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New City Green Laws May Spur Retrofitting



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As 2009 drew to a close, Mayor Michael R. Bloomberg signed into law four bills designed to reduce the city's carbon footprint. Collectively known as the Greener, Greater Buildings Plan, the bills provide for the creation of a New York City Energy Conservation Code, benchmarking of water and energy use performance, upgrading of lighting during major renovations, and energy auditing/retro-commissioning (adjustments to mechanical systems to enhance energy efficiency).¹ Two of the bills—benchmarking and energy auditing/retro-commissioning—will compel an examination of the energy usage of large buildings throughout New York City and may, in turn, result in efforts by owners to improve the energy efficiency of their buildings under a process known as “retrofitting.” In this article, we will address the benchmarking and energy audit laws, the process of retrofitting under LEED (i.e., Leadership in Energy and Environmental Design) standards, and incentives and financing available for retrofitting.

Benchmarking

The benchmarking component of the Greener, Greater Buildings Plan requires owners of all buildings exceeding 50,000 gross square feet to input and submit information to the U.S. Environmental Protection Agency Energy Star benchmarking tool and any complimentary interface designed by New York City's Office of Long Term Sustainability. The information concerns the total use of energy and water for buildings for the previous calendar year. The benchmarking tool tracks and assesses the energy and water use in certain buildings relative to similar buildings.

The benchmarking law requires that city buildings be benchmarked no later than May 1, 2010 and that private buildings be benchmarked no later than May 1, 2011. Commencing on Sept. 1, 2012, the Department of Finance will make the information generated by the benchmarking tool available to the public. The information will, among other things, provide an energy

utilization index, water use per square foot, a rating that compares energy and water use of the building to that of similar buildings and a comparison of data across calendar years for the benchmarked building.

Energy Auditing

The energy auditing law requires owners of all buildings exceeding 50,000 gross square feet to conduct an energy audit of, and perform adjustments and corrections (known as retro-commissioning) to, base building systems (building envelope, HVAC, elevators, water and lighting), once every 10 years. The energy audit is designed to identify and develop modifications and improvements of base building systems, including the installation of new equipment or energy efficiency technology.

Now that owners of large New York City buildings are being required to evaluate the energy usage in their buildings, it may follow that green retrofitting will be employed to increase energy efficiencies.

The audit must be performed by a Department of Buildings (DOB) approved agency or, until qualification standards are adapted by the DOB, a registered design professional, and must be in accordance with Level II requirements of the American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE).

The energy audit shall provide, at a minimum, measures designed to reduce energy use and operating costs; associated annual energy savings and paybacks; the building's benchmarking output; a breakdown of energy usage by system; and an assessment of energy used outside the base building system that impacts the energy consumption of base building systems. A retro-commissioning report must be filed together with the energy audit and the adjustments to the systems must be performed by an authorized agent to insure that sufficient analysis, corrections and testing have been done so that base building systems are efficiently run, with the goal of maximizing energy and cost savings.

Green Building Certification

Building owners, armed with the results of benchmarking and energy audits may conclude that it makes sound financial sense to renovate and retrofit their buildings to improve their position in the marketplace. As part of the retrofitting process, building owners may also wish to participate in the U.S. Green Building Council's rating system that will certify their buildings as having achieved various levels of energy efficiency. In the case of retrofitting, the relevant criteria for rating a building as “green” is found under “LEED for Existing Buildings: Operations & Maintenance,” referred to as LEED-EBOM, which differentiates itself from other LEED rating systems by focusing primarily on building operations, preventative maintenance and systems performance.²

To meet the prerequisites and earn a sufficient number of credits to become certified under LEED-EBOM, most buildings must go through retrofits and make other capital improvements. Building owner and operators wishing to qualify under LEED-EBOM must concentrate on actual building performance by evaluating current operating conditions through auditing and retro-commissioning—both of which are now required under the Greener, Greater Buildings Plan.

