EXECUTIVE ORDER NO. 111
"GREEN AND CLEAN"
STATE BUILDINGS AND VEHICLES
GUIDELINES

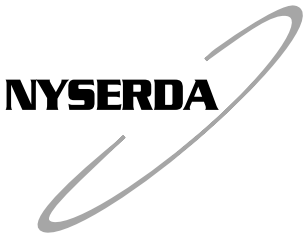
SECOND EDITION

GEORGE E. PATAKI
GOVERNOR

DECEMBER 2004

NEW YORK STATE
ENERGY RESEARCH AND
DEVELOPMENT AUTHORITY

NYSERDA



The New York State Energy Research and Development Authority (NYSERDA) is a public benefit corporation created in 1975 by the New York State Legislature. NYSERDA's responsibilities include:

- Conducting a multifaceted energy and environmental research and development program to meet New York State's diverse economic needs.
- Administering the **New York Energy $mart**[SM] program, a Statewide public benefit R&D, energy efficiency, and environmental protection program.
- Making energy more affordable for residential and low-income households.
- Helping industries, schools, hospitals, municipalities, not-for-profits, and the residential sector, including low-income residents, implement energy-efficiency measures.
- Providing objective, credible, and useful energy analysis and planning to guide decisions made by major energy stakeholders in the private and public sectors.
- Managing the Western New York Nuclear Service Center at West Valley, including: (1) overseeing the State's interests and share of costs at the West Valley Demonstration Project, a federal/State radioactive waste clean-up effort, and (2) managing wastes and maintaining facilities at the shut-down State-Licensed Disposal Area.
- Coordinating the State's activities on energy emergencies and nuclear regulatory matters, and monitoring low-level radioactive waste generation and management in the State.
- Financing energy-related projects, reducing costs for ratepayers.

NYSERDA administers the **New York Energy $mart**[SM] program, which is designed to support certain public benefit programs during the transition to a more competitive electricity market. Some 2,700 projects in 40 programs are funded by a charge on the electricity transmitted and distributed by the State's investor-owned utilities. The **New York Energy $mart**[SM] program provides energy efficiency services, including those directed at the low-income sector, research and development, and environmental protection activities.

NYSERDA derives its basic research revenues from an assessment on the intrastate sales of New York State's investor-owned electric and gas utilities, and voluntary annual contributions by the New York Power Authority and the Long Island Power Authority. Additional research dollars come from limited corporate funds. Some 400 NYSERDA research projects help the State's businesses and municipalities with their energy and environmental problems. Since 1990, NYSERDA has successfully developed and brought into use more than 150 innovative, energy-efficient, and environmentally beneficial products, processes, and services. These contributions to the State's economic growth and environmental protection are made at a cost of about $.70 per New York resident per year.

Federally funded, the Energy Efficiency Services program is working with more than 540 businesses, schools, and municipalities to identify existing technologies and equipment to reduce their energy costs.

For more information, contact the Communications unit, NYSERDA, 17 Columbia Circle, Albany, New York 12203-6399; toll-free 1-866-NYSERDA, locally (518) 862-1090, ext. 3250; or on the web at www.nyserda.org

EXECUTIVE ORDER NO. 111
"GREEN AND CLEAN"
STATE BUILDINGS AND VEHICLES

Guidelines
Second Edition

Prepared by the
NEW YORK STATE
ENERGY RESEARCH AND
DEVELOPMENT AUTHORITY
Albany, New York
www.nyserda.org

December 2004

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"GREEN AND CLEAN"
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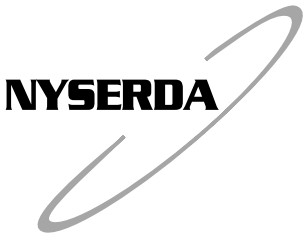

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For information on other
NYSERDA reports, contact:

New York State Energy Research and
Development Authority
17 Columbia Circle
Albany, New York 12203-6399

toll-free 1-866-NYSERDA
local: (518) 862-1090
fax: (518) 862-1091

info@nyserda.org
www.nyserda.org

Executive Order No. 111
"Green and Clean"
State Buildings and Vehicles Guidelines Second Edition

State of New York
George E. Pataki, Governor

New York State Energy Research and Development Authority
Vincent A. DeIorio, Esq., Chairman
Peter R. Smith, President

NYSERDA

GUIDELINES (SECOND EDITION) FOR EXECUTIVE ORDER NO. 111
"GREEN AND CLEAN" STATE BUILDINGS AND VEHICLES

TABLE OF CONTENTS

1. Introduction and Overview

Governor George E. Pataki signed Executive Order No. 111 for *"Green and Clean" State Buildings and Vehicles* on June 10, 2001 (See **Appendix A**). This is the most aggressive and comprehensive directive ever issued to address energy use and environmental issues through government procurement standards and design practices. New York State has long been a leader in creating a coordinated, long-term energy policy. Executive Order No. 111 places purchasing power and market demand behind the State's coordinated energy plan, which will help to create long-term economic and environmental benefits as well as increase overall market development toward more efficient design and procurement practices. These Guidelines are designed to assist State entities develop detailed implementation plans and help direct future projects. This is the second edition of the Guidelines. Future editions and updates will be issued on an as needed basis. Progress toward the goals of Executive Order No. 111 can be reviewed by interested parties at: www.nyserda.org/exorder111.html

Participants and Benefits
Executive Order No. 111 reaches beyond line agencies and includes all public-benefit corporations and public authorities where the heads are appointed by the Governor and for which the Governor has executive authority (hereon referred to as State Entities). A partial list of State Entities included in this order can be found in **Appendix B**. In addition to the mandatory participants, other entities are encouraged to voluntarily adopt the requirements of Executive Order No. 111. This Order also includes leased space. The benefits of this Order to the State of New York will include:

- Increased availability of premium efficiency products
- Increased availability of renewable energy sources
- Increased knowledge and use of green construction practices
- Better operations and management practices
- Reduced summer peak-demand
- Stronger deregulated market
- Reduced need to import energy
- A less oil dependent economy

The State will also benefit from reduced energy operating costs, a stronger economy, a reduced long-term tax burden, and an improved environment.

Advisory Council on State Energy Efficiency
As part of this Executive Order, an Advisory Council on State Energy Efficiency (hereon referred to as Advisory Council) was created consisting of: the President of the New York State Energy Research and Development Authority (NYSERDA); the Director of the Division of the Budget; the Commissioners of the Office of General Services, the Department of Environmental Conservation, the Department of Correctional Services, the Office of Mental Health, and the Department of Transportation; the Chairman of the Public Service Commission; the Chancellor

of the State University of New York; the Secretary of State; the Chairman of the New York Power Authority; the Chairman of the Metropolitan Transportation Authority; the Executive Director of the Dormitory Authority; and the President of the Long Island Power Authority. As part of the Executive Order, the President of NYSERDA was designated as the chair of the Advisory Council and is responsible for coordinating the development of the Guidelines and the implementation of the Order with the assistance of and advice from the Advisory Council.

Guideline Development and Update Process

As part of the Guideline development process, six Working Groups were initially established to address several key issues of the Executive Order. These Working Groups were: the Alternative-Fuel Vehicle Working Group, the Green Construction Working Group, the Implementation Working Group, the Leased Space Working Group, the Renewable Energy Working Group, and the Reporting and Baseline Working Group. A seventh Working Group, the Peak-load Reduction Working Group, was later added. Each Working Group consists of representatives from several Advisory Council members. The objectives of the Working Groups are to clarify issues, develop operating procedures, and explore strategies that help achieve full compliance with the requirements of the Executive Order. These Working Groups will continue to meet and address issues associated with this Order as needed.

These Guidelines will be updated and re-issued to clarify issues or address questions on an as-needed basis. The implementation of Executive Order No. 111 should in no way impact the life, health, and safety protocols of any State Entity. Further, these Guidelines should not impede the State Entity's ability to deliver its primary services to the State.

Please forward any questions regarding Executive Order No. 111, the Guidelines, appendices, or requests for clarifications to:

NYSERDA
Attn: Executive Order No. 111 Administrator
17 Columbia Circle
Albany, NY 12203-6399
Toll free at 866-NYSERDA or locally at (518) 862-1090
info@nyserda.org

2. Implementation, Budgeting, and Finance

> *"All agencies and departments over which the Governor has Executive authority, and all public benefit corporations and public authorities the heads of which are appointed by the Governor (hereinafter referred to as "State agencies and other affected entities"), shall seek to achieve a reduction in energy consumption by all buildings they own, lease or operate of 35 percent by 2010 relative to 1990 levels. All State agencies and other affected entities shall establish agency-wide reduction targets and associated schedules to reach this goal and shall also be responsible for establishing peak electric demand reduction targets for each state facility by 2005 and 2010."*

Implementing Executive Order No. 111 generates significant life-cycle cost savings for the State. However, some of the purchasing and design changes mandated by this Order may involve energy-efficiency and sustainable design investments that have a higher first cost. Though every avenue for implementation should be explored, State Entities are to undertake the implementation of all projects affected by Executive Order No. 111 within available resources. The six agencies that facilitate energy-related work and purchasing have compiled lists of their services that will help agencies achieve the goals of the Order. The facilitating agencies and their web addresses are:

- The Division of the Budget (DOB) http://www.budget.state.ny.us/
- The Dormitory Authority of the State of New York (DASNY): http://www.dasny.org/
- The Long Island Power Authority (LIPA) http://www.lipower.org/
- New York Power Authority (NYPA) http://www.nypa.gov/
- The New York State Energy Research and Development Authority (NYSERDA) http://www.nyserda.org/
- The Office of General Services (OGS) http://www.ogs.state.ny.us/

In addition to securing energy-project funding through the State General Fund, State Entities are encouraged to pursue additional funding sources that may be offered through other Federal, State, or private sources. Efforts to secure these alternative-funding sources will be particularly important during periods of tight State funding and budget shortfalls. Below is a list of several common funding sources currently available and a brief description of how the funding vehicle works.

Certificates of Participation (COPs) - A form of installment purchase or lease purchase. COPs purchases are not considered debt, and are subject to non-appropriation language. The interest payments are tax-exempt income.

Clean Water/Clean Air Bond Act - Funds may be available from the 1996 Clean Water/Clean Air Bond Act for reimbursement of vehicle incremental costs. Incremental costs are calculated by subtracting the cost of the conventionally fueled vehicle from the cost of the comparable alternative-fueled vehicle. Funds may also be available for reimbursement of supporting infrastructure costs. Reimbursement request forms are available on the Office of General Service's Clean Fueled Vehicle Program web site: http://www.ogs.state.ny.us/cleanfuels/reimbursement.asp

DASNY Bonds - DASNY is a public-benefit corporation established by the State of New York to finance and construct facilities for both public and private not-for-profit organizations. DASNY offers funding through the issuance of short-term and long-term, fixed and variable rate, taxable and tax-exempt bonds that can be structured to fit the financing needs of the borrowing institution. DASNY is consistently one of the top issuers of tax-exempt financing in the nation. DASNY also offers additional services including: construction management, purchasing, design assistance, and commissioning.

DASNY Tax-Exempt Equipment Leasing Program (TELP) - DASNY offers TELP to provide its customers with easy and efficient access to the tax-exempt capital leasing market. Under this program, a traditional two-party commercial lease is converted into a tri-party lease agreement. The commercial lender retains the role of lessor, with DASNY participating as the tax-exempt lessee. DASNY then sub-leases the equipment to the client institution. The client repays the commercial lender directly at DASNY's tax-exempt leasing rate. The commercial lender's security runs solely to leased equipment. Since the lender is not required to pay federal, state, or local taxes on the interest portion of the lease payments, the lease financing rate is reduced to reflect the tax savings.

Federal Energy Funds - The United States Department of Energy periodically issues Requests for Proposals (RFPs) that States may respond to. RFPs cover a variety of topics, and submissions for New York are submitted to the Department of Energy via NYSERDA. Please contact NYSERDA for additional information or if you have suggestions for an innovative program that could be submitted.

LIPA Clean Energy Initiative - LIPA offers a comprehensive energy-efficiency and renewable energy program for its customers. Services include energy feasibility studies, new construction assistance, renewable energy assistance and information resources.

NYPA Energy Services Program - The NYPA Energy Services Program serves State-operated facilities, public schools, and local governments across the State. NYPA finances the audit, design, and installation costs for efficiency upgrades to energy-using equipment and recovers these costs by sharing in the resulting electric bill savings. Program participants retain all the energy savings once NYPA's loan is repaid, usually within ten years or less. NYPA also offers renewable energy services and a clean transportation program.

Performance-Based Contracting - A financing vehicle that uses the reduction of utility costs (savings) that result from improvements in an existing facility to pay for the cost of the project. Energy Services Companies (ESCos) typically perform this service. Performance contracting projects are often combined with a tax-exempt leasing program by State Entities to minimize or eliminate upfront costs.

State EnVest - A program administered by NYSERDA to encourage energy performance contracting in State-owned facilities. It provides a pool of prequalified Energy Service Companies (ESCos) that are under contract to NYSERDA. Payments are not considered to be balance sheet debt. Additional benefits include the ability to use a third-party financial institution under contract to NYSERDA to provide construction funding structured as a tax-exempt municipal lease.

System Benefits Charge (SBC) Program - A surcharge on investor-owned utilities. NYSERDA was ordered by the New York State Public Service Commission in 1998 to be the third-party administrator of a coordinated program to provide public-benefit programs to those parties that pay into the System Benefits Charge. NYSERDA administers a portfolio of programs to encourage energy-efficiency, renewable energy, green building construction, environmental monitoring, peak-load reduction, improvements in low-income housing, and research and development of new technologies and processes.

Tax Exempt Financing - A public purpose financing process or program for which the recipient is a State entity or political subdivision engaged in funding transactions for which the interest portion may be excluded from local, state, and federal income tax liability. Such financing structure may include: programs for municipal leasing, tax-exempt and taxable fixed-rate and variable-rate municipal bonds, long-term and short-term financings, bond insurance, letter of credit support, pooled financings, and equipment lease-purchase financings. Both the DASNY and NYSERDA administer tax-exempt financing programs.

Refer to NYSERDA's web page for additional information and links to these resources, as well as for additional information not listed here at: http://www.nyserda.org/exorder111.html

State Entities are directed to perform life-cycle cost analyses on energy-efficiency measures. To assist in this effort, free analytical tools and software are available, such as the National Institute of Standards and Technology's Building Life Cycle Cost Program (BLCC). Information about obtaining this free software can be found at: http://www.bfrl.nist.gov/oae/software.html

Exemptions

> *"No buildings will be exempt from these goals except pursuant to criteria to be developed by the New York State Energy Research and Development Authority ("NYSERDA"), in consultation with the Division of the Budget ("DOB"), the Office of General Services ("OGS") and the Advisory Council on State Energy Efficiency ("Advisory Council") as established herein."*

Buildings and energy use that have been exempted at this time include buildings of less than 5,000 square feet and those loads defined as process loads by each State Entity. Leased space that is not billed for any utilities based upon direct use are also exempt (*i.e.* If all utilities are assessed on a per square foot basis). Additional exemptions will be addressed on an as needed basis as set forth in the provisions of the Executive Order.

3. Existing Buildings

> *"All agencies and departments over which the Governor has Executive authority, and all public benefit corporations and public authorities the heads of which are appointed by the Governor (hereinafter referred to as "State agencies and other affected entities"), shall seek to achieve a reduction in energy consumption by all buildings they own, lease or operate of 35 percent by 2010 relative to 1990 levels. All State agencies and other affected entities shall establish agency-wide reduction targets and associated schedules to reach this goal and shall also be responsible for establishing peak electric demand reduction targets for each state facility by 2005 and 2010."*
>
> *"Effective immediately, State agencies and other affected entities shall implement energy efficiency practices with respect to the operation and maintenance of all buildings that they own, lease or operate. Such practices may include, but shall not be limited to: (1) shutting off office equipment when it is not being used; (2) adjusting the setting of space temperatures; (3) turning off lighting in unoccupied areas; (4) inspecting and re-commissioning or re-tuning heating, air conditioning and ventilation equipment to ensure optimal performance; and (5) cycling and restarting equipment on a staggered basis to shed electricity loads and minimize peak electricity demand usage. State agencies and other affected entities shall strive to meet the ENERGY STAR® building criteria for energy performance and indoor air quality in their existing buildings to the maximum extent practicable."*

Definition of a Building

For the purposes of these Guidelines, a building is defined as a permanently conditioned space of more than 5,000 square feet that is non-process oriented. If a State Entity chooses to exempt process buildings or process loads within a building, they must identify each exemption and explain the reasoning for its exemption in a footnote to the Annual Energy Report. Each State Entity shall determine its own process-oriented exemptions.

