



INITIATIVE 15

Increase natural gas transmission and distribution capacity to improve reliability and encourage conversion from highly polluting fuels

New York City has a critical need for additional natural gas capacity. Despite decades of population and economic growth, no new major direct transmission pipelines have reached the city in more than 40 years. Without additional capacity, utilities will be unable to respond to growing demand for new service as customers pursue clean DG and conversions from dirty heating oil. Supply constraints could also drive up electricity prices since 90% of our in-city power plants are gas-fired.

To ease supply constraints we will assist developers in obtaining permits and approvals for appropriately-sited natural gas transmission pipelines. The proposed Spectra Energy pipeline would provide natural gas supply to up to 2 million homes in New Jersey and the greater New York metropolitan region, as well as much needed supply to the Bronx, Manhattan, and portions of Queens. Similarly, the proposed Transco Williams pipeline would critically reinforce gas supplies in Brooklyn and Queens. We will work with pipeline developers, FERC, and community stakeholders to expedite the siting and development of both of these projects.

City regulations eliminating the use of highly polluting residual heating oil will increase demand for new gas service. With gas prices nearing historic lows and expected to remain below oil prices for some time, building owners have the unique opportunity to upgrade their heating systems while generating a return on their investment. In addition to significantly improving air quality, residual oil users can save over half a billion dollars annually by converting from dirty heating oil to natural gas.

We will work with Con Edison, National Grid, and key partners to accelerate upgrades to our natural gas distribution system in underserved areas where they can have the greatest air quality benefits. By identifying clusters of buildings that are ready to convert from oil to natural gas, we will help create economies of scale that will lower the costs of conversion for customers. We will collaborate in developing a multi-year infrastructure build-out plan and will advocate state regulators to allow utilities to aggressively implement it.

Increasing concerns about the environmental and health impacts of natural gas production cannot be ignored. We will work with state officials to protect New York City's watershed from natural gas exploration. As a responsible consumer of natural gas supplies, we will also forcefully advocate for improved regulations and safety standards nationwide.

INITIATIVE 16

Ensure the reliability of New York City power delivery

New Yorkers remember past disruptions to the electrical grid. Today the grid is more reliable thanks to expanded demand reduction efforts and Con Edison's improvements following the 2006 Queens outage. However, we still face significant reliability challenges. Principal among these is the potential closure of Indian Point, which could lead to major system disruptions in the absence of a viable replacement plan.

New York City's ability to import electricity is limited by under-sized and congested transmission lines, and opportunities to expand in-city generation are limited. Periods of peak summer demand put significant stress on utility infrastructure and cause the activation of the dirtiest in-city plants. As a result, each summer we must brace for the possibility of neighborhood-level outages and increased air pollution.

We will seek to diversify our energy portfolio by importing additional generation resources from outside the five boroughs. For example, we are pursuing more robust interconnection with neighboring power systems such as Pennsylvania-New Jersey-Maryland (PJM) to increase reliability and resource diversity. We will also continue to evaluate the costs and benefits of longer-term and more transformative transmission line proposals that would deliver additional sources of clean power to the city. One such proposal would connect deep offshore Atlantic wind directly with the city. Others would allow us to import Canadian hydropower or upstate wind resources.

Ensuring reliability goes beyond physical interconnections to electricity sources. For example, Con Edison relied on customers to reduce their demand by nearly 450 MW on the hottest days last summer to ensure reliability. Emergency load shedding programs have existed for decades, but they will take on a new importance as a model for market-based mechanisms to reduce energy consumption that will be made possible by a smarter, more responsive energy grid.

INITIATIVE 17

Develop a smarter and cleaner electric utility grid for New York City

When Thomas Edison opened the Pearl Street power station in Lower Manhattan in 1882, he laid the foundation for the modern electric grid—an innovation that changed the world but that has changed relatively little since that time.

Today the utility industry is making strides to develop a smarter, more responsive electric system. Enhancing two-way communications with energy users will help utilities to reduce peak demand while enabling consumers to earn money by saving energy. Advanced controls and diagnostics will facilitate the integration of clean

CASE STUDY

What Happens if Indian Point Closes?

