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GREEN RETROFITTING

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Recovery Act May Stimulate Energy Efficient Building



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A vast array of programs designed to stimulate the economy through federal spending in areas ranging from infrastructure improvements to the creation of renewable energy sources is contained in the American Recovery and Reinvestment Act of 2009.¹

Included within the act are programs intended to improve the energy efficiency of federal buildings and public housing, which may lead to widespread green retrofitting of both public and private buildings. In this article, we will highlight the Recovery Act retrofitting programs, discuss other federal and state incentives available for retrofitting, and touch upon LEED² criteria for green building certification.

Retrofit Programs

A sampling of green retrofit programs under the Recovery Act follows:

- Weatherization Assistance (Department of Energy, Office of Energy Efficiency and Renewable Energy): installation of energy efficiency mechanical measures to heating and cooling systems.
- Energy Efficiency and Conservation Block Grants (DOE): development, implementation and installation of renewable energy technologies for governmental buildings.
- State Energy Program (DOE): promotion of energy efficiency in residential, commercial and governmental buildings through retrofits.
- Conversion of Federal Buildings to High-Performance Green Buildings (General Services Administration): promotion of retrofits that will reduce energy, water and material use.
- Public Housing Capital Fund: Formula

and Competitive Grants (Housing and Urban Development): development of financing and modernization of public housing projects, including the redesign, reconstruction and reconfiguration of public housing sites and buildings and the development of mixed-finance projects.

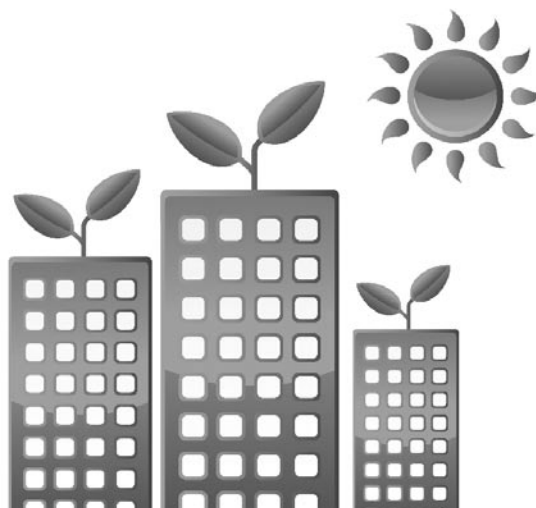
- Energy and Green Retrofit Investments in Elderly, Disabled and Section 8 Assisted

installing or improving energy efficient systems can be greatly reduced.

Tax Benefits

The federal Emergency Economic Stabilization Act of 2008 extended two important federal tax incentives to encourage building owners in the private sector to invest in energy retrofits.⁴ The Energy Policy Act of 2005 (EPACT) provides a tax deduction for building owners or designers of 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 of a building that meets the efficiency standards of ASHRAE Standard 90.1-2001.⁵ To qualify for this deduction, the building for which the tax deduction is taken must be within the scope of structures covered by this standard.⁶ EPACT also provides a tax credit for investment in alternative energy systems that may be taken the year the system is placed into service.⁷

New York State offers the Green Building Tax Credit for certain energy retrofits in commercial buildings.⁸ The credit has several components: a whole building or base building design; tenant space design; fuel cell installation; photovoltaic (PV) module system use; and green refrigerant use. The intent of the credit is to encourage green building practices, including the reduction of energy consumption in building operations. Funding for Green Building Tax Credit is limited; interested owners and developers should look into whether any proposed retrofits may be eligible for the credit as early as possible.



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Housing (HUD): provide incentives to owners to undertake energy or green retrofits.³

Although these programs are essentially geared to the public sector, it can be reasonably anticipated that there will be a spillover into the private sector as a result of grant funds under the Recovery Act and other incentives available at the federal and state level for greening buildings.

Incentives in New York

A number of federal and state programs provide incentives for retrofits to improve energy efficiency in existing buildings, primarily through tax benefits and loans or grants. Many of these programs can be combined so that the costs of

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Grants and Loans

The New York State Energy Research and Development Authority (NYSERDA) offers a wide range of financial incentives for energy retrofits. Under the NYSERDA Energy SmartSM New Construction Program (NCP), 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.⁹ Based upon an escalating payment scale for kWh and KW savings, direct capital cost incentives may 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.

NYSERDA also runs the Existing Facilities Program to provide up to \$30,000 in incentives for pre-qualified energy efficiency and conservation measures.¹⁰ 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 \$martSM Loan Fund Program offers an interest rate reduction on loans for energy-efficient improvements or renewable energy technologies.¹¹ Commercial buildings, including those which have received grants through the NCP or the Existing Facilities Program, may also qualify for the Loan Fund.

NYSERDA also provides cash incentives for the installation of new solar electric or PV systems.¹² The incentive for the typical commercial system covers approximately 40 to 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 the full amount to the customer. Currently, the expiration date for the program is May 2009.