Annual Building Stock Evaluation

All State Entities are directed to place a priority on evaluating their building stock using the ENERGY STAR® Portfolio Manager. This free U.S. Department of Energy / U.S. Environmental Protection Agency software program allows building owners to evaluate the energy performance of their buildings against that of similar buildings across the nation. The Portfolio Manager assigns a rating from 1-100 that identifies a building's performance relative to national averages. A rating of 75 or higher indicates an energy use density in the most efficient quartile of similar buildings and allows the building to be eligible for the ENERGY STAR label. Entering all buildings in the Portfolio Manager will also help State Entities rank their building stock to determine which buildings have the best energy savings opportunity. State Entities are directed to include the building scores in their Annual Energy Report each year. State Entities are also required to include specific information for possible recognition purposes on any buildings that receive a score of 75 or higher as part of each year's Annual Energy Report. State Entities are directed to significantly improve the operating efficiency of their buildings through

this Executive Order. In some cases, achieving significant reduction in energy consumption for a particular building may be difficult or cost prohibitive to achieve due to improvements made prior to the base year or an expansion of services the State Entity has experienced. If State Entities are unable to reasonably reach the 35% goal of energy efficiency improvements in energy consumption, they are directed to explore the possibility of meeting or exceeding the standards set forth by the ENERGY STAR Portfolio Manager (must achieve a rating of 75 or better) building benchmarking program (see http://www.energystar.gov/ for additional information).

Operations and Management Improvements

Significant improvements in facility operations and efficiency can be gained from low-cost, or no-cost improvements in the operation and management of facilities. Improvements in facility operation and management can result in significant reductions in summer peak demand, productivity improvements and occupant health.

Retro-commissioning or re-commissioning a building can be an important way to improve its performance. Commissioning is defined as a systematic process to verify that all building systems, including mechanical, control and electrical systems, are properly integrated to optimize building performance. In addition, commissioning verifies that a building is performing in accordance to the owner's and occupants' current requirements. Besides providing energy savings, proper commissioning can extend equipment life, reduce occupant complaints, improve indoor environmental quality, and improve building value. Optimal candidates for retro-commissioning are buildings that do not require comprehensive capital improvements for at least the next five years. Due to the low-cost nature of most retro-commissioning projects and the fast payback period, State Entities are directed to place an emphasis on evaluating their building stock for retro-commissioning opportunities. For additional information on commissioning and sample commissioning documents, visit: www.nyserda.org/commissioning.html

Energy Smart Summer Campaign

State Entities can obtain free material from NYSERDA to encourage staff to participate in reducing energy consumption to have an, "Energy Smart Summer." This outreach and marketing campaign is part of the State's integrated response to meet peak demand needs in the State. Campaign material has been designed to make building occupants aware that the simple decisions they make (turning off the lights when they exit a room, turning off unused equipment, etc.) can affect significant changes. Also included are ways to enact a peak-load shedding plan in facilities. Material can be tailored to each specific State Entity. See **Appendix C** to view material and for order information.

Summer Peak-Demand Reduction Efforts

Over the next several years, the State's electric utility grid is expected to continue to experience significant system stresses. State Entities are hereby directed to prepare a plan to reduce summer peak-demand. This plan should include both long-term demand-reduction efforts and short-term load-curtailment measures. State Entities are responsible for setting their own long-term peak-

load reduction targets. This goal, and the State Entity's progress toward that target, must be reported in each Annual Energy Report (See Section 9). For the past several years, State Entities have been expected to shed at least 10% of their electric load during periods of critical peak-power demand when called upon to do so. State Entities may be called on for even greater reductions should there be future emergency electricity power shortages. State Entities may be eligible to participate in utility or New York Independent System Operator (NY ISO) programs that provide monetary rewards for load shedding. State Entities interested in participating in these programs should speak directly to NYSISO or their utility for additional information. See **Appendix D**, State Facilities Load Management Opportunities, for suggestions of improvements that can be implemented, many of which are low-cost, no-cost operations and maintenance improvements.

The best strategies for obtaining maximum possible peak-demand reductions will include a combination of: best practices operation and management policies, short-duration load-curtailment measures, long-term load reductions due to new energy-efficient equipment purchases, and the use of advanced metering equipment.

State Entities may be able to significantly lower their annual utility costs and summer demand by using on-site generation, and combined heat and power. New on-site generation should take into account the renewable generation requirements of Executive Order No. 111 (See Section 5 for additional information).

Heating System Optimization

In New York State, significant price fluctuations can occur during the heating season. Maintaining each heating system in peak operating conditions will not only help protect State Entities against price spikes, but will also extend equipment life, improve occupant comfort and reduce equipment failure during peak use. See **Appendix E** for ways and resources to help State Entities optimize heating systems.

Green Building Status

State Entities are directed to significantly improve the operating efficiency of their buildings through this Executive Order. In some cases, achieving meeting energy consumption goals for a particular building may be difficult or cost prohibitive to achieve due to improvements made prior to the base year or an expansion of services the State Entity has experienced. State Entities may seek to meet or exceed green building standards for existing buildings (as appropriate for facility type) from such organizations as the U.S. Green Building Council, which is currently piloting LEED® for Existing Buildings (EB). State Entities should report each individual facility that complies with LEED® EB standards in each Annual Energy Report.

The Green Building Working Group that helped develop the Green Building Section of these Guidelines will continue to work with State Entities to develop appropriate Green Building standards and guidelines for existing buildings. As part of the Executive Order's updates, the Green Building Working Group will continue to monitor the progress and development of additional U. S. Green Building Council standards and will provide State Entities' with recommendations regarding green standards for existing buildings.

4. Green Building Guidelines for New Construction and Substantial Renovation

> *"In the design, construction, operation and maintenance of new buildings, State agencies and other affected entities shall, to the maximum extent practicable, follow guidelines for the construction of "Green Buildings," including guidelines set forth in Tax Law § 19, which created the Green Buildings Tax Credit, and the U.S. Green Buildings Council's LEED™ rating system. Effective immediately, State agencies and other affected entities engaged in the construction of new buildings shall achieve at least a 20 percent improvement in energy efficiency performance relative to levels required by the State's Energy Conservation Construction Code, as amended. For substantial renovation of existing buildings, State agencies and other affected entities shall achieve at least a ten percent improvement. State agencies and other affected entities shall incorporate energy efficient criteria consistent with ENERGY STAR® and any other energy efficiency levels as may be designated by NYSERDA into all specifications developed for new construction and renovation."*

New Construction

All new construction of 20,000 gross square feet or larger being designed, constructed, operated, managed or maintained by State Entities as of the effective date of this Executive Order shall comply with the following:

1) Achieve at least a 20 percent improvement in energy efficiency performance (relative to the whole building) relative to levels required by the New York State Energy Conservation and Construction Code, as amended. To demonstrate compliance with the energy efficiency requirements of this Order, State Entities are required to model each building using the U.S. Department of Energy's DOE 2.1E modeling program, or equivalent. State Entities may choose to use another modeling program, but it must be equivalent or better than DOE 2.1E and be able to model the interactivity between building systems. Neither the Advisory Council nor the Green Building Working Group will determine that any other modeling program is equivalent to DOE 2.1E.

2) Be designed and constructed in such a way that the building meets the criteria for a U.S. Green Building Council Leadership in Energy and Environmental Design (LEED®) rating (certified, silver, gold or platinum).

3) Comply with the following criteria from the New York State Green Building Tax Credit, as amended (See generally Tax Law Section 19 and 6 NYCRR Part 638, and specifically):

A) Indoor Air Quality Testing [Section 638.7(d)(1)];

B) Indoor Air Quality Management Plan During Construction [Section 638.7(d)(2)];

C) Operations and Maintenance Management Plan [Section 638.7(d)(3)]; and

D) Commissioning [Section 638.8].

These standards include buildings constructed for State Entities whose design and construction is funded privately (excluding leased space; see Section 7 of these Guidelines for requirements for Leased Space). Multi-building construction projects where the buildings are of the same basic construction and have an overall combined gross square footage of 20,000 or greater shall also comply.

For new buildings less than 20,000 square feet, State Entities are directed to incorporate the significant attributes of green design principles (Site Planning, Water, Energy, Materials and Resources, and Indoor Environmental Quality) into these structures in order to be considered compliant with the intent of Executive Order No. 111.

Reconstruction Projects

A reconstruction project is considered to be what is commonly referred to as a "gut rehabilitation" project. For the Guidelines, a reconstruction project shall be defined as a building area: undergoing a renovation where four (4) or more primary building systems (defined as: 1) HVAC, 2) Lighting, 3) Exterior Walls and Windows, 4) Roofing and Ceiling, 5) Plumbing, and 6) Other Electrical) are undergoing at least a 50% replacement within a 12 month period; and the building area is unoccupiable due to the nature of the construction for 30 days or more. Projects over 20,000 square feet that meet these criteria shall be required to comply with the following standards:

1) Achieve at least a 10 percent improvement in energy efficiency performance (relative to the whole building area) relative to levels required by the New York State Energy Conservation and Construction Code, as amended. To demonstrate compliance with the energy efficiency requirements of this Order, State Entities are required to model each building using the U.S. Department of Energy's DOE 2.1E modeling program, or equivalent. State Entities may choose to use another modeling program, but it must be equivalent or better than DOE 2.1E and be able to model the interactivity between building systems. Neither the Advisory Council nor the Green Building Working Group will determine that any other modeling program is equivalent to DOE 2.1E.

2) Use best efforts during design and construction to insure that the project incorporates the criteria for a U.S. Green Building Council LEED® Existing Building (EB) rating system or LEED New Construction (NC) rating system.

3) Comply, where practical, with the following criteria from the New York State Green Building Tax Credit, as amended (See generally Tax Law Section 19 and 6 NYCRR Part 638, and specifically):

A) Indoor Air Quality Testing [Section 638.7(d)(1)];

B) Indoor Air Quality Management Plan During Construction [Section 638.7(d)(2)];

C) Operations and Maintenance Management Plan [Section 638.7(d)(3)]; and

D) Commissioning [Section 638.8].

For reconstruction projects less than 20,000 square feet, State Entities are directed to incorporate the significant attributes of green design principles (Site Planning, Water, Energy, Materials and Resources, and Indoor Environmental Quality) that are applicable into these projects to be considered compliant with the intent of Executive Order No. 111.

Substantial Renovation and Alteration Projects

A substantial renovation or alteration project shall be defined as the replacement of more than 50 percent of any building subsystem, measured in units appropriate to the subsystem, within any consecutive 12-month period. Determination of whether or not a project is considered a substantial renovation or alteration project shall be in accordance with the requirements as set forth by the New York State Energy Conservation and Construction Code. Substantial renovations and alterations of existing buildings by State Entities shall comply with the following:

1) Achieve at least a 10 percent improvement in energy efficiency performance (relative to the subsystem being renovated or altered) relative to levels required by the New York State Energy Conservation and Construction Code, as amended. This energy efficiency improvement shall apply only to those subsystem(s) undergoing the substantial renovation or alteration.

2) Comply with all applicable sections of the New Construction guidelines outlined above, and maintain the records necessary to document these efforts. This shall include documentation of compliance with applicable LEED® points achieved and documentation of compliance with the required sections of the New York State Green Building Tax Credit, as amended.

For substantial renovation and alteration projects less than 20,000 square feet, State Entities are expected to incorporate the significant attributes of green design concepts (Site Planning, Water, Energy, Materials and Resources, and Indoor Environmental Quality) as appropriate into these subsystems to be considered compliant with the intent of the Order. All efforts are required to be documented in accordance with the requirements set forth below.

Documentation

All affected State Entities shall be required to keep and maintain complete documentation sufficient to prove compliance with these Guidelines. Submission of the documentation is not required to be provided to NYSERDA or the Green Building Working Group at the conclusion of each project. However, State Entities may be required to provide documentation for any project upon request. While compliance and its documentation with LEED® criteria is required, a formal submission and subsequent rating from the U.S. Green Building Council is voluntary. State Entities seeking guidance on documentation requirements may use the requirements of the LEED® application process or the requirements as set forth in Section 638.9 of the New York State Green Building Tax Credit.

General Information

See http://www.usgbc.org/ to download a copy of the latest version of the U.S. Green Building Council's LEED® rating systems and guidelines.

See http://www.dec.state.ny.us/website/dar/ood/grnbldg.html to download a copy of the New York State Green Building Tax Credit and the latest version of the New York State Green Building Tax Credit Guidelines.

Building designers, owners, and operators should understand that, while low-emitting materials are not specifically required by the New York State Green Building Tax Credit guidelines or LEED®, their facilities must still comply with the indoor air quality standards of the Green Building Tax Credit (GBTC).

The GBTC requires that indoor air quality be tested for a minimum of the first five years of occupancy. At the end of this testing period, the Indoor Air Quality (IAQ) Manager shall determine whether additional testing is necessary. The IAQ Manager shall document the basis of this determination and include it in the IAQ Testing Report. State Entities are required to comply with this requirement.

The forms used to complete the commissioning requirements for buildings complying with Executive Order No. 111 shall be those created by Portland Energy Conservation, Incorporated (PECI) or their equivalent. These forms are available at www.peci.org/cx/mcpgs.html.

Building designers are also directed, to the maximum extent practicable, to include real-time or other advanced-monitoring equipment. Advanced monitoring equipment will help provide building operators with near real-time information that will help them better address the summer peak-demand requirements of this Order, and may improve the operation and maintenance of buildings. All State Entities are expected to be able to shed at least 10% of their peak electric load within 60 minutes if ordered to do so. Purchase and installation of advanced-monitoring equipment should take into account Statewide networking efforts.

These Guidelines recognize that the Green Building standards set forth above may not be a

practical application to some facility types, such as transportation or industrial sites and projects smaller than 20,000 square feet. Affected State Entities are directed to work with the Green Building Working Group to develop green building standards appropriate for their structures that are not addressed by the standards outlined above. If a State Entity chooses to exempt process buildings or process loads within a building, they must identify each exemption and explain the reasoning for its exemption in a footnote to the Annual Energy Report. Each State Entity shall determine its own process-oriented exemptions. Until State Entities have developed such green building standards for these projects that have been presented to the Green Building Working Group for review and comment, they will be expected to incorporate the significant attributes of the LEED® and the New York State Green Building Tax Credit's requirements to be considered compliant with the intent of this Order.

5. Requirements for the Purchase of Renewable Power

> *"State agencies and other affected entities with responsibility for purchasing energy shall increase their purchase of energy generated from the following technologies: wind, solar thermal, photovoltaics, sustainably managed biomass, tidal, geothermal, methane waste and fuel cells. State agencies and other affected entities shall seek to purchase sufficient quantities of energy from these technologies so that 10 percent of the overall annual electric energy requirements of buildings owned, leased or operated by State agencies and other affected entities will be met through these technologies by 2005, increasing to 20 percent by 2010. No agency or affected entity will be exempt from these goals except pursuant to criteria to be developed by NYSERDA, in consultation with DOB, OGS, and the Advisory Council."*

Introduction

The renewable-power procurement component of the Executive Order commits State Entities to purchase a significant portion of their electric power from clean, renewable generating sources. Procurement of renewable power is to be done to the maximum extent practicable and available as the green power market continues to develop. State Entities can fulfill their renewable-power procurement obligations through: on-site generation of all renewable power requirements; a mix of on-site generation and open-market electricity procurement to meet the renewable power requirements; or the purchase of all renewable-power requirements from the open market. State Entities should devise a renewable power implementation plan that minimizes fiscal and administrative impacts as the renewable power market continues to grow and mature. NYSERDA has completed a preliminary fiscal impact analysis of purchasing renewable power. Interested parties can contact NYSERDA for a copy.