The focus of LEED-EBOM is on operations and maintenance. The greatest number of points for certification are available in the “energy and atmosphere” category, reflecting the focus on building operations. Planning and documentation is also a required element of LEED-EBOM. To meet this prerequisite, a building owner must submit a full building operating plan, which is essentially a handbook for the building, containing a full mechanical schedule, equipment service providers, system drawings, operating schedules, system set points, alarm procedures, all system narratives and the sequence of operations. The sequence of operations describes in detail how all systems interact with each other and with the energy management system. Other prerequisites involve increasing energy efficiency and the elimination of CFCs.

Many buildings can achieve energy efficiencies through simple means such as

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installing occupancy sensors and bi-level lighting, insulation and other material to fill penetrations in the building envelope, low-flow water fixtures, high efficiency boilers, and heat controls, and replacing appliances with Energy Star appliances. Other credits for LEED-EBOM can be earned through building retro-commissioning, benchmarking and the installation of automated building and energy management systems.

Tax Incentives

There are various financial tax incentives designed to encourage building owners to improve energy efficiency through retrofitting. The federal Emergency Economic Stabilization Act of 2008 (EESA) extended certain federal tax incentives to encourage building owners to invest in energy retrofits.³ Originally scheduled to expire at the end of 2008, the EESA extended the tax credit until the end of 2013. To qualify as an "energy efficient commercial building property," the upgrades must meet the following criteria: (1) they must be depreciable or amortizable; (2) the installation must meet the requirements of ASHRAE Standard 90.1-2001 in effect as of April 2, 2003; (3) the retrofits must include the replacement of the interior lighting system or the heating, cooling, ventilation and hot water system of a building; and (4) the building, once retrofitted, must meet certain certification requirements.

The amount of the tax deduction may be up to \$1.80 per square foot for structures that save at least 50 percent of the costs related to heating, cooling, water heating, interior lighting and ventilation in comparison to a hypothetical building that meets the minimum requirements of ASHRAE Standard 90.1-2001.⁴ Partial deductions of up to \$.60 per square foot may be taken for measures that achieve a savings of 16 $\frac{2}{3}$ percent but less than 50 percent and affect any one of three building systems: the building envelope, lighting, heating or cooling systems.⁵ These tax deductions may be taken for "energy efficient commercial building property" placed in service from Jan. 1, 2006 through Dec. 31, 2013.

The Energy Policy Act of 2005 also provides a tax credit under IRC Section 48 for investment in alternative energy systems in commercial buildings that may be taken the year the system is placed into service. A credit of 30 percent of the investment costs for solar energy, microturbine equipment and qualified fuel cells was extended by the EESA to Jan. 1, 2017. A 10 percent credit is available for combined heat and power systems and geothermal heat pumps.

State Incentives

New York State offers the Green Building Tax Credit (GBTC) for certain energy efficient retrofits in commercial buildings of up to \$2 million for using green building construction techniques.⁶ Eligible buildings include hotels and office buildings with at least 20,000 square feet of interior space, residential multi-family buildings having at least twelve units with at least 20,000 square feet of interior space, and residential multi-family buildings having at least two units with at least 20,000 square feet, provided that 10,000 square feet is under construction or rehabilitation in any single phase.

The credit has six different credit categories: a whole building design, a base building design, tenant space design, fuel cell installation, photovoltaic module system use, and green refrigerant use. To claim the credit component for whole or base building design, a rehabilitated building must demonstrate that it uses no more than 75 percent of the energy allowed under the New York State Energy Conservation and Construction Code for a building its size. Regulations provide detailed provisions on standards and methods of compliance in categories such as appliances, energy use, ventilation and exchange of indoor air, and waste disposal.⁷ Authorized building owners may claim credits through 2014; however, the funding for the Green Building Tax Credit is limited.