NYSERDA also offers cash incentives for microturbine or small wind generation systems.¹³ Like the PV incentives, the payments are made to the eligible installers who must pass on the full amount to the owner of the system.

Energy Retrofits and LEED

USGBC created the LEED certification program to establish standards for green building practices, or practices that substantially reduce or eliminate negative environmental impacts and improve existing unsustainable design, construction and operational practices.¹⁴ Green building pursuant to a LEED rating system incorporates many different components such as site selection, water efficiency, renewable and recycled materials and resources and indoor environmental quality.

Because one of the most important objectives of green building is to reduce energy consumption, the LEED rating systems (which also incorporate the ASHRAE standards) give significant credit for energy retrofits. Thus, building owners who are interested in reducing energy costs in an existing building may also want to incorporate a holistic green approach to their project and seek LEED certification since the energy retrofit will be a major contribution to the certification process.

Although USGBC has set forth LEED criteria for a spectrum of building uses and components,¹⁵ the criterion that may be generally applied to energy retrofits for commercial buildings is LEED for New Construction (LEED-NC) as it addresses major renovations of existing buildings involving significant design and construction activities.

The LEED-NC Reference Guide Version 2.2 describes a major renovation as including elements of major HVAC renovation, significant envelope modifications and major interior rehabilitation.¹⁶ Therefore, a retrofit of a commercial building will most likely be guided by the LEED-NC rating system, especially if the building owner is trying to obtain significant federal and state tax benefits and funding to offset the costs of the retrofit project. Some of the LEED-NC credits that address energy retrofits are:

- Energy and Atmosphere Credit 1: Optimize Energy Performance: This credit requires that the project meet one of three compliance paths:

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(1) demonstration of a percentage improvement in the proposed building performance rating compared to the baseline building performance rating per ASHRAE/IESNA Standard 90.1-2004 by a whole building project simulation using the Building Performance Rating Method in Appendix G of the Standard; (2) compliance with the prescriptive measures of the ASHRAE Advanced Energy Design for Small Office Buildings 2004 (only applies to building under 20,000 square feet with office occupancy); (3) compliance with the prescriptive measures identified in the Advanced Buildings™ Core Performance Guide developed by the New Buildings Institute; or (4) compliance with Basic Criteria and Prescriptive Measures of the Advanced Buildings™ Benchmark Version 1.1.

- Energy and Atmosphere Credit 2: On-Site Renewable Energy: This credit requires the use of on-site renewable energy systems to offset building energy cost.

- Energy and Atmosphere Credit 3: Enhanced Commissioning: This credit requires detailed and thorough commissioning process activities to provide further assurance of energy-efficient system performance.

- Energy and Atmosphere Credit 5: Measurement and Verification: This credit requires the development and implementation

of a Measurement and Verification Plan consistent with the specifications in the International Performance Measurement & Verification Protocol (IPMVP) Volume III: Concepts and Options for Determining Energy Savings in New Construction, April 2003. The measurement and verification period must cover a period of no less than one year of post-construction occupancy.

Even if a project does not constitute a major renovation under the parlance of the LEED-NC rating system, many of these credits correspond to the LEED rating system for Existing Buildings (LEED-EB). Because the intent of LEED-EB is to certify the operation of the building and create a plan for green performance over time, the rating system largely corresponds to operations and maintenance; however, installation and performance of energy efficient systems are also important elements in LEED-EB certification.¹⁷

Conclusion

The building retrofit program under the Recovery Act, as supplemented by federal and state incentive programs, will stimulate the modernization of public and private buildings. Public and private owners are well advised to consider all programs available and consider following LEED criteria for the repositioning of their properties as green buildings certified by the USGBC.



1. H.R.1-111th Congress (2009): American Recovery and Reinstatement Act of 2009, GovTrack.us.

2. LEED is the acronym for Leadership in Energy and Environmental Design, the green building rating system created by the U.S. Green Building Council ("USGBC").

3. See Green for All and PolicyLink, "Bringing Home the Green Recovery: A User's Guide" (www.greenforall.org/resources/recoveryusersguide).

4. H.R. 1424-110th Congress (2009): Emergency Economic Stabilization Act of 2008, GovTrack.us.

5. 26 USC §168.

6. Id.

7. U.S. Internal Revenue Code §48.

8. NY CLS Tax, Article 1 §19.

9. www.nyserdera.org/programs/new_construction.

10. www.nyserdera.org/programs/existing_facilities.

11. www.nyserdera.org/loanfund.

12. www.nyserdera.org/programs/solar/incentives.

13. www.nyserdera.org/programs/wind/incentives.

14. www.usgbc.org.

15. USGBC has or is developing LEED rating systems for New Construction, Existing Buildings, Multiple Buildings/Campuses, Schools, Healthcare, Retail, Laboratories, Commercial Interiors, Retail, Core & Shell, Homes and Neighborhood Development.

16. New Construction & Major Renovation Reference Guide, Version 2.2, Third Edition. U.S. Green Building Council (October 2007).

17. www.usgbc.org.