State Entities shall seek to purchase energy generated from the following technologies: wind, solar thermal, photovoltaics, sustainably managed biomass, tidal, geothermal, methane waste, and fuel cells. The Renewable Power Working Group will continue to meet to address the unresolved issues associated with these and other policy issues, including the integration of the Renewable Portfolio Standard requirements, on an as-needed basis. Whenever eligible resources in the Executive Order No. 111 are also eligible in the Renewable Portfolio Standard, the definition of that resource, as promulgated in the New York State Renewable Portfolio Standard (RPS), will also be used for the purpose of Executive Order No. 111.

Sustainably Managed Biomass

The term "sustainably managed biomass" shall include all wood resources, with the exception of contaminated waste wood.

Biomass and Cofiring Biomass with Coal

Clarification of acceptable biomass power technologies and feed stocks will be considered annually or prior to the issuance of each solicitation for power. Utility-scale facilities that co-fire wood with coal shall be considered eligible provided that they comply with the standards for co-firing as set forth in the RPS.

Policy Recommendations
Procurement of renewable power is a relatively new responsibility for most State Entities. The following issues are designed to define and clarify the Executive Order and its impact on the procurement of electricity for State Entities.

One of the primary goals for the State is to acquire renewable power at the lowest possible cost, while supporting multiple energy sources and minimizing transaction costs to the State Entities. State Entities should be aware that fixed-price, long-term contracts (or "contracts-for-differences") with some eligible renewable power resources may provide a longer-term price hedge against fluctuating prices of natural-gas-based power generation.

If a designated central procurement agent is selected for the State, the initial renewable-power solicitation should not differentiate between renewable-power generation facilities that already exist and those yet to be constructed, provided that long-term power purchase agreements (up to 20 years) can be implemented. In addition, the mix of eligible resources (other than those required by the Order) should not be specified in the initial renewable-power solicitation. If at a later date the State determines that a specific resource is too dominant in the renewable-power market, State Entities should reserve the right to make final selection of power providers based on a more balanced resource mix.

Wholesale Renewable Power Purchases
New York State may select a suitable central procurement agent responsible for issuing a Request for Proposals (RFP) for long-term power purchase agreements (increments from 5 to 20 years) for the purchase of eligible renewable power on behalf of State Entities. No State Entity currently has legislative authority to be this central procurement agent for all State Entities. However, providing legislative authority is granted, an existing agency or authority could serve as the central procurement agent to contract for power, transmit power in the wholesale power market, and perform accounting and billing services for customers. Use of a central procurement agent will reduce the likelihood that State Entities are competing against each other for renewable power, ensure lower costs, minimize transaction costs, and foster orderly project development. The process to procure renewable power will have to meet Environmental Disclosure requirements as defined by the New York State Department of Public Service.

To be effective, a central procurement agent for the State must be capable of the following:

- Issuing solicitations for power periodically, at least every two years, to encourage new renewable-power generation companies to participate as the market grows;
- Engaging in long-term contracts (5 to 20 years);
- Ensuring that start dates of providing the renewable power are flexible to support the construction of new facilities;
- Executing Contracts for Differences as a means of contracting with State Entities to account for any differences between bilateral contract prices and the market value (spot price) of the renewable power;

- Procuring power from the New York Independent System Operator markets or securing the services of a power wholesaler/retailer;
- To ensure the renewable power is being adequately accounted for under the Department of Public Service environmental disclosure requirements.

The length of the contract, start dates, and price for providing power should be proposed by the renewable power-generators. The central procurement agent would then select renewable power providers based on costs and scheduled need for renewable power to meet State Entity and statewide goals.

The central procurement agent could be a single agency or a collaboration among a group of State Entities. Additional discussions are necessary to define the procurement and billing process and responsibilities of all parties. Discussions among NYSERDA, NYPA, OGS, and other interested State Entities will be held to refine the procurement process.

Participation in Voluntary Renewable Energy Programs

As New York State deregulates its electric industry, customers will be provided choices regarding the supplier and sources of energy available through the investor owned utilities that are already providing their electric service. State Entities are encouraged to evaluate these options as an additional strategy to comply with the requirements of the Executive Order. Currently, Niagara Mohawk Power Corp., New York State Electric and Gas Corporation, Rochester Gas and Electric Corporation, the New York Power Authority, and the Long Island Power Authority have voluntary renewable power programs. Additional information on these programs and power choices can be found at:
http://www.dps.state.ny.us/energyguide.htm#greenpower

On-site Renewable Power/Distributed Generation

In addition to central procurement, or selecting alternate sources through an already existing utility service, some State Entities may be interested in using on-site power generation from eligible technologies to meet a portion or all of their renewable power requirements. Demonstrating end-use applications of renewable-energy technologies will offer a valuable example to the private sector and lead to market growth.

Future Role of the Renewable Power Working Group

The Renewable Power Working Group will continue to work to resolve issues with the renewable requirements and the Executive Order, and pursue the concept of a central procurement agent. Once the State's central procurement agent is selected, the Renewable Power Working Group will work to support their efforts and to reduce the transaction costs of the State associated with the procurement of renewable power and address all other critical issues related to renewable power-requirements of the Order on an as-needed basis.

6. Procurement of Energy-Efficient Products

> *"Effective immediately, State agencies and other affected entities shall select ENERGY STAR® energy-efficient products when acquiring new energy-using products or replacing existing equipment. NYSERDA shall adopt guidelines designating target energy efficiency levels for those products for which ENERGY STAR® labels are not yet available."*

As required in the Executive Order, State Entities are to select ENERGY STAR® energy-efficient products, to the maximum extent practicable, when acquiring new energy-using products or replacing existing equipment. For those product categories that do not have an ENERGY STAR® recommended efficiency level, State Entities are directed to use the Federal Energy Management Program (FEMP) Purchasing recommendations to determine efficiency levels. Resources provided by these two programs can be found at:

ENERGY STAR® website: http://www.energystar.gov/
FEMP website: http://www.eere.energy.gov/femp/

ENERGY STAR® is a voluntary program run by the U.S. Environmental Protection Agency and U.S. Department of Energy to identify and promote energy-efficient products. The program offers product labeling, energy-performance targets, building benchmarking tools, and guidance on purchasing practices. The program covers products for most of the building sectors, including residential heating and cooling equipment, major appliances, office equipment, lighting, and consumer electronics. More than 11,000 product models in more than 30 product categories bear the ENERGY STAR® label.

For each ENERGY STAR® labeled product, the website offers:

- **Product specifications** or the guidelines these products meet to bear the ENERGY STAR® label;
- **Drop-in procurement language** that organizations can incorporate into their purchasing policies;
- **Savings/Life-cycle cost calculators** that show how much energy and money organizations can save by purchasing ENERGY STAR® labeled products; and
- **Product listings (including model number)** of ENERGY STAR® labeled products.

FEMP, part of the U.S. Department of Energy, assists federal agencies in reducing operating costs, increasing energy efficiency, procuring renewable energy, and conserving water. To accomplish this, FEMP offers project financing and technical assistance, including aggregated procurements and FEMP Product Energy Efficiency Recommendations. These product

recommendations identify specifications for equipment in the upper 25% of energy efficiency, including all models that qualify for the ENERGY STAR® product labeling program. FEMP also provides buyer's tips, information on cost effectiveness, and where to locate products. The 40 FEMP Product Energy Efficiency Recommendations, cover residential appliances and equipment, water saving technologies, lighting technologies, commercial appliances and equipment, office technologies, construction products, and commercial and industrial technologies.

Additionally, NYSERDA is establishing minimum-efficiency standards for 18 specific energy-using products and appliances purchased by or for State Entities, as directed by Article 5, Section 5-108 (1) of the New York State Energy Law. These standards will be enacted in 2004 and 2005. As a part of this effort, NYSERDA is exploring the development of guidelines on more efficient purchases for these same product areas. **Appendix F** includes the first group of product standards that has been approved at the writing of these Guidelines. As additional groups of products are approved, they will be added to future issues of the Guidelines.

State Entities should also be aware that electronic equipment and small appliances often consume electricity even when they are not being used. "Standby power" is used by products such as cell phones, telephones, computers, monitors, computer printers, fax machines, microwave ovens, and other appliances (those with electronic controls and keypads or with clock displays), televisions and video cassette recorders, battery-powered tools, and air conditioners with remote controls. Although the power use is small individually, these products are often referred to as "electricity vampire" loads and are becoming numerous. State Entities are encouraged to purchase products using less than 1 watt in the "off" or "standby" mode, which represents a significant savings from typical products that use between 4 and 7 watts in the standby mode.

Both ENERGY STAR and FEMP use life-cycle costing to set standards. State Entities are also encouraged to use life-cycle costing for equipment selection to exceed the standards set for in these programs in a cost-effective manner.

State Entities may also seek guidance selecting environmentally preferable products by using resources made available from the U.S. Environmental Protection Agency's Environmentally Preferable Purchasing Program (EPP). This national program provides resources to help facility managers and business officers understand the economic benefits of using environmentally preferable products. Environmentally preferable products add environmental impact costs into the life-cycle costing analysis to initial cost, operations cost and removal costs. Additional information and resources can be found at:
http://www.epa.gov/opptintr/epp/

To meet energy-efficient and environmentally preferable product procurement requirements, State Entities may need to modify or put in place purchase practices at both the control agency and individual facility levels. Therefore, State Entities are required to provide information on these activities and the associated energy-efficient products as a brief narrative or attachment to their respective Annual Energy Report (See Section 9).

7. Leased Space

Introduction
State Entities, as a normal course of business, commonly procure leased space to fulfill their responsibilities to the citizens of New York State. As part of Executive Order No. 111, all State Entities are directed to incorporate energy-efficient design, operations and management practices, and purchase green and recycled materials for leased space to which they may be a party.

Due to the unique nature of leases and tenant-owner relationships, complete control over energy systems and building operations may not be possible within leased space. In many instances, leases will be of a short duration, or leases will be for the occupancy of only a small portion of the building. As a result, building owners and other tenants may be unwilling to engage in significant renovations, changes, or disruptions to a facility. In light of this, State Entities are directed to use their best efforts to incorporate what is feasible and practical during lease negotiations and to document these efforts.

To help achieve the goals set forth in this Order, State Entities are encouraged to share information with the building owner regarding State-administered programs that may be able to offset a portion of the costs of improvements and encourage building owners to make improvements consistent with the intent of this Order. Some improvements may have a higher premium cost in leased space than in State-owned facilities. State Entities should consider the life-cycle cost of these improvements and take steps to determine if the energy cost savings associated with the energy investments provides a payback prior to the end of the lease term. State Entities should include reasonable improvements and strive to increase the overall efficiency of space that the State procures annually.

State Entities are directed to seek funding strategies and alternate sources of funding to help finance improvements in leased space that are consistent with those described in the Implementation, Budgeting, and Finance section of these Guidelines. The Leased Space section has been divided into several sub-sections based on common lease arrangements. Each subsection identifies the expectations of State Entities for leased space under their control. If a specific lease arrangement being sought is not listed in these Guidelines, State Entities should strive to achieve the closest standard listed below, or establish an alternate standard that seeks to comply with the requirements of the Order that are achievable.

Tenants of leased spaces already procured, but undergoing substantial renovations, as defined by the New York State Energy Conservation Construction Code, as amended, will be required to work with the building owner to achieve reasonable and practical savings and improvements in accordance with Executive Order No. 111. Improvements implemented to comply with Executive Order No. 111 should pay for themselves through energy savings prior to the end date of the lease. In addition to these improvements, State Entities are directed to explore operational and maintenance low-cost, no-cost improvements that will assist in achieving the mandates set forth in this Executive Order.

All State Entities are directed to explore opportunities to direct-meter or sub-meter energy consumption of the spaced being leased by the State. If direct-metering or sub-metering is unavailable, State Entities should not attempt to report energy consumption or the square feet of those spaces in the Annual Energy Report as the data would not be reliable or accurate. The number of spaces and square footage of these spaces should only be footnoted on the Annual Energy Report.

If State Entities do not purchase their own power in their leased space, they are directed to explore the willingness and ability of the building owner to purchase or provide renewable power as required by the Executive Order.

Space that is Not Individually Metered
These lease arrangements typically pay for utility usage as a pre-determined flat rate or percent per month or per square foot. Due to the circumstances of these leases, in many cases the tenant will be unable to affect significant changes to the purchase and maintenance of the building's subsystems. However, State Entities are directed to investigate and implement all reasonable opportunities for installing energy and water-efficiency measures, comply with the purchasing requirements of the Order, and incorporate green and recycled materials into the leased space as feasible. Efforts should also be made to make building owners aware of State-administered programs that may encourage building-efficiency improvements. This space should not be reported in the Annual Energy Report.

Leases that are Individually Metered
Leased space that is individually metered and where the State Entity has the ability to implement improvements shall be considered to have the same standing as space owned by the State. All State Entities are hereby directed to begin implementing action plans that work toward the 35 percent reduction in energy consumption from the 1989-1990 base year and comply with the procurement requirements of the Order. If feasible, all State Entities shall incorporate green and recycled materials. If the State Entity is responsible for purchasing its own electricity, it should refer to the Requirements for the Purchase of Renewable Power section (Section 5) of these Guidelines for complying with the renewable-power requirements of the Order. This space should be reported in the Annual Energy Report.

Space that is Net-Leased
Net-lease arrangements typically, though not always, allow tenants to have significant control over the specification and maintenance of building systems and sub-systems. State Entities with net-leased space shall strive to achieve the energy-efficiency, purchasing, and green and recycled material requirements as established in the Executive Order. All State Entities are directed to begin implementing action plans that will work toward these goals. If the State Entity is responsible for purchasing its own electricity, it should refer to the Requirements for the Purchase of Renewable Power section (Section 5) of these Guidelines to comply with the renewable-power requirements of the Order.

Lease/Purchase Arrangements for Existing Buildings Not Being Substantially Renovated
Lease/purchase arrangements (unlike a lease with an option-to-buy arrangement) for existing

buildings that will not undergo a substantial renovation, as determined by the New York State Energy Conservation Construction Code, as amended, prior to occupation, are directed to investigate and implement all reasonable opportunities to install energy and water-efficiency measures, comply with the purchasing requirements of the Order, and incorporate green and recycled materials into the leased space as feasible. If the State Entity is responsible for purchasing its own electricity, it should refer to the Requirements for the Purchase of Renewable Power section (Section 5) of these Guidelines for complying with the renewable-power requirements of the Order.

Lease/Purchase Arrangements for New Construction and Substantial Renovation
For the purpose of these Guidelines, construction of new buildings and substantial renovations for buildings that are lease/purchase arrangements, shall refer to the standards as set forth in Section 4 of these Guidelines for New Construction and Substantial Renovations. Furthermore, if the State Entity is responsible for purchasing its own electricity, it should refer to the Requirements for the Purchase of Renewable Power section (Section 5) of these Guidelines to comply with the renewable-power requirements of the Order.

8. Alternative-Fuel Vehicles

> *"State agencies and other affected entities shall procure increasing percentages of alternative-fuel vehicles, including hybrid-electric vehicles, as part of their annual vehicle acquisition plans. By 2005, at least 50 percent of new light-duty vehicles acquired by each agency and affected entity shall be alternative-fueled vehicles, and by 2010, 100 percent of all new light-duty vehicles shall be alternative-fueled vehicles with the exception of specialty, police or emergency vehicles as designated by DOB. State agencies and other affected entities that operate medium- and heavy-duty vehicles shall implement strategies to reduce petroleum consumption and emissions by using alternative fuels and improving vehicle fleet fuel efficiency."*

Introduction

The Executive Order sets forth goals that extend well beyond the requirements of the Federal Energy Policy Act (EPAct) of 1992 for "covered fleets." EPAct defines "covered fleets" as agencies who own, operate, lease, or otherwise control 50 or more light duty vehicles (8500 lbs. and under Gross Vehicle Weight Rating - GVWR) that are not under the U.S. Department of Energy's list of excluded vehicles, and 20 of these vehicles are used primarily within urban areas that are centrally fueled or capable of being centrally fueled. The EPAct percentage goal is 75 percent of all light-duty vehicle acquisitions for model year 2001 and thereafter. By contrast, Executive Order No. 111 requirements require all State Entities, with one or more light-duty vehicles to comply with the purchasing requirements regardless of the locations of vehicles in the State. Specialty, police, or emergency vehicles, as designated by the Division of the Budget, are exempted from this requirement.