Financing For Retrofits

The New York State Energy Research and Development Authority (NYSERDA) offers a wide range of financial incentives for energy-efficient retrofits. Under the NYSERDA Energy Smart New Construction Program (NCP),⁸ a substantial renovation project is eligible for capital cost incentives if the renovation plans call for: (1) a change of use and reconstruction of an existing building or space within; (2) construction requiring that the building or space within be out of service for at least 30 consecutive days; or (3) reconstruction of a vacant structure or space within the building. There is no limit to the size of the project that is eligible for the program, either in terms of energy usage or building square footage.

Many buildings can achieve energy efficiencies through simple means such as installing occupancy sensors, low-flow water fixtures and replacing appliances with Energy Star appliances.

These grants can help to offset a portion of the incremental cost to purchase and install more energy-efficient or advanced technology equipment and may cover up to 75 percent of the incremental costs based upon an escalating payment scale depending on the amount of energy savings. The NCP also provides grants for whole building design and advanced solar and daylighting technology installation which are capped at 60 percent of the calculated incremental cost, except for LEED-certified buildings which are capped at 75 percent. Finally, the NCP provides financial incentives for technical assistance, building commissioning services and applicant design teams.

NYSERDA also runs the Existing Facilities Program to provide up to \$30,000 in incentives for pre-qualified energy efficiency and conservation measures.⁹ Some of these measures include the installation of efficient lighting and HVAC systems, variable frequency drives, interval meters and efficient gas systems. The NYSERDA Energy Smart Loan Fund Program (LFP) offers an interest rate reduction on loans for energy-efficient improvements or renewable energy technologies.¹⁰ Commercial buildings, including those which have received grants through the

NCP or the Existing Facilities Program, may also qualify for the LFP. The maximum loan amount that may be subsidized for construction of multifamily properties is \$1,000,000, plus an additional maximum of \$500,000 for loans for green building improvements. The maximum loan amount that may be subsidized under this program for existing multifamily buildings is \$5,000 per residential unit, up to \$2,500,000.

NYSERDA provides cash incentives for the installation of new solar electric or photovoltaic (PV) systems by eligible installers. The incentive for the typical commercial system covers approximately 40-45 percent of the installed cost of the PV system. The incentives are paid directly to the eligible installers but must be passed on in full to the customer. Only customers that pay the Renewable Portfolio Standard (RPS) program surcharge on their electricity bill are eligible and the incentives are capped based on a PV system size that produces no greater than 110 percent of the demonstrated annual electric use for the building.

NYSERDA also offers cash incentives for microturbine or small wind generation systems. Like the PV incentives, the payments are paid to the eligible installers who must pass on the entire incentive to the owner of the system. The maximum incentive is \$150,000 per site and the payments will not be made until all required permits and approvals are in place and the system has been approved by the local utility connected to the grid.

Conclusion

Now that owners of large New York City buildings are being required to evaluate the energy usage in their buildings, it may follow that green retrofitting will be employed to increase energy efficiencies. Following LEED-EBOM criteria may also result in green certification and an improvement of the profile and marketability of those buildings. While retrofitting may require substantial capital cost, federal and state tax and financing incentives are available to assist owners in offsetting those costs. In the long run, green retrofitting will result in widespread benefits to building owners and the public.

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1. See Kenneth M. Block and Hilary Semel, *New York City's Greener, Greater Buildings Plan Becomes Law*, NYLJ, Jan. 8, 2010.

2. See Kenneth M. Block, Hilary Semel and Erica Brabon, *Retrofitting*, in the *Law of Green Buildings* at 273-98 (J. Cullen Howe and Michael B. Gerrard eds., American Bar Association 2010).

3. The Emergency Economic Stabilization Act of 2008, H.R. 1424; Pub. L. No. 110-343.

4. I.R.C. §179D(c)(1)(D).

5. I.R.C. §179D(d)(1)(A)(ii).

6. N.Y. Real Property Tax Law §19.

7. 6 N.Y.C.R.R. §638.7.

8. Information about this program is available at http://www.nyserda.org/programs/New_Construction/default.asp.

9. Information about this program is available at http://www.nyserda.org/Existing_facilities/default.html.

10. Information about this program is available at <http://www.nyserda.org/loanfund>.