

Moving toward sustainable energy in New York City

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,Over the past few years, a variety of laws have been enacted in New York State and New York City as we accelerate our transition to a more efficient and decarbonized energy system. One new rule that is bound to

attract attention is a new system of grading and then displaying the energy efficiency rating of large buildings. Just as restaurants must display the grade they receive evaluating the cleanliness of their kitchen, building owners are required to calculate and report their energy efficiency. As Lizeth Beltran recently reported in [Crain's New York Business](#):

"As part of legislation the City Council passed in April, roughly 50,000 buildings in the [city](#) that are 25,000 square feet or larger must display a letter grade near public entrances...The new grading system is part of [Local Law 95](#), an amendment to Local Law 33, and is part of the city's [Climate Mobilization Act](#), which aims to cut greenhouse carbon emissions by 40% by 2030."

These grades will increase public awareness of [building](#) energy efficiency and also help convince building maintenance staff of the need to pay attention to the operation and maintenance of building energy systems. The operation of buildings is one piece of a complex process that will need to be managed as we seek to reduce carbon emissions from our city. The heavy lifting is not promulgating the policy proclamations but ensuring that the day-to-day actions taken to use energy actually transform the policy goals into operational reality.

An important element of the city's drive toward more efficient buildings is work underway in the city government's own buildings. New York City has about 325,000 employees and manages about 3,000 buildings. Its investments in energy efficiency can both save energy and money and also provide an example for private building owners. The city government's building stock is old and presents great challenges to energy efficiency goals. Those goals are quite ambitious as indicated by the [city's website](#) which notes that:

"The Department of Citywide Administrative Services (DCAS) Division

of Energy Management (DEM) is the hub for energy management in City buildings. As such, we play a critical role in supporting our agency partners' progress towards the City's major emissions reduction and energy objectives. These goals include the following:

1. 80×50, which is focused on achieving an 80 percent economy-wide reduction in overall New York City emissions (covering both City government operations and private sector) by 2050, using a Fiscal Year 2006 baseline for City government operations.
2. 40×25 and 50×30, which are focused on achieving a 40 percent emissions reduction for City government operations by 2025 and 50 percent by 2030, using a Fiscal Year 2006 baseline. These new targets put forth under the 2019 Climate Mobilization Act, are intended to accelerate progress towards 80×50.
3. 100MW×25, which is focused on installing 100 megawatts of solar photovoltaic systems on City buildings by 2025.
4. 100MWh×20, which is focused on installing 100 megawatt hours ("MWh") of energy storage across private and public facilities by 2020.
5. Executive Order 26 ("EO26"), which committed the City to the principles of the Paris Climate Agreement. As part of the planning associated with EO26, the City pledged to reduce energy usage from City buildings by a further 20 percent by 2025 from a Fiscal Year 2016 baseline."

These are an ambitious set of energy goals and some of the work underway in [retrofitting old city government buildings](#) and in managing [energy load](#) will make important contributions to achieving these goals.

For both government and private buildings, the cost side of the energy transition includes capital investment in meters, energy controls, energy storage, solar and wind generation, building and window insulation and

similar items. It also includes training and staffing costs along with the cost of developing and implementing new management systems. All of these investments not only reduce pollution but also result in reductions in energy costs. Fuel costs go down, along with society-wide savings due to the health and productivity benefits that occur when reductions in air pollution are factored in.

The energy transition in this city will be gradual and involve thousands of small steps by thousands of organizations within New York. Institutions like the university I work for are installing vehicle charging stations in garages and purchasing electric buses and automobiles. The MTA has begun a long-term plan to electrify its bus fleet. According to a recent report by Lydia Hu of [NY1](#):

"A brand-new electric bus made its first trip through 14th Street on Sunday morning. It's one of 15 all-electric articulated buses added to the M14 route...It's part of the agency's move to modernize the bus fleet and its commitment to an all-electric fleet by 2040. The agency says each bus costs \$1.4 million and will save an estimated 8,000 gallons of fuel per year.... The all-electric articulated buses, which are buses connected in the middle with a joint, are added to 10 standard all-electric buses the MTA leases as part of a three-year pilot program launched in 2018 to test the all-electric technology. Next, the agency plans to spend \$1.4 billion from the 2020-2024 capital plan to purchase 500 electric buses. The goal is to purchase only electric buses by 2029."

I liken the energy transition to New York City's gradual transformation from a manufacturing to a service economy. The changes were the result of a vast number of private and public decisions that changed the way we live and work. Lofts in SoHo that once housed manufacturers were abandoned and leased to artists and eventually became fashionable homes for hedge fund traders. Print shops were replaced by art galleries. Buildings were re-purposed and replaced. Many of the changes were

subtle and took decades to take root.

The electrification of New York will require new energy sources from solar, wind and hydropower. It will require investments in microgrids and smart grids to reduce waste and in building-specific [energy efficiency](#) methods and technologies. We will also need to hope that new energy storage technologies are developed and we can invest in them as well. Progress will be uneven and we will make many mistakes along the way. But the commitment of New York's state and city governments to decarbonize our [energy system](#) is clear. It is one instance where Mayor DeBlasio and Governor Cuomo appear to be in full agreement. New York and California are leading the way on the energy transition and at least another dozen states are also pushing this agenda.

New York City's greatness has long been the result of leadership that acted in the public interest. Enlightened civic leadership built our water system, designed the street grid, built Central, Van Cortland and Prospect Parks, built our subway system, brought back public safety and rescued New York City from bankruptcy and the horror of 9-11. Leaders have always managed to emerge just when they were needed. It is that leadership that we are seeing from New York's government and institutions today on the climate crisis. It will help ensure that the cost structure of New York City's energy will be able to compete with enlightened cities around the globe. Whenever we walk by a large building, we will be reminded of New York's energy leadership when we see the building's [energy](#) letter grade. As the decade draws to a close, we can only hope it provides an example that will soon spread a few hundred miles to the south where our federal government sits mired in dysfunction and paralysis.

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