Alternative-Fuel Vehicle Acquisitions

The Order mandates State Entities to acquire vehicles that operate on alternative fuels as defined in **Appendix G** – Glossary of Terms and Acronyms. Bi-fuel vehicles (e.g., CNG/gasoline; propane/gasoline) and flexible fuel vehicles, (e.g., vehicles fueled by E-85, a blend of 85 percent ethanol and15 percent gasoline) are included; however, State Entities procuring these types of vehicles must demonstrate that a source of the alternative fuel is available. Hybrid-electric vehicles fueled by gasoline, as well as licensed neighborhood electric vehicles, are also included with in the definition of alternative-fuel vehicles for purposes of compliance with Executive Order No. 111.

By 2005, at least 50 percent of new light-duty vehicles acquired by each State Entity shall be alternative-fuel vehicles. Thereafter, annual alternative-fuel vehicle acquisitions are expected to increase by 10 percent in each succeeding year leading to 2010, when 100 percent of new light-duty vehicles acquired by State Entities must be alternative-fuel vehicles.

Alternative-Fueled Vehicle Acquisition Compliance

The head of each State Entity shall be responsible for ensuring that the State Entity is in compliance with Executive Order No. 111 alternative-fuel vehicle acquisition requirements as set forth in these Guidelines.

Exemptions
State Entities may claim an exemption from Executive Order No. 111 acquisition requirements only if the Division of the Budget designates their vehicles as specialty, police, or emergency vehicles. An exemption will be granted for a period of one year only. State Entities must submit the reasons for claiming exemptions annually and record the number of vehicles that have been exempted during the reporting period.

Procurements Other Than Vehicles
The New York State Clean Fueled Vehicles Council will address other types of procurements, such as fueling/charging equipment, garage or facility modifications, etc. Inquiries regarding such procurements should be directed to the Commissioner, NYS Office of General Services, in his capacity as Chairman of the Clean Fueled Vehicles Council.

Reporting Requirements
State Entities shall include alternative-fuel vehicle acquisition information as part of their Annual Energy Report.

Medium- and Heavy-Duty Vehicles
The head of each State Entity that uses medium- and heavy-duty vehicles, as defined in **Appendix G** of these Guidelines, shall include, as part of the Annual Energy Report, an explanation of the steps taken to implement strategies to reduce petroleum consumption and emissions through use of alternative fuels and improving vehicle-fleet fuel efficiency.

9. Reporting and Baseline

Introduction
Every State Entity shall be required to submit an Annual Energy Report to the New York State Energy Research and Development Authority by December 1st of each year. This report (See **Appendix H**) shall report on the activity occurring during the previous State Fiscal Year basis (April 1st - March 31st). The first Annual Energy Report was due December 1, 2002 for the period April 1, 2001 - March 31, 2002. Reports should be sent to:

NYSERDA
Attn: Executive Order No.111 Administrator
17 Columbia Circle
Albany, NY 12203-6399

The purpose of the Annual Energy Report is to demonstrate progress toward achieving the goals set forth in this Order by each State Entity, as well as to help determine the progress of the State as a whole. Executive Order No. 111 makes it the responsibility of each individual State Entity, to the best of its ability, to meet or exceed the goals set forth in the Order.

The 35 percent reduction target of energy consumption in existing buildings is a statewide goal, not necessarily an individual State Entity goal. To achieve this goal, each State Entity will be expected to make significant strides toward reaching this goal if they cannot exceed the 35% reduction target. The measure of success for the statewide 35% reduction target will be based on an Energy Use Index (EUI) metric of total annual Btus consumed by State Entities divided by the total square footage of floor space (BTU/SF). The EUI determined in each year will be compared to the EUI measured in the Base Year 1989-1990. It is recognized that certain State Entities are in, or may enter into, a growth or expansion phase. These State Entities may ultimately consume more Btu/SF as a result of their growth pattern. On an individual basis, State Entities may choose to develop optional custom metrics to demonstrate that they have successfully made their energy operations as efficient as practical. State Entities are also directed to place a priority on rating their building stock in the U.S. Environmental Protection Agency's Portfolio Manager building benchmarking program. These results should be reported in each year's Annual Energy Report.

Base Year Issues
The fiscal year of 1989-1990 shall be used as the Base Year for measuring energy reduction. For State Entities that do not have energy consumption data for the base year, it will be acceptable to use the earliest available data. If other than the 1989-1990 base year must be used, the Annual Energy Report should include a footnote to identify the base year. The adjusted base year is required to be consistent for all buildings. No prorating of the 35% reduction goal will be made for a State Entity using an adjusted base year. **Appendix I** lists the results from the first Annual Energy Report submitted.

No special consideration will be given for buildings that have been constructed or been taken off line since the base year. The statewide metric of Btu/SF will automatically normalize the

increase or decrease in square footage and all changes in facilities. New construction that is designed in an energy efficient manner will help the State Entity lower their overall Btu/SF.

Street lighting, highway lighting, exterior lighting, parking garage lighting, and other ancillary electrical loads shall be included in the determination of a State Entity's Btu/SF metric. The electric usage of these end-uses should be distributed over the square footage of the buildings owned by the State Entity.

Reporting Issues

The Annual Energy Report shall be prepared on a State Entity-wide basis only, not on a facility-by-facility basis. One staff member from each State Entity should be designated to submit the Annual Energy Report to NYSERDA and will be used as a point of contact for follow-up questions and information distribution. It is recommended that the Annual Energy Report included in the Guidelines be approved by the State Entity's chief executive officer prior to submission. Additional narrative pages are required to be submitted to detail any unusual situations that occurred during the year or other related metrics on which the State Entity would like to report progress. Any adjustments to the Base Year data or adjustments regarding process-oriented loads are required to be clearly noted. Each note must explain the adjustments made and the reasoning for each adjustment.

In an effort to expedite the reporting process, NYSERDA shall explore establishing an Annual Energy Report form on its website for direct data entry by State Entity energy managers. All State Entities will be notified of this when the web page is activated.

The conversion of electricity consumption (kWh) shall be converted to Btus using the source conversion factor of 10,000 Btu/kWh. Additional conversion factors can be found in **Appendix J**.

Renewable electricity (kWh) that is generated on-site should not be recorded in the Annual Energy Report as energy consumed, but should be reported in the Renewable Energy Section. Procurement of renewable energy from the open-market should also be noted.

Normalizing energy consumption data to account for extremely cold winters or hot summers is not required since harsh weather conditions average out over the long-term. State Entities may include a footnote in their individual Annual Energy Reports if they believe a cold winter or hot summer has adversely affected their energy reduction goals for a particular year.

Where a State Entity provides space to other tenant State Entities, such as when the Office of General Services (OGS) acts as a landlord for other State Entities that occupy its buildings, the provider Entity (building owner) owns the meter and therefore is responsible for the Annual Energy Report for that space. Tenant entities are expected to cooperate with energy-efficiency improvements initiated by the provider Entity. All tenant State Entities shall also comply with the procurement of products standards and alternate-fuel vehicle requirements as set forth by Executive Order No. 111 and shall work with the building owner to obtain operations and management savings and peak-demand reductions.

For other leased space where tenant State Entities are responsible for payment of the utility bill directly, the tenant State Entity paying the utility bill is responsible for reporting the facility space. If a State Entity is leasing space that is not individually metered, the State Entity shall not estimate energy usage nor shall they include the square feet of the space in its Annual Energy Report.

State Entities may adjust the base year EUI as conditions warrant. If a State Entity opts to make such an adjustment, a written justification must be included with the Annual Energy Report.

Requirements for renewable energy purchases and alternate-fuel vehicle purchases have target dates in 2005 and 2010. The 2005 target shall be represented by activities during State Fiscal Year 2005/2006. The 2010 target shall be represented by activities during State Fiscal Year 2010/2011. To achieve these goals, State Entities are encouraged to begin increasing the percent of renewable power and alternative-fueled vehicles that they purchase annually in advance of these target dates.

State Entities are required to attach a short narrative to the Annual Energy Report indicating the steps the State Entity has taken to ensure compliance with the procurement requirements set forth by this Order. A final annual report summarizing the Statewide energy reduction effort and achievements toward the Order's goals will be compiled by NYSERDA and made available to all State Entities, the Governor's Office, and the Division of the Budget.

Exemptions

Traction loads, process loads, non-building related energy consumption and energy consumption in buildings associated with process loads are not to be included in the Annual Energy Report. Additional exemptions will be considered by the Advisory Council on State Energy Efficiency on an as-needed basis. Questions regarding exemptions from the requirements of this Executive Order should be directed to NYSERDA.

APPENDIX A

Executive Order No. 111

State of New York

Executive Chamber

No. 111

EXECUTIVE ORDER

DIRECTING STATE AGENCIES TO BE MORE ENERGY EFFICIENT
AND ENVIRONMENTALLY AWARE
"GREEN AND CLEAN STATE BUILDINGS AND VEHICLES"

WHEREAS, New York is dedicated to the mutually compatible goals of environmental protection and economic growth;

WHEREAS, New York has adopted measures designed to allow energy markets to operate more competitively and has significantly reduced taxes in order to reduce energy costs and encourage continued economic growth;

WHEREAS, the generation and use of energy has a significant impact on the environment, contributing to emissions of sulfur dioxide, nitrogen oxides, greenhouse gases, and other pollutants;

WHEREAS, State government is a major consumer of energy, spending approximately $300 million per year and purchasing approximately 1500 new vehicles annually with a concomitant impact on the environment; and

WHEREAS, it is appropriate that State government assume a leadership role in promoting the efficient use of energy and natural resources in the interest of the long-term protection and enhancement of our environment, our economy, and the health of our children and future generations of New Yorkers.

NOW, THEREFORE, I, GEORGE E. PATAKI, Governor of the State of New York, by virtue of the authority vested in me by the Constitution and Laws of the State of New York, do hereby order as follows:

I New Energy Efficiency Goals.

All agencies and departments over which the Governor has Executive authority, and all public benefit corporations and public authorities the heads of which are appointed by the Governor (hereinafter referred to as "State agencies and other affected entities"), shall seek to achieve a reduction in energy consumption by all buildings they own, lease or operate of 35 percent

by 2010 relative to 1990 levels. All State agencies and other affected entities shall establish agency-wide reduction targets and associated schedules to reach this goal and shall also be responsible for establishing peak electric demand reduction targets for each state facility by 2005 and 2010. No buildings will be exempt from these goals except pursuant to criteria to be developed by the New York State Energy Research and Development Authority ("NYSERDA"), in consultation with the Division of the Budget ("DOB"), the Office of General Services ("OGS") and the Advisory Council on State Energy Efficiency ("Advisory Council") as established herein.

II State Buildings Energy Efficiency Practices.

A. Existing Buildings.

Effective immediately, State agencies and other affected entities shall implement energy efficiency practices with respect to the operation and maintenance of all buildings that they own, lease or operate. Such practices may include, but shall not be limited to: (1) shutting off office equipment when it is not being used; (2) adjusting the setting of space temperatures; (3) turning off lighting in unoccupied areas; (4) inspecting and re-commissioning or re-tuning heating, air conditioning and ventilation equipment to ensure optimal performance; and (5) cycling and restarting equipment on a staggered basis to shed electricity loads and minimize peak electricity demand usage. State agencies and other affected entities shall strive to meet the ENERGY STAR® building criteria for energy performance and indoor environmental quality in their existing buildings to the maximum extent practicable. Within 180 days of the date of this Executive Order, NYSERDA shall develop guidelines to help agencies and other affected entities implement energy efficiency practices in their buildings.

B. New Buildings and Substantial Renovation of Existing Buildings.

In the design, construction, operation and maintenance of new buildings, State agencies and other affected entities shall, to the maximum extent practicable, follow guidelines for the construction of "Green Buildings," including guidelines set forth in Tax Law § 19, which created the Green Buildings Tax Credit, and the U.S. Green Buildings Council's LEED™ rating system. Effective immediately, State agencies and other affected entities engaged in the construction of new buildings shall achieve at least a 20 percent improvement in energy efficiency performance relative to levels required by the State's Energy Conservation Construction Code, as amended. For substantial renovation of existing buildings, State agencies and other affected entities shall achieve at least a ten percent improvement. State agencies and other affected entities shall incorporate energy-efficient criteria consistent with ENERGY STAR® and any other energy efficiency levels as may be designated by NYSERDA into all specifications developed for new construction and renovation.

III Procurement of Energy-Efficient Products.

Effective immediately, State agencies and other affected entities shall select ENERGY STAR® energy-efficient products when acquiring new energy-using products or replacing existing equipment. NYSERDA shall adopt guidelines designating target energy efficiency levels for those products for which ENERGY STAR® labels are not yet available.

IV Purchase of Power from Renewable Sources.

State agencies and other affected entities with responsibility for purchasing energy shall increase their purchase of energy generated from the following technologies: wind, solar thermal, photovoltaics, sustainably managed biomass, tidal, geothermal, methane waste and fuel cells. State agencies and other affected entities shall seek to purchase sufficient quantities of energy from these technologies so that 10 percent of the overall annual electric energy requirements of buildings owned, leased or operated by State agencies and other affected entities will be met through these technologies by 2005, increasing to 20 percent by 2010. No agency or affected entity will be exempt from these goals except pursuant to criteria to be developed by NYSERDA, in consultation with DOB, OGS and the Advisory Council.

V Procurement of Clean Fuel Vehicles.

State agencies and other affected entities shall procure increasing percentages of alternative-fuel vehicles, including hybrid-electric vehicles, as part of their annual vehicle acquisition plans. By 2005, at least 50 percent of new light-duty vehicles acquired by each agency and affected entity shall be alternative-fueled vehicles, and by 2010, 100 percent of all new light-duty vehicles shall be alternative-fueled vehicles, with the exception of specialty, police or emergency vehicles as designated by DOB. State agencies and other affected entities that operate medium- and heavy-duty vehicles shall implement strategies to reduce petroleum consumption and emissions by using alternative fuels and improving vehicle fleet fuel efficiency.

VI Role of NYSERDA and Creation of the Advisory Council on State Energy Efficiency.

NYSERDA shall coordinate implementation of this Executive Order and shall assist each agency and affected entity in the fulfillment of the responsibilities imposed herein in a cost-effective manner. To assist NYSERDA in fulfilling the requirements imposed by this Executive Order, there is hereby established an Advisory Council on State Energy Efficiency consisting of the following members, who shall serve *ex officio*: the President of NYSERDA; the Director of the Division of the Budget; the Commissioners of OGS, the Department of Environmental Conservation, the Department of Correctional Services, the Office of Mental Health and the Department of Transportation; the Chairman of the Public Service Commission; the Chancellor of the State University of New York; the Secretary of State; the Chairman of the New York Power Authority; the Chairman of the Metropolitan Transportation Authority; the Executive Director of the Dormitory Authority; and the President of the Long Island Power Authority. The President of NYSERDA shall serve as the chair of the Advisory Council. The members of the Advisory Council may designate one or more persons to act as their designee(s). The Advisory Council shall meet regularly, but no less than twice a year, for the purpose of advising NYSERDA as to how it can best assist State agencies and other affected entities in achieving the goals of this Executive Order with the greatest degree of cooperative effort and effectiveness. Members of the Advisory Council shall receive no compensation but shall be entitled to reimbursement for any necessary expenses incurred in connection with the performance of their responsibilities.

VII Assistance and Cooperation.