New Yorkers receive up to 30% of their total electricity from Indian Point, a nuclear facility in the Lower Hudson Valley which emits virtually no greenhouse gases or air pollution. Indian Point's low operating costs help displace generation at more expensive and polluting power plants located inside the city and throughout the state. We also depend heavily on Indian Point for reliability, as congested transmission lines limit our ability to import power from more distant locations.

The City supports the continued safe operation of Indian Point. However, we know that Indian Point may not still be operating in 2030, the horizon for PlaNYC. The plant may be denied a New York State water quality permit that is required for federal relicensing in 2013.

Retiring Indian Point without replacing at least a portion of its capacity could lead to power system instability. Replacement costs would exceed \$2 billion, New Yorkers would also pay at least \$1.5 billion in higher energy costs over the next decade, and electricity consumers could see their bills increase by 15%. Local air pollution would



increase and our efforts to reduce GHG emissions 30% by 2030 would be unachievable because we would most likely shift to electricity generated by more carbon-intensive sources. With these impacts in mind, we will work with Entergy (Indian Point's owner), Con Edison, and state and federal

regulators to ensure that measures are taken to keep the plant safely online. At the same time, our objectives of reducing demand for energy and diversifying our sources of supply for energy are valid strategies regardless of Indian Point's expected lifespan.

distributed energy resources, including a growing number of electric vehicles. Although these advances will take time to develop, they will transform the way we use energy.

The City will pilot strategies for a smarter grid by deploying an Energy Enterprise Metering System (EEMS) in thousands of its buildings. This innovative system will deliver real-time consumption information to building operators and will enable the City to increase its participation in peak load management from 17 MW up to 50 MW. We will also explore opportunities to leverage City assets such as its wireless communication infrastructure to assist utilities in conducting automated meter reading for power and gas customers.

We are also partnering with the private sector and academic institutions to implement a federally funded smart grid demonstration project at the Brooklyn Army Terminal. The project will tie together a building management system, a 500 kW solar PV array, and a battery system to store power generated on-site. Integrating these systems will demonstrate the viability of "virtual generation," in which buildings can profit from selling energy curtailment services on wholesale electricity markets.

Con Edison has received substantial federal funding to undertake smart grid demonstration and pilot projects. A demonstration project in Long Island City has tested the responsiveness

of residential and business customers to price signals and other means of prompting demand reduction. We will continue to support Con Edison's efforts to capitalize on lessons learned and to scale up cost-effective technologies.

We will also work with regulators, utilities, building owners, and energy companies to encourage deeper participation by commercial and industrial consumers in market-based programs to reduce peak demand. In addition to enhancing reliability, these programs will improve air quality, lower electricity prices, and over the longer term mitigate the need for costly system upgrades.

Conclusion

We have set ambitious goals to reduce demand for energy, obtain a cleaner, more reliable, and affordable supply of energy, and reduce our city-wide carbon emissions by 30% by 2030. We have laid out comprehensive policies that put us on track to achieve those goals, but good policies alone will not ensure our success. Succeeding will require consistent commitment, strong partnerships, and proper alignment of actions that may be beyond our control.

Dramatically reducing energy consumption and carbon emissions in a city of more than 8 million people over 20 years is an unprecedented

enterprise that will require persistence and vigilance. We must not only adopt the right policies, we must ensure that they are properly implemented, that their success is measured, and that the policies are amended as situations change and we learn more.

In addition, because our energy systems are owned and operated by a variety of corporate and public entities, and regulated by a variety of state and federal agencies, we will need to continue developing strong strategic relationships with property owners, consumers, regulators, financial institutions, funding authorities, and others, and work together to achieve our common goals.

Actions beyond our control, such as the closure of the Indian Point Energy Center, could make it difficult, if not impossible, to achieve our GHG reduction goals and to maintain reliability and affordability. Other actions, like a national carbon tax, could make it easier to reduce consumption and clean our supply. Clarity of purpose, constant measurement of our progress, and adaptability of our plan are essential to meet our goals in the face of such uncertainty.