Every agency and department over which the Governor has executive authority, and all public benefit corporations and public authorities the heads of which are appointed by the Governor, shall provide all reasonable assistance and cooperation requested by NYSERDA and the Advisory Council for the purpose of carrying out this order. Such assistance may include the assignment of staff and the provision of support services.

VIII Participation of other governmental entities.

Local governments and school districts that are not subject to the requirements of this Executive Order are encouraged to review their energy efficiency practices and procedures, to institute appropriate operational and maintenance modifications, and to accelerate the implementation of energy efficiency projects. NYSERDA, OGS, the New York Power Authority and the Long Island Power Authority are hereby directed to offer any assistance as may be appropriate to assist local governments and school districts to achieve the goals of this Executive Order, including, but not limited to, assistance with procurement.

IX Repeal of Prior Executive Order.

Executive Order No. 132, promulgated on January 2, 1990, and continued unamended and unmodified, is hereby revoked and superseded by this Executive Order as of the date hereof.

G I V E N under my hand and the Privy Seal of the State in the City of Albany this tenth day of June in the year two thousand one.

BY THE GOVERNOR

Secretary to the Governor

APPENDIX B

The following is a partial list of State Entities affected by the Executive Order. This list does not necessarily include all State Entities required to comply. As per Executive Order No. 111, State Entities affected by this Order are:

> *"All agencies and departments over which the Governor has Executive authority, and all public benefit corporations and public authorities the heads of which are appointed by the Governor . . . "*

Updates and additions to the following list should be sent to:

NYSERDA
Attn: Executive Order No. 111 Administrator
17 Columbia Circle
Albany, NY 12203

Partial List of Affected State Entities

Adirondack Community College, SUNY
Albany Port District Commission
Battery Park City Authority
Broome Community College, SUNY
Capital District Transportation Authority
Cayuga Community College, SUNY
Central New York Regional Transportation Authority
City University of New York (CUNY) - Central Office
- Baruch College
- Borough of Manhattan Community College
- Bronx Community College
- Brooklyn College
- City College
- City University Medical School
- City University School of Law at Queens College
- College of Staten Island
- The Graduate Center
- Hostos Community College
- Hunter College
- John Jay College of Criminal Justice
- Kingsborough Community College
- LaGuardia Community College
- Lehman College
- Medgar Evers College
- New York City College of Technology
- Queens College, The City University of New York
- Queensborough Community College

York College
Clinton Community College, SUNY
Columbia-Greene Community College, SUNY
Corning Community College, SUNY
Dormitory Authority of the State of New York
Dutchess Community College, SUNY
Empire State Development Corporation
Erie Community College, SUNY
Fashion Institute of Technology Community College, SUNY
Finger Lakes Community College, SUNY
Fulton-Montgomery Community College, SUNY
Genesee Community College, SUNY
Herkimer County Community College, SUNY
Hudson River-Black River Regulating District
Hudson River Valley Greenway
Hudson Valley Community College, SUNY
Jamestown Community College, SUNY
Jefferson Community College, SUNY
Lake George Park Commission
Legislative Gazette
Long Island Power Authority
Mental Hygiene Legal Services
Mohawk Valley Community College, SUNY
Monroe Community College, SUNY
Nassau Community College, SUNY
New York City Housing Development Corporation
New York City Municipal Assistance Corporation
New York City School Construction Authority
New York Convention Center Operating Corporation, Jacob Javits Convention Center
New York Harbor Waterfront Commission
New York Power Authority
New York State Adirondack Park Agency
New York State Athletic Commission
New York State Attorney General
New York State Banking Department
New York State Board of Elections
New York State Board of Regents
New York State Bridge Authority
New York State Capital Defender Office
New York State Central Pine Barrens Joint Planning and Policy Commission
New York State Commission of Correction
New York State Commission on Judicial Conduct
New York State Commission on Quality of Care for the Mentally Disabled
New York State Consumer Protection Board
New York State Council on Children and Families
New York State Council on the Arts

New York State Crime Victims' Board
New York State Cyber Security & Critical Infrastructure Coordination
New York State Deferred Compensation Plan
New York State Department of Agriculture and Markets
    Empire Expo Center
New York State Department of Civil Service
New York State Department of Correctional Services
New York State Department of Environmental Conservation
    New York State Environmental Facilities Corporation
New York State Department of Family Assistance
New York State Department of Health
New York State Department of Labor
New York State Department of Motor Vehicles
New York State Department of State
New York State Department of Taxation and Finance
New York State Department of Transportation
New York State Development Authority of the North Country
New York State Developmental Disabilities Planning Council
New York State Division for Women
New York State Division of Alcohol and Beverage Control
New York State Division of Criminal Justice Services
New York State Division of Housing & Community Renewal
New York State Division of Human Rights
New York State Division of Military and Naval Affairs
New York State Division of Probation & Correctional Alternatives
New York State Division of State Police
New York State Division of Tax Appeals
New York State Division of Veterans' Affairs
New York State Division of the Budget
New York State Division of the Lottery
New York State Division of Parole
New York State Education Department
New York State Emergency Management Office
New York State Energy Research and Development Authority
New York State Ethics Commission
New York State Financial Control Board
New York State Freshwater Wetlands Appeals Board
New York State Governor's Office for Small Cities
New York State Governor's Office of Employee Relations
New York State Governor's Office of Regulatory Reform
New York State Governor's Traffic Safety Committee
New York State Harlem Community Development Corporation
New York State Higher Education Services Corporation
New York State Housing Finance Agency
New York State Housing Trust Fund Corporation
New York State Insurance Department

New York State Insurance Fund
New York State Liquor Authority
New York State Metropolitan Transportation Authority
New York State Mortgage Agency
New York State Mortgage Agency & Housing Finance
New York State Office for Technology
New York State Office for the Aging
New York State Office of Advocate for Persons with Disabilities
New York State Office of Alcoholism and Substance Abuse Services
New York State Office of Children and Family Services
New York State Office of General Services
New York State Office of Mental Health
New York State Office of Mental Retardation and Developmental Disabilities
New York State Office of Parks, Recreation and Historic Preservation
New York State Office of Prevention of Domestic Violence
New York State Office of Real Property Services
New York State Office of Science, Technology and Academic Research
New York State Office of Temporary and Disability Assistance
New York State Office of the Inspector General
New York State Office of the State Comptroller
New York State Office of the Welfare Inspector General
New York State Public Employee Relations Board
New York State Public Service Commission
New York State Racing and Wagering Board
New York State Roosevelt Island Operating Corporation
New York State Temporary State Commission of Investigation
New York State Workers' Compensation Board
New York Temporary State Commission on Lobbying
New York State Thruway Authority
    New York State Canal System
Niagara County Community College, SUNY
Niagara Frontier Transportation Authority
North Country Community College, SUNY
Ogdensburg Bridge and Port Authority
Olympic Regional Development Authority
Onondaga Community College, SUNY
Orange County Community College, SUNY
Peace Bridge Authority
Pennsylvania Station Redevelopment Corporation
Port Authority of New York and New Jersey
    The Port Authority of New York and New Jersey, JFK International Airport
    The Port Authority of New York and New Jersey, LaGuardia Airport
Port Of Oswego Authority
Rochester Genesee Regional Transportation Authority
Rockland Community College, SUNY
Schenectady County Community College, SUNY

State University of New York Administration
- SUNY Albany
- Alfred State College
- Binghamton University
- SUNY Brockport
- Buffalo State College
- SUNY Canton
- SUNY Cobleskill
- SUNY College of Agriculture and Life Sciences at Cornell University
- SUNY College of Ceramics at Alfred University
- SUNY College of Environmental Science and Forestry
- SUNY College of Human Ecology at Cornell University
- SUNY College of Veterinary Medicine at Cornell University
- SUNY Construction Fund
- SUNY Cortland
- SUNY Delhi College
- SUNY Downstate Medical Center
- SUNY Empire State College
- SUNY Farmingdale
- SUNY Fredonia
- SUNY Geneseo
- SUNY Maritime
- SUNY Morrisville
- SUNY New Paltz
- SUNY Old Westbury
- SUNY Oneonta
- SUNY Oswego
- SUNY Plattsburgh
- SUNY Potsdam
- SUNY Purchase
- SUNY School of Industrial and Labor Relations at Cornell University
- SUNY State College of Optometry
- SUNY Stony Brook
- SUNY University at Buffalo
- SUNY Upstate Medical Center
- SUNY Utica/Rome

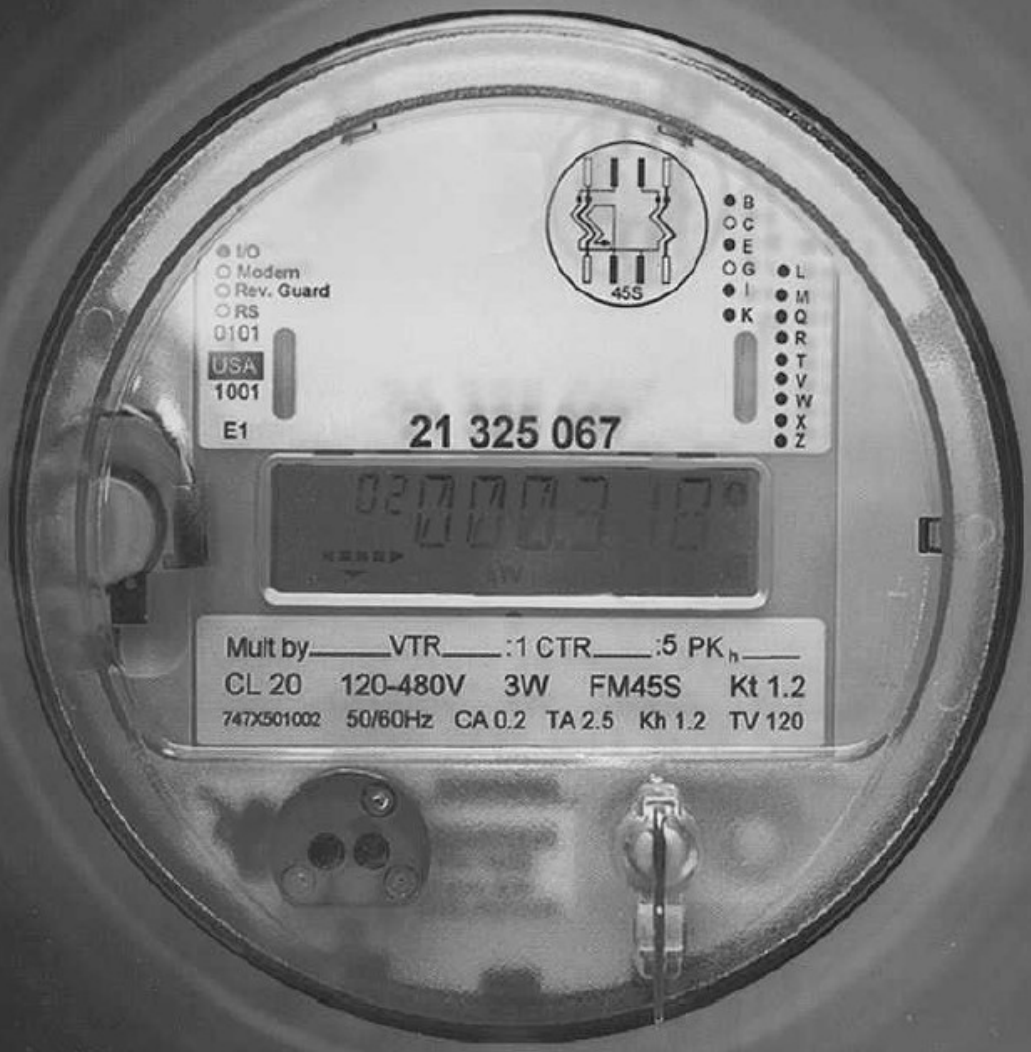
Suffolk County Community College, SUNY
Sullivan County Community College, SUNY
The Egg
Thousand Island Bridge Authority
Tompkins Cortland Community College, SUNY
Tug Hill Commission
Ulster County Community College, SUNY
Westchester Community College, SUNY
Welfare Research, Inc

APPENDIX C

Energy Smart Summer[SM] Material and Order Information

Material and order information to initiate a, "Energy Smart Summer[SM]" campaign in State Entities is available on the following pages. This program facilitates staff participation in best practices energy uses.

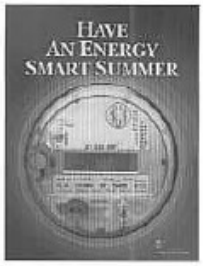
HAVE AN ENERGY SMART SUMMER℠



How to Run an Energy Saving Program

Energy Smart Summer℠ Support Materials

A variety of attention-getting and informative materials have been developed to support energy conservation programs in the workplace. Below is a list of these elements available from NYSERDA at no charge. Please indicate the quantity you need and fax back to 1-518-464-8249. Some can be easily downloaded from our website.



Quantity _____
Awareness Poster to display in common area such as break room or lunch room.

Interoffice E-mail to announce energy conservation plan to staff. Available for download at www.nyserda.org/energysmartsummer.

Quantity _____
Paycheck Stuffer for an easy method to communicate energy-saving tips company-wide.

Quantity _____
Attractive Window Decal tells everyone your company is participating in this important energy-saving program.

Quantity _____
Certificate to recognize key participants.

Screen Saver with energy-saving tips is available for download at **www.nyserda.org/energysmartsummer**

Simply complete the information below, indicate the quantities needed and fax back to: 1-518-464-8249. Start your Energy Smart Summer℠ today!

NAME _____

COMPANY _____

ADDRESS _____

CITY/STATE/ZIP _____

PHONE _____

E-MAIL _____

New York State Energy Research & Development Authority
17 Columbia Circle, Albany, NY 12203-6399 Toll-Free: 1-866-NYSERDA (1-866-697-3732)
Local: 518-862-1090 Fax: 518-862-1091 E-mail: info@nyserda.org Web: www.nyserda.org

New York Energy $mart
Public Service Commission NYSERDA
George E. Pataki, Governor

Energy Savings: Making It Work For You

As you are aware, hot and humid summer weather puts the most strain on New York State's power grid. A new program endorsed by Governor Pataki called *Have an Energy Smart Summer™* has been instituted to help keep the power flowing for all the businesses and residents in the State.

This all-volunteer program is very easy to implement and has big payoffs. Its purpose is to make people aware of the benefits of saving energy and reducing electrical demand, and the simple steps they can take to make it happen.

When it comes to saving energy, every little bit helps. Communities throughout New York State all benefit from the cumulative effect of individual efforts.

Everyone Wins!

Any actions people take to save energy, no matter how small, will help. Although each individual act may seem negligible – things like turning off the lights in an empty office, reporting a leaking faucet or closing window blinds on a hot day – the cumulative effect is immediate and substantial.

Implementing simple energy-wise actions will benefit everyone. To the facility it can mean a considerable reduction in energy costs. An energy-efficient workplace can increase the comfort and productivity of employees. Communities throughout the State benefit from less strain on the energy grid and a reliable flow of power. Plus, the reduced use of resources and lower pollution levels help to improve our environment.

Getting Started

Announcing the program can be as simple as sending a written notice or an e-mail to the entire staff. The message should also include information about the benefits of saving energy to the company, the employees, the community and the environment. A separate form is provided for ordering FREE support materials such as posters, screensavers, paycheck stuffers, and stickers, to help deliver the message to your employees. Be sure to include or follow up with the list of simple energy-saving actions.

You can also kick off the program with an all-staff presentation, either from management or a particularly well-respected employee. You can even go further and have the presentation made by an expert, such as someone from a local utility or a government energy department official.

Building Momentum

Maintaining continuous communication with your staff is an excellent way to keep the program going. This can be done through a variety of ways:

- Weekly e-mails
- Posters in high-visibility locations

- Article(s) in your company newsletter
- Informative handouts from utility companies/State agencies
- Regular reminders at staff meetings

You could have a large poster in a common area, such as a lunchroom, upon which staff can write their names, signing on to the program.

An energy conservation program works when people learn that they can make effective contributions to its success. Continual communication helps keep them apprised of the many energy-saving actions that are in their hands – actions they can apply at work and at home.

Additionally, the Facility Manager and maintenance personnel – the people who live with energy projects and equipment daily – can be solicited for input about where and what energy-saving improvements can be implemented.

Consider an incentive or reward for those who are making the extra effort: A certificate, incentive premium, gift, or cash are possible options.

Keeping People Involved

Maintain support for these efforts by keeping employees informed about and personally involved in energy-related issues affecting the organization.

- Employee suggestion box – staff members can provide helpful advice that can be applied company-wide or in specific locations.
- Request feedback from employees about which elements of the program are sensible and workable for them.
- Exhibit artwork about energy savings done by children of employees.
- Create a flyer about the facility's energy-saving efforts for HR to give to all new employees.
- Inform staff of anything special that the facility did to save energy, such as an improved lighting system or installation of energy-efficient heating or cooling equipment. Take this opportunity to remind them that "It takes both energy-saving equipment and energy-saving people to make the program a success."
- Inform staff of any outside publicity or recognition the company receives from the energy-saving program.
- Communicate to employees that they can increase the benefits of the program by practicing energy savings at home. It's a good thing to teach children. Suggested theme: ***Energy Savings – Take It Home!***

Keep The Program Going

Have an event or party to commemorate the end of the Energy Smart Summer℠ program, but remind everyone that this is a continuous effort, and their new energy-saving habits can be implemented throughout the year.

Inform other members of the associations that your company participates in of your results. This will help management of facilities similar to yours to see the value of participating in an energy-saving program, and it can motivate them to join in, greatly increasing the impact on energy conservation in the State.

Cost-Saving Tips For Building Occupants

During a few hours of high electric demand, particularly during summer months, building occupants can help maintain electric system reliability with the following actions:

- Raise thermostat settings 6°F.
- Turn off lights near windows where daylight is adequate for a few hours, especially noon – 5:00 p.m.
- Turn off lights in unoccupied offices or conference rooms.
- Turn off coffee makers and water coolers/heaters, if possible.
- Turn off 50% of lights where possible. Where lighting controls allow, turn off every other light in a space.
- Where possible, dress more comfortably on anticipated hot days.

Use daylight instead of electric lights whenever possible. Also, remember to turn off the lights when the office is empty for ten minutes or more.

Cost-Saving Tips For Facility Management

- Reduce chiller capacity and air handler flow.
- Take 1/3 to 1/2 of elevators and escalators off duty temporarily.
- Reduce exhaust air and outdoor air ventilation temporarily.
- Reduce lighting levels in common spaces such as lobbies, hallways, elevator lobbies, etc.
- Raise building-wide thermostat set-points to 78°F.
- If available, switch to gas or steam cooling instead of electric chillers.
- Turn off unused computers, printers, and other office equipment.

Note that measures such as reducing lighting, air ventilation and elevator usage should be implemented only where it does not compromise the health and safety of facility occupants.

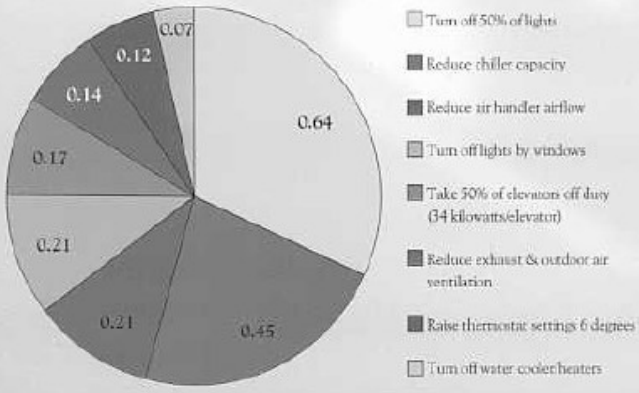
Because of differences in facilities, electric demand reduction practices employed in one location may not be possible in another. For additional help with developing and implementing programs that are site-specific and tailored to your facility, contact the New York State Energy Research and Development Authority (NYSERDA):
1-866-NYSERDA (1-866-697-3732)
e-mail: info@nyserda.org
website: www.nyserda.org/energysmartsummer

Your efforts to reduce energy consumption and electric demand will not only help keep New York's power flowing, but you can enjoy considerable cost savings from these efforts.

These are examples of savings that can be achieved by applying a combination of energy-saving and electric demand reduction practices. Each measure has a complementary reduction in kilowatt usage. Multiplying the kW savings by square footage of the building shows the amount you can save.

Example of Savings:

Electric Demand Reduction Measure	Watts Per Square Foot
Turn Off Lights	0.64
Reduce Chiller Capacity	0.45
Reduce Air Handler Airflow	0.21
Turn Off Lights By Windows	0.21
Take 50% Of Elevators Off Duty (34,000 watts per elevator)	0.17
Reduce Exhaust & Outdoor-Air Ventilation	0.14
Raise Thermostat Setting 6°F	0.12
Turn Off Water Cooler/Heater	0.07
TOTAL	2.01



NYSERDA Peak Load Reduction Program (PLRP)

To help keep New York's power flowing, particularly during the summer months, the New York State Public Service Commission (PSC) and the New York State Energy Research and Development Authority (NYSERDA) developed the **New York Energy $mart**℠ Peak Load Reduction Program. Businesses that participate in this program can enjoy sizable financial incentives from the State while improving the energy efficiency of their operations.

NYSERDA has over $10.5 million allocated for the Peak Load Reduction Program for the summer of 2004. Technical support can also be provided to help you institute energy reduction measures. The program includes the following four components:

PERMANENT DEMAND REDUCTION EFFORTS

Provides incentives to install permanent energy-efficient equipment that will reduce facility peak demand.

LOAD CURTAILMENT/SHIFTING

A short-notice program that provides incentives for equipment installation, allowing facilities to curtail demand in response to notification of a constrained grid or predefined price signal.

DISPATCHABLE EMERGENCY GENERATOR INITIATIVES

Enables owners of emergency/backup generators in the Con Edison service territory to transfer load to their generators in response to notification by the New York Independent System Operator (NYISO).

INTERVAL METERS

Enables facilities to participate in load reduction programs while also providing the facility with critical demand and energy consumption feedback for improved load management.

For complete information on the Peak Load Reduction Program please visit the NYSERDA web site, www.nyserda.org/energysmartsummer, e-mail info@nyserda.org, or call 1-866-NYSERDA (1-866-697-3732).

These opportunities are open to any eligible contractor and facility that pays into the System Benefits Charge (SBC).

New York State Energy Research & Development Authority
17 Columbia Circle, Albany, NY 12203-6399
Toll-Free: 1-866-NYSERDA (1-866-697-3732)
Local: 518-862-1090 Fax: 518-862-1091
E-mail: info@nyserda.org Web: www.nyserda.org

New York Energy $mart
Public Service Commission — NYSERDA
George E. Pataki, Governor

NYSERDA

APPENDIX D

State Facilities Load Management Opportunities

I. Overview

New York State government facilities comprise a significant number of buildings across the State. These facilities could be more energy-efficient and demand responsive through retrofitting cost effective, off-the-shelf technologies, and implementing low-cost or no-cost operational and management improvements. As a general rule, all employees should be expected to conserve energy by being energy conscious throughout the year. For example, employees should responsible for turning off unnecessary lights and closing doors to reduce either the heating or cooling load, etc., throughout the year. To further reduce load each facility should develop a long-term and short-term program as described below:

Long-Term Load Reduction Program. This program identifies and implements cost-effective, operational and capital projects to help agencies reduce energy costs. State Entities are responsible for setting their own reduction targets. State Entities should report this target, and their progress toward achieving this target, in each Annual Energy Report.

State Agency Load Reduction Program. This program is in place to encourage State facilities to help maintain electric grid reliability by reducing demand during periods of capacity constraint. Staff at the Department of Public Service (DPS) monitor the electric system load changes and forecasts. When a shortfall of operating reserves is expected, an electric system alert will be provided (either day ahead or as early as possible on a constrained day). DPS staff, in consultation with the Governor's Office will decide when an order is to be issued. After receiving a load reduction notification, each state entity is expected to implement their load reduction plan.

State Agency Load Reduction Procedures. Each State Entity is responsible for developing a load reduction plan that can be executed with short notice. Facility managers are to identify load reduction opportunities and develop protocols for implementing them when notified by the DPS. Each Agency is responsible for reporting load reduction targets and performance in the Annual Energy Report. Data reported should include date and time of events and the quantity of load reduce.

State Agencies may also participate in demand response programs offered by the NYISO or their utility. Participation in these programs works in conjunction with the State Agency Load Reduction Program. Additional guidance describing the action(s) to be considered in either the long- or short-term program is provided below.

II. Advanced Metering. Each facility shall strive to install demand or interval metering, enabling it to measure demand as well as energy consumed effective immediately.

III. Long-Term Load Reduction Program. The following items are typical of actions to be taken to reduce electric load on a permanent basis. Permanent demand reduction efforts will

provide short-duration load curtailment benefits.

A) Fan System Optimization. Train operators to better manage and maintain energy systems and equipment. Suggested tasks include:

- Verify dampers are functioning properly
- Verify fans are properly controlled according to occupancy schedules
- Verify the number of fans and individual fan running time necessary for building operation at 72 and 78 degrees (this may decrease as thermostats are raised)
- Investigate the application of dual-speed or variable speed drives, particularly on oversized and large fan motors
- Install premium efficiency motors
- Replace/clean filters, as appropriate
- Verify and maintain outside air ventilation rates at minimum levels
- Maximize the use of "Free cooling" and economizer cycles

B) Piping

- Keep all steam traps in good working condition
- Keep all vent and drain valves tight and in good repair to eliminate unnecessary heat losses
- Inspect pipe insulation and replace as needed
- Consider the benefit of insulation upgrades

C) Pump System Optimization

Repair pump impellers and shaft seals to maintain pump efficiency. This will ensure that fluid systems are able to maintain required flow rates without excessive energy consumption. If connected to an EMS, verify that pumps are being properly controlled according to its urgency and function. Verify the number of pumps and the individual run-time needed for building operation (this may decrease as thermostats are raised).

- Investigate the application of dual-speed or variable speed drives, particularly on oversized and large pump motors
- Install premium efficiency motors
- Check system for economizer operation.

D) Chiller System Optimization

- Where practical, replace a portion of your electric centrifugal chillers to absorption chillers or gas-fired chillers
- Sequence chiller operation to achieve the most efficient (least cost) loading conditions of chiller equipment. Use non-electric cooling as base load cooling and least efficient chiller during peak cooling periods
- Increase chilled water supply temperature for electric centrifugal chillers
- Clean condenser coils

- Ensure controls provide setback for unoccupied hours
- Check refrigerant charge
- Check system for economizer operation
- Investigate the application of dual-speed or variable speed drives on cooling tower fan motors, particularly on oversized and large motors
- Turn off or minimize reheats

E) Fired-Pressure Vessel Operation

- Measure combustion efficiency and optimize windbox damper settings, fan speeds and fuel feed rates to obtain optimal combustion efficiency
- Consider replacement of older, inefficient boiler models
- Verify soot-blowing schedules to ensure that tube and economizer cleaning is optimized
- Maintain water chemistry (if applicable) to reduce scaling on internal surfaces of boilers, heat exchangers, etc. (Scaling retards heat transfer and increases losses.)
- Consider options to pre-heat combustion air by adding fan ducting to take heat from the highest parts of the building
- Consider long-term actions to reduce or preferably eliminate the use of desuperheaters

F) Condensers and Un-Fired Pressure Vessel Operation

- Maintain water chemistry (if applicable) to reduce scaling on internal surfaces of boilers, heat exchangers, etc. (Scaling retards heat transfer and increases losses.)
- Consider options to pre-heat combustion air by adding fan ducting to take heat from the highest parts of the building
- Consider long-term actions to reduce or preferably eliminate the use of desuperheaters
- Periodically determine the efficiency of the heat exchanger and evaluate the need for tube cleaning at least annually consistent with load factors

G) Control System Optimization

- Set space heating/cooling levels to higher ends of the comfort range
- Install an emergency management system to de-energize discretionary or non-vital loads
- Upgrade existing emergency management system to permit automatic load shedding control strategies
- Calibrate instruments periodically to ensure instrument drift does not cause inefficient operation. Either replace old instruments or increase instrument maintenance schedules in proportion to measured drift rates
- Evaluate and set control points (pump and fan start and stop set points) for optimal energy savings

- Check occupancy schedules against EMS set point schedules
- Investigate the benefit of additional control points for energy savings
- Check all control points for proper operation
- Assess opportunities for use of lighting control such as occupancy (motion or noise) sensors
- Check control strategies to ensure that multiple systems are not operating unnecessarily
- Install controls for demand-based ventilation.

H) Other Systems

- Survey opportunity for lighting efficiency improvements, (i.e. retrofit to T-8 lamps with electronic ballasts, reflectorized fixtures with less lamps, appropriate switching and lighting controls, daylighting, phase out incandescent lights, and seek to achieve a lighting power density of less than one watt per square foot)
- Analyze potential for natural gas–fired continuous service generator peak shaving. For certain facilities, consider recapture of thermal load with water jacket (or suitable heat exchanger) for domestic hot water use
- Analyze the potential of adding co-generation equipment to all processes where reclaimable heat exists, particularly heat processes using absorption chillers
- Reduce or eliminate cooling in unoccupied spaces
- Replace existing window air conditioners with ENERGY STAR® compliant equipment
- Replace computer monitors with ENERGY STAR® compliant equipment
- Install more efficient compressors on split system air conditioning units
- Where feasible, remove window air conditioners and connect building to central chilled water loop
- During the heating months and when experiencing unoccupied hours, space temp should reduced and unnecessary fans off
- Repair all leaks in compressed air lines

Short-Duration Load Curtailment

This program consists of reducing all electric loads to “emergency levels” in response to an existing or imminent electric power shortage during summer months only. Revised procedures for achieving short-term peak-load reduction goals should be developed and distributed to responsible personnel by May 1 of each year. State Entities have been expected to shed at least 10 percent of their electric load during periods of critical peak power demand for the past several years. Procedures are to be implemented within 60 minutes of notification. The following items are typical of actions to be taken to reduce electric load in response to an order to implement the short-term peak-load reduction program. Items on this list generally do not require elaborate planning and preparation. All items should be accomplished within 60 minutes after receiving the order.

- Turn off appliances (e.g., coffee machines, refrigerators, etc.)
- Turn off escalators
- Reduce lighting to minimal levels
- Set space cooling temperatures to 78 degrees
- Eliminate space cooling in unoccupied rooms
- Turn off all idle equipment such as printers, copiers, personal computers, monitors, etc.
- Verify that the energy management "sleep" features are enabled on computer equipment, so they automatically power down when in intermittent use.
- Turn off all display and decorative lights
- Turn off all lights in unoccupied rooms
- Ensure that all vestibule and exterior doors are tightly closed
- Remove all items (plants, books, furnishings, etc.) from heating/cooling vents
- Close blinds and window coverings
- Increase chill water supply temperature
- Shut off redundant fans and pumps or switch line-ups to allow the use of the most efficient equipment
- Survey capability of standby generation equipment to produce power when ordered by either the NYISO or the Governor's office
- Assess other opportunities for load shifting or load shedding. For example: utilize evenings and back-shifts to do laundry, clean or defrost refrigerators, etc.
- Report load reduction achieved on the Annual Energy Report

Many of the above practices, if made part of an agency's routine for workplace O&M, can be used on an ongoing basis to achieve overall energy savings.

Additional Resources
The following list is a list of additional resources to help State Entities reduce their electrical peak-demand:

- IEEE 739-1995 (R2000) - *IEE Recommended Practice for Energy Management in Industrial and Commercial Facilities*
- NEMA MG10-1994 (R1999) - *Energy Management Guide for Selection and Use of Polyphase Motors*
- NEMA TP-1 - *Guide for Determining Energy Efficiency for Distribution Transformers*
- ANSI/ASHRAE/IESNA Standard 90.102002 - *Energy Standard for Building except Low-Rise Residential Buildings*
- Federal Energy Management Program (FEMP) Operations and Maintenance Program
  http://www.eere.energy.gov/femp/operations_maintenance/

State Entities interested in receiving a copy of any of the above mentioned documents should contact NYSERDA.

APPENDIX E

Heating System Optimization Guidelines

There are significant opportunities to increase operating efficiency, reduce operating costs, and improve occupant comfort and indoor environmental quality through heating system optimizations. Regular or continuous commissioning can optimize a system by supplementing facility staff and performing more complex analysis and tasks then a normal O&M plan. Proper selection of efficient and reliable equipment can greatly reduce maintenance needs and operating costs of equipment and systems. Installing a real-time monitoring system, providing professional development and training opportunities for facility staff, and providing rewards to staff for improved building performance are also recommended strategies. HVAC equipment must be well maintained for the complex array of chillers, boilers, air handlers, controls and other hardware and software to function properly, achieve the needs of the building occupants and operate at peak efficiency.

Getting Started: Getting started is one of the hardest parts of improving a building's performance levels. O&M changes typically offer the lowest cost improvements with some of the fastest paybacks. The following is a mix of O&M recommendations and other steps that should be included in any HVAC system optimization plan:

- Obtain or verify up-to-date operational procedures and manuals are available for all equipment;
- Obtain or verify up-to-date documentation on all building systems, including system drawings;
- Implement preventative maintenance programs in accordance with recommended maintenance schedules and maintain records of all maintenance performed for all equipment and systems;
- Identify troubled systems or components and commit to fixing at least one trouble spot each year;
- Offer professional development and training opportunities for maintenance staff;
- Create an energy O&M mission statement; and
- Implement an advanced real-time monitoring program that tracks and documents building system and system component performance to identify and diagnose potential problems and track the effectiveness of the O&M program.

Implementing these recommendations reduces staff time in responding to maintenance needs and creates a professional environment that expects efficient and reliable system operation. The up-to-date feedback provided by a real-time monitoring system will also encourage staff to constantly adjust and repair systems and components to operate at peak efficiency. If a building owner has more than one facility staff or multiple buildings, providing rewards and recognition to staff and buildings based upon annual performance is a highly recommended approach to further encouraging savings. Gaining additional recognition through national programs like the U.S. Department of Energy/Environmental Protection Agency's ENERGY STAR® Portfolio Manager is also a good way to gain recognition for these achievements.

General Heating System Recommendations: Each heating system is different and requires specialized care from trained professionals. All repairs should be completed prior to the heating season and it should be verified that the heating systems are properly conditioned before start-up. There are many sources of information for specific recommendations for heating and ventilating systems that are listed at the end of this document and all updates, repairs and system adjustments should only be made by properly trained and qualified professionals. However, all heating systems require or can be optimized year round by:

- Setting temperature and humidity points. These set points should be regularly verified that they are set correctly and the system is properly calibrated;
- Reduce HVAC loads by ensuring proper sealing of the building envelope;
- Incorporating and verifying proper operation of building automation and other advanced controls in the building. Digital controls should be evaluated to replace pneumatic controls;
- Optimize equipment for part-load conditions. Heating equipment is typically sized for the coldest possible day, however, heating equipment may only operate at peak load for a limited number of hours per year or not at all. Therefore, part load efficiency is actually more important than full load efficiency;
- Use economizers, where applicable;
- Ventilate buildings according to ASHRAE Standard 62 and use demand controlled ventilation wherever possible;
- Ensure air handlers are properly maintained;
- Provide advanced real-time monitoring and diagnostic capability, ideally on each major component;
- Service and balance the ventilation system according to manufacturer directions;
- Install heat recovery, if appropriate;
- Prevent or repair air distribution system leaks;
- Eliminate or upgrade inefficient steam systems and prevent or repair leaks;
- Repair or replace faulty steam traps;
- Verify the integrity of insulation on distribution system piping and ducting; and
- Consider ease of maintenance when purchasing or modifying any HVAC system components.

While many recommendations refer to advanced controls strategies, one of the most important building optimization strategies is to verify, with a visual or hands on test and inspection, the proper functioning of equipment. Many times controls are only “one way.” This allows for a command to be sent to equipment, but does not allow for any return signal of results. Verifying that systems are actually operating in the planned configuration is an easy no-cost improvement that almost always yields savings and many times can even provide paybacks in minutes.

Adjusting set points and set backs are also easy no-cost improvements that can be made. Each building will need to be conditioned to the specific needs of the building’s occupants, however, a typical comfort range to heat a building to during occupied periods is 68 to 74 degrees. Set backs should be used during non-occupied times. Set backs for normal evening and weekend periods should not typically exceed 10 degrees below the normal occupied temperature. For each degree that you lower the set point, you will save on average of 2% of your heating costs.

In most commercial buildings, up to 75% of the heating bill goes towards heating the building when it is unoccupied. Adjusting temperature settings may also require the need to adjust ventilation rates and humidity levels to maintain occupant comfort and proper ventilation. All steam leaks should be sealed immediately. Repairing steam leaks typically provide a simple payback of less than a month. Sealing, caulking and insulating the building envelope are also low-cost ways to reduce air infiltration and reduce the demand on the heating system and improve occupant comfort by reducing drafts.

Capital Improvements: All heating systems will eventually need to be replaced. Since the equipment may be in place for 15-30 years, it is extremely important to consider efficiency and maintainability during replacements. Although energy-efficient equipment is more expensive, this additional cost is minimal when you consider the life of the equipment and the additional energy savings. The life cycle costs associated with a building over a 30 year period are 2% for initial construction, 6% for operation and maintenance costs and 92% for employee payroll. Many times, improvements in maintainability or efficiencies available in newer systems justify early replacement of equipment. Other times, the resulting increase in worker productivity from improvements will drive the decision to replace equipment. Whatever the deciding factor for equipment changeouts, new equipment should be selected based upon life-cycle costing criteria and should be installed by qualified professionals. The National Institute of Standards and Technology's Building Life Cycle Cost Program (BLCC) is a free program to help evaluate upgrades can be downloaded at:

http://www.bfrl.nist.gov/oae/software.html

Substantial renovations, as determined by the New York State Energy Conservation and Construction Code should be designed and installed according to green design standards as established in Executive Order No. 111, *"Green and Clean" State Buildings and Vehicles*. Maintenance staff should be properly trained according to all manufacturer recommendations. Commissioning and indoor environmental testing should be considered and implemented if required by these standards. Reconfiguring heating zones, adding perimeter heating zones, upgrading controls, installing real-time metering equipment, and ventilating based upon actual occupancy demands are also recommended improvements.

Additional Resources

http://www.aceee.org/
http://www.ashrae.org/
http://www.cee1.org/
http://www.eere.energy.gov/femp/
http://www.eere.energy.gov/femp/program/newconstruction.cfm
http://www.energystar.gov/
http://www.gama.org/
http://www.lipower.org/commercial/library.html
http://www.nyserda.org/
http://www.nyserda.org/exorder111.html
http://www.usgbc.org/

APPENDIX F

21 NYCRR Part 506

PURCHASE OF ENERGY EFFICIENT PRODUCTS

506.1 Scope and Purpose

(a) The provisions of this Part shall apply to purchases by or for the State or any agency thereof of a new or replacement energy using product and to building designs or specifications for new construction and for substantial renovation of any existing building owned or leased in whole by a State agency.

(b) The purpose of this Part is to establish minimum energy efficiency standards for energy using products purchased by or for a State agency. The standards are designed to achieve cost effective savings to the maximum extent practicable, taking into account market availability.

506.2 Definitions506.2Definitions

For purposes of this Part, the terms hereinafter listed shall have the following meanings, unless the context clearly indicates otherwise.

(a) “Btu” means British thermal unit.

(b) “Building addition” means an extension or increase in the floor area or height of an existing building beyond the existing building envelope.

(c) “Building designs or specifications” means any designs, plans, drawings, descriptions, or specifications for new construction or substantial renovation of existing buildings owned or leased in whole by a State agency.

(d) “Energy using product” means any device or product operated by electricity, natural gas, fuel oil, gasoline, methanol, or other energy source for which an energy efficiency standard has been established pursuant to Section 506.4.

(e) “New construction” means construction of a new building or a building addition.

(f) “Purchase” means to acquire from or through a manufacturer, retailer, wholesaler, marketer, builder, developer, or other person in the business of selling, installing, repairing, procuring, or providing an energy using product.

(g) “State agency” means any State department, agency, board, benefit corporation, public authority, or commission.

(h) “Substantial renovation” means the replacement of more than 50 percent of a building subsystem within any consecutive 12-month period.

(i) “Subsystem” means a building assembly or building set of units made up of various components that serve a specific function, including, but not limited to, exterior walls, windows, doors, roofs, ceilings, floors, lighting, piping, duct work, insulation, HVAC system equipment or components, electrical appliances, and plumbing appliances.

506.3 Purchase of an Energy Using Product; Building Designs and Specifications

(a) Except as otherwise provided in Section 506.5, neither a State agency nor other person making a purchase on behalf of a State agency for a building owned or leased in whole by a State agency shall purchase an energy using product, unless such energy using product meets the applicable minimum energy efficiency standard set forth in Section 506.4.

(b) All building designs or specifications by or for a State agency shall incorporate energy using products which meet the applicable minimum energy efficiency standards set forth in Section 506.4.

(c) Nothing herein contained shall be construed to prohibit the purchase of an energy using product that is more energy efficient than the applicable minimum energy efficiency standard set forth in Section 506.4.

(d) A written representation stating the energy efficiency of an energy using product from a manufacturer, retailer, wholesaler, marketer, or other person in the business of selling or providing the energy using product; from a builder, developer, or other contractor who procures, sells, or provides the energy using product; or from a person qualified to determine the efficiency of an energy using product such as a nationally recognized independent testing laboratory or certification program may be relied upon in determining whether the requirements of this Part have been met.

506.4 Minimum Energy Efficiency Standards

(a) Fluorescent Lamp Ballasts

(1) "Fluorescent lamp ballasts" mean devices that are used to start and operate fluorescent lamps by providing starting voltages and current and by limiting the current during normal operation. Fluorescent lamp ballasts shall not include devices capable of being dimmed to 50 percent or less of their maximum output, and devices designed for operation at ambient temperatures of -20 degrees Fahrenheit or less.

(2) For replacement T8 fluorescent lamp ballasts powering 32 watt or 59 watt lamps that are designed to operate at nominal input of 120 or 277 volts and have input current frequencies of 60 Hertz, the minimum energy efficiency standards shall be the minimum ballast efficacy factors set forth in Table 5.1 determined in accordance with the test procedures set forth in 10 Code of Federal Regulations (CFR) Part 430, Subpart B, Appendix Q (last amended April 24, 1991). For fluorescent lamp ballasts in new construction, no T12 ballast shall be purchased and the minimum energy efficiency standards for T8 ballasts powering 32 watt or 59 watt lamps that are designed to operate at nominal input of 120 or 277 volts and have input current frequencies of 60 Hertz shall be the ballast efficacy factors set forth in Table 5.1 determined in accordance with the test procedures set forth in 10 Code of Federal Regulations (CFR) Part 430, Subpart B, Appendix Q (last amended April 24, 1991).

Table 5.1: Minimum Energy Efficient Standards: Ballast Efficacy Factors[a] for T8 Fluorescent Lamp Ballasts

Ballast type	Type and number of lamps				
	F32T8 (32 Watt)				F96T8 (59 Watt)
	1 lamp	2 lamp	3 lamp	4 lamp	2 lamp
Rapid Start	2.61	1.41	0.96	0.72	NA
Instant Start	2.84	1.49	1.04	0.79	0.79

[a] *Ballast Efficacy Factor* ("BEF") means the ratio of the ballast factor to input watts; it identifies the efficacy of a lamp/ballast system in comparison to other systems using the same type and number of lamps. Ballast factor means the ratio of the light output of a lamp(s) operated by a ballast, to the light output of the same lamp(s) operated by a reference ballast at rated current and voltage.

(b) Residential Central Air Conditioners and Heat Pumps

(1) "Residential central air conditioners" means products, other than packaged terminal air conditioners (as defined in section 506.4(d)(1)), that: (A) are powered by single phase electric current, (B) are air cooled, (C) are rated below 65,000 Btu per hour, (D) are not contained within the same cabinet as a furnace, the rated capacity of which is above 225,000 Btu per hour, and (E) consist of a cooling unit only.

(2) "Residential heat pumps" means products, other than packaged terminal heat pumps (as defined in section 506.4(d)(2)), which (A) consist of one or more assemblies, (B) are powered by single phase electric current, (C) are rated below 65,000 Btu per hour, (D) utilize an indoor conditioning coil, compressor(s), and refrigerant-to-outdoor air heat exchanger to provide air heating, and (E) may also provide cooling, dehumidifying, humidifying, circulating, and air cleaning.

(3) The minimum energy efficiency standards for residential central air conditioners and heat pumps shall be the levels set forth in Table 5.2 determined in accordance with the test procedures set forth in 10 Code of Federal Regulations (CFR) Part 430, Subpart B, Appendix M (last amended February 7, 1989). Residential central air conditioners and the cooling mode for residential heat pumps shall meet the applicable seasonal energy efficiency ratio. The heating mode for residential heat pumps shall meet the applicable heating seasonal performance factor.

Table 5.2: Minimum Energy Efficiency Standards for Residential Central Air Conditioners and Heat Pumps

Type of Product	Seasonal Energy Efficiency Ratio[a]	Heating Seasonal Performance Factor[b]
Split System	13	8
Single Package System	12	7.6

[a] *Seasonal Energy Efficiency Ratio* ("SEER") means the total cooling output of a central air conditioner or heat pump in Btus during its normal annual usage period for

cooling divided by the total electric energy input in watt-hours during the same period.

[b] *Heating Seasonal Performance Factor* (“HSPF”) means the total heating output of a heat pump during its normal annual usage period for heating divided by the total electric energy input during the same period.

(c) Commercial Central Air Conditioners and Heat Pumps

(1) “Commercial central air conditioners” means air-cooled, water-cooled, or evaporatively cooled electrically operated, unitary central air conditioners for commercial application.

(2) “Commercial heat pumps” means air-cooled, water-cooled, evaporatively cooled, or water-source (not including ground water-source) electrically operated, unitary central air-conditioning heat pumps for commercial application.

(3) “Ground source heat pumps” means space conditioning systems that employ a geothermal resource - the ground, groundwater, or surface water - as both a heat source and sink. Ground source heat pumps use a reversible refrigeration cycle to provide either heating or cooling.

(4) The minimum energy efficiency standards for commercial central air conditioners and heat pumps shall be the levels set forth in Table 5.3 determined in accordance with the test procedures set forth in such Table 5.3. Commercial central air conditioners and the cooling mode of commercial heat pumps of less than 65,000 Btu per hour shall meet the applicable seasonal energy efficiency ratio and energy efficiency ratio. The heating mode of commercial heat pumps of less than 65,000 Btu per hour shall meet the applicable heating seasonal performance factor. Commercial central air conditioners and the cooling mode of commercial heat pumps equal to or greater than 65,000 Btu per hour shall meet the applicable energy efficiency ratio, and when they have capacity modulation, shall meet the applicable integrated part-load value. The heating mode of commercial heat pumps equal to or greater than 65,000 Btu per hour shall meet the applicable coefficient of performance.

Table 5.3: Minimum Energy Efficiency Standards for Commercial Central Air Conditioners (AC) and Heat Pumps (HP)

Cooling capacity	Sub-category		Efficiency Level	Test Procedure for determining efficiency level
Type: Air Source, 3 Phase				
<65,000 Btu/h	Split-System	AC	13 SEER[a], 11 EER[c]	ARI[b] 210/240-94
		HP	13 SEER[a], 11 EER[c], 8 HSPF[d]	
	Single Package	AC	12 SEER[a], 10.5 EER[c]	ARI[b] 210/240-94
		HP	12 SEER[a], 10.5 EER[c] 7.6 HSPF[d]	
Type: Air Source				
≥65,000 Btu/h and <135,000 Btu/h	AC		11 EER[c], 11.4 IPLV[e]	ARI[b] 210/240-94
	HP		10.1 EER[c],10.4 IPLV[e], 3.2 COP[f]	
≥135,000 Btu/h and <240,000 Btu/h	AC		10.8 EER[c], 11.2 IPLV[e]	ARI[b] 340/360-93
	HP		9.3 EER[c], 9.5 IPLV,[e] 3.1 COP	
≥240,000 Btu/h and <760,000 Btu/h	AC		9.5 EER[c], 9.7 IPLV	ARI[b] 340/360-93
	HP		9 EER[c], 9.2 IPLV[e], 3.1 COP	
≥760,000 Btu/h	AC		9.2 EER[c], 9.4 IPLV[e]	ARI[b] 340/360-93
	HP		9 EER[c], 9.2 IPLV[e], 3.1 COP	
Type: Water Cooled, Evaporatively Cooled, and Water-Source				
<17,000 Btu/h	AC		12.1 EER[c]	ARI[b] 210/240-94
	HP		11.2 EER[c], 4.2 COP[f]	(For Water-Source use ISO[g]-13256-1)
≥17,000 Btu/h and <65,000 Btu/h	AC		12.1 EER[c]	ARI[b] 210/240-94
	HP		12 EER[c], 4.2 COP[f]	(For Water-Source use ISO-13256-1)
≥65,000 Btu/h and <135,000 Btu/h	AC		11.5 EER[c]	ARI[b] 210/240-94
	HP		12.8 EER[f], 4.5 COP[f]	(For Water-Source use ISO-13256-1)
≥135,000 Btu/h and <240,000 Btu/h	AC		11 EER[c]	ARI[b] 340/360-93
≥240,000 Btu/h	AC		11 EER[c], 10.3 IPLV[e]	ARI[b] 340/360-93
Type: Ground water-source				
<135,000 Btu/h	HP		16.2 EER[c], 3.6 COP[f]	ISO[g]-13256-1
Type: Ground source				
<135,000 Btu/h	HP		14.1 EER[c], 3.3 COP[f]	ISO[g]-13256-1

SEER (“Seasonal Energy Efficient Ratio”) means the total cooling output of a central air conditioner or heat pump in Btus during its normal annual usage period for

cooling divided by the total electric energy input in watt-hours during the same period.

[b] *ARI* means the Air-Conditioning & Refrigeration Institute.

[c] *EER* ("Energy Efficiency Ratio") means the ratio of net cooling capacity in BTUs per hour to the total rate of electric input in watts, under designated operating conditions.

[d] *HSPF* ("Heating Seasonal Performance Factor") means the total heating output of a heat pump during its normal annual usage period for heating divided by the total electric energy input during the same period.

[e] *IPLV* ("Integrated Part-Load Value") means a single number figure of merit based on part-load EER, COP, or kilowatt per ton expressing part-load efficiency for air-conditioning and heat pump equipment on the basis of weighted operation at various load capacities for the equipment.

[f] *COP* ("Coefficient of Performance") means a unitless ratio of the rate of heat removal or heat delivery to the rate of energy input, in consistent units, for a complete refrigerating or heat pump system under designated operating conditions.

[g] *ISO* means the International Standards Organization.

(d) Packaged Terminal Air Conditioners and Heat Pumps

(1) "Packaged terminal air conditioners" means a wall sleeve and a separate un-encased combination of heating and cooling assemblies specified by the builder and intended for mounting through the wall. They include a prime source of refrigeration, separable outdoor louvers, forced ventilation, and heating availability energy by builder's choice of hot water, steam, or electricity.

(2) "Packaged terminal heat pumps" means packaged terminal air conditioners that utilize reverse cycle refrigeration as their prime heat source and may have a supplementary heat source available with the choice of hot water, steam, or electricity.

(3) The minimum energy efficiency standards for packaged terminal air conditioners and heat pumps shall be the levels set forth in Table 5.4 determined in accordance with the test procedures set forth in Air-Conditioning & Refrigeration Institute Standard 310/380-93. Packaged terminal air conditioners and the cooling mode of packaged terminal heat pumps shall meet the applicable energy efficiency ratio. The heating mode of packaged terminal heat pumps shall meet the applicable coefficient of performance.

Table 5.4: Minimum Energy Efficiency Standards for Packaged Terminal Air Conditioners and Heat Pumps

	Capacity		
Type of Product	<7,000 Btu/h	≥7,000 - ≤15,000 Btu/h	>15,000 Btu/h
Air Conditioners	11.0 EER[a]	12.5-(0.213 x CAP[c]) EER[a]	9.3 EER[a]
Heat Pumps	11.0 EER[a], 3 COP[b]	12.5-(0.213 x CAP[c]) EER[a] 3.2-(0.026 x CAP[c]) COP[b]	9.3 EER[a] 2.8 COP[b]

[a] *EER* ("Energy Efficiency Ratio") means the ratio of net cooling capacity in Btus per hour to the total rate of electric input in watts, under designated operating conditions.

[b] *COP* ("Coefficient of Performance") means the unitless ratio of the rate of heat removal or heat delivery to the rate of energy input, in consistent units, for a complete refrigerating or heat pump system under designated operating conditions.

[c] *CAP* means capacity in KBtu/h.

(e) Room Air Conditioners

(1) "Room air conditioners" means consumer products, other than packaged terminal air conditioners (as described in section 506.4(d)(1)), which are powered by a single phase electric current and which are an encased assembly designed as a unit for mounting in a window or through a wall for the purpose of providing delivery of conditioned air to an enclosed space. They include a prime source of refrigeration and may include a means for ventilating and heating.

(2) The minimum energy efficiency standards for room air conditioners shall be the levels set forth in Table 5.5 determined in accordance with the test procedures set forth in 10 Code of Federal Regulations (CFR) Part 430, Subpart B, Appendix F (last amended June 29, 1979). The minimum efficiency standards set forth in Table 5.5 shall apply solely to room air conditioners without reverse cycles, but with louvers.

Table 5.5: Minimum Energy Efficiency Standards for Room Air Conditioners

Capacity in Btus per hour	<8,000	≥8,000 - <16,000	≥16,000 - ≤20,000	>20,000
Efficiency Level	10.7 EER[a]	10.8 EER[a]	10.7 EER[a]	9.4 EER[a]

[a] *EER* ("Energy Efficiency Ratio") means the ratio of net cooling capacity in BTUs per hour to the total rate of electric input in watts, under designated operating conditions.

506.5 Waivers

(a) A State agency may waive a minimum energy efficiency standard set forth in Section 506.4 for any purchase or for inclusion in any building designs or specifications, if it determines that the purchase for a particular building or the inclusion in any particular building designs or specifications of an energy using product meeting such standard:

(1) would be inconsistent with public health or safety;

(2) would not be in compliance with Federal, State, or local law or regulation, permit, administrative or judicial order, or other requirement;

(3) would be incompatible with or adversely affect the operation of other building systems or equipment in accordance with the purposes for which they are to be used;

(4) would cause energy losses or inefficiencies in other systems, equipment, or elements of the building that would exceed the energy savings of using such energy using product;

(5) would necessitate substantial revisions or alterations to other existing systems, equipment, or elements of the building, or would create an undue burden in operating and maintaining the building;

(6) cannot be done in a timely manner because purchase of such energy using product is immediately necessary on a limited and temporary basis for the protection or preservation of life, property, or health;

(7) would apply to an historic building eligible for or listed on the State or National Register of Historic Places or be significantly inconsistent with the historic, aesthetic, cultural, or archeological character of the building; or

(8) would result in a substantial delay of the purchase of an energy using product or have a substantial adverse effect on the construction of a new building or substantial renovation of an existing building because: (A) the energy using product is not widely available, or (B) the building specifications have been approved, construction or pre-installation renovation or other work has commenced, or substantial design has been completed prior to the effective date of a standard.

(b) No State agency may waive a minimum energy efficiency standard set forth in Section 506.4, unless all models of the energy using product meeting the standard qualify for a waiver pursuant to subdivision (a) of this section. If a minimum energy efficiency standard may be waived, a State agency may purchase an energy using product which does not meet the minimum energy efficiency standard contained in Section 506.4.

(c) No State agency may waive a minimum energy efficiency standard set forth in Section 506.4, if the alternate energy using product would also qualify for the same waiver for the same reason, *e.g.*, if all models of a room air conditioner, both those meeting the minimum energy efficiency standard and those that do not meet the standard, are larger in size than the units being replaced, then a State agency may not waive the minimum energy efficiency standard on the basis that the standard would necessitate substantial revisions or alterations to the walls of the building.

(d) A State agency shall document the procedure used for each purchase of an energy using product which does not meet the applicable minimum energy efficiency standard set forth in Section 506.4. Such documentation may be incorporated within any other existing records that a State agency maintains, such as the Procurement Record as required by Section 163 of the State Finance Law.

506.6 Referenced Material

The following referenced documents have been filed with the New York State Department of State. The documents are available from the addresses listed or, in the case of federal publications, from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, and for inspection and copying at the offices of the New York State Energy Research and Development Authority. For each reference, additional sources for hard copy materials and web sites, where appropriate, are provided.

Location of Test Procedure	Description of Test Procedure	Where to Obtain a Copy of the Test Procedure
10 CFR[a] Part 430, Subpart B, Appendix Q (last amended April 24, 1991)	Test Procedure for Fluorescent Lamp Ballasts	www.access.gpo.gov/su_docs/index.html
10 CFR[a] Part 430, Subpart B, Appendix M (last amended February 7, 1989)	Test Procedure for Residential Central Air Conditioners and Heat Pumps	www.access.gpo.gov/su_docs/index.html
ARI[b] 210/240-94	Test Procedure for Air-Source, Water-Cooled, and Evaporatively Cooled Commercial Central Air Conditioners and Heat Pumps less than 135,000 BTUs per hour.	www.ari.org
ARI[b] 340/360-93	Test Procedure for Air-Source, Water-Cooled, and Evaporatively Cooled Commercial Central Air Conditioners and Heat Pumps equal to or greater than 135,000 BTUs per hour.	www.ari.org
ISO[c]-13256-1	Test Procedure for Water-Source, Ground Water-Source, and Ground-Source Commercial Central Air Conditioners and Heat Pumps	www.iso.org
ARI[b] 310/380-93	Test Procedure for Packaged Terminal Air Conditioners and Heat Pumps	www.ari.org
10 CFR[a] Part 430, Subpart B, Appendix F (last amended June 29, 1979)	Test Procedure for Room Air Conditioners	www.access.gpo.gov/su_docs/index.html

[a] *CFR* means Code of Federal Regulations.

[b] *ARI* means the Air-Conditioning & Refrigeration Institute.

[c] *ISO* means the International Standards Organization.

APPENDIX G

Glossary of Terms and Acronyms

"Alternative-fuel vehicles" shall mean vehicles that operate on fuels other than gasoline. This includes dedicated and dual-fuel technologies (including flexible-fuel vehicles), gasoline powered hybrid-electric vehicles, and licensed neighborhood electric vehicles.

"Alternative fuels" shall mean 100% methanol, denatured ethanol, and other alcohols; mixtures containing 85 percent or more by volume of methanol, denatured ethanol, or other alcohols with gasoline or other fuels; natural gas; liquefied petroleum gas (propane); hydrogen; coal-derived liquid fuels; fuels (other than alcohol) derived from biological materials such as pure biodiesel fuel; Pure Fuel Corporation "P-series" blends of 60 percent or more non-petroleum components; electricity (including electricity from solar energy).

"Annual Energy Report" shall mean the one page report (See Appendix H) and any footnotes or attachments submitted to NYSERDA by December 1st of every year affected by the Executive Order. This report will detail the progress towards the goals set forth in this Order and provide the opportunity to highlight successes of the State Entity.

"B20" shall mean a mixture of 20 percent biodiesel and 80 percent standard diesel fuel by volume. Fleets may use biodiesel fuel in blends of B20 or higher to meet up to 50 percent of their annual compliance requirements in vehicles with a gross vehicle rating of greater than 8,500 lbs.

"Bi-fuel vehicles" shall mean vehicles that have two fuel systems, one with an alternative fuel, and one with a conventional fuel, and which may operate on one fuel at a time, or, in some medium- and heavy-duty systems, on a combination of the alternative and conventional fuels.

"Biodiesel fuel" shall mean a nontoxic, biodegradable replacement for petroleum diesel, made from vegetable oil, recycled cooking oil, and tallow. The Btu content of biodiesel is similar to that of petroleum diesel, but is cleaner-burning. Neat biodiesel (B100 or 100% biodiesel) is recognized as an alternative fuel for meeting the mandated programs of the Clean Air Act Amendments and EPAct for credit toward a covered vehicle's annual EPAct requirement for AFV use. Covered fleets that use B100 or a blend of biodiesel (e.g., B20 [20% biodiesel/80% diesel] or higher blends) in medium- and heavy-duty vehicles may earn credits toward their annual AFV acquisition requirements. Each 450 gallons of 100% biodiesel or 2200 gallons of mix will equal one AFV credit, but credits obtained in this manner may not be carried forward from the year in which they are earned, and only 50 percent of the needed credits can be earned with use of biodiesel.

"Commissioning" shall mean a systematic quality-assurance process to verify that all building systems, including mechanical control and electrical systems, are properly integrated and perform according to the owner's requirements.

"Dedicated vehicles" shall mean vehicles that operate solely on an alternative fuel.

"Dual-fuel vehicles" shall mean: (1) an automobile that meets the criteria for a dual-fuel automobile as that term is defined in section 513(h)(1)(C) of the Motor Vehicle Information and Cost Savings Act, 49 U.S.C. 32901 (a) (8); or (2) a motor vehicle, other than an automobile, that is capable of operating on alternative fuel or on gasoline or diesel fuel; or (3) a flexible-fuel vehicle.

"Electric vehicles" shall mean licensed vehicles primarily powered by an electric motor that draws current from rechargeable batteries, fuel cells, photovoltaic arrays, or other sources of electric current and that may include hybrid-electric vehicles.

"Emergency vehicles" as defined in New York State Vehicle and Traffic Law, §101, shall mean every ambulance, police vehicle or bicycle, correction vehicle, fire vehicle, civil defense emergency vehicle, emergency ambulance service vehicle, blood delivery

vehicle, environmental emergency response vehicle, sanitation patrol vehicle, hazardous materials emergency vehicle, and ordinance disposal vehicle of the armed forces of the United States.

"EPAct" shall mean the federal Energy Policy Act of 1992.

"FEMP" shall mean the Federal Energy Management Program. FEMP's goal is to reduce the cost of operating the Federal Government advancing energy efficiency and water conservation, promoting the use of distributed and renewable energy, and improving utility management decisions at federal sites.

"Flexible-fuel vehicles" shall mean any motor vehicle engineered and designed to be operated on an alternative fuel, a petroleum fuel, or on a broad mixture of the two.

"Heavy-duty vehicles" shall mean vehicles having a gross vehicle weight rating (GVWR) of over 14,000 lbs.

"Hybrid-electric vehicles" shall mean vehicles primarily powered by an electric motor that draws current from rechargeable storage batteries, fuel cells, or other sources of electric current and also relies on a non-electric source of power.

LEED® shall mean the Leadership in Energy and Environmental Design. This is a trade marked green building rating system created by the U.S. Green Building Council to rate construction projects.

"Light-duty vehicles" shall mean light duty trucks or light duty vehicles, as such terms are defined under section 216(7) of the Clean Air Act (42 U.S.C. §7550(7), having a gross vehicle weight rating (GVWR) of 8,500 lbs. or less, prior to any aftermarket conversion.

"Licensed Neighborhood Electric Vehicles" shall mean an electric vehicle licensed for use on roads with posted speed limited of 35 miles per hour or less.

"Medium-duty vehicles" shall mean vehicles having a gross vehicle weight rating (GVWR) of 8,500 to 14,000 lbs.

"Model year" shall mean the time period from September 1 of the previous calendar year through August 31.

"New" shall mean a light duty vehicle not previously under the control of the fuel provider, no matter when the vehicle was manufactured. This includes new leases of vehicles previously leased by other non-state entities.

"New York State Clean Fueled Vehicles Council" shall mean the working group of New York State agency, authority and State university representatives convened in 1998 to guide the progress of the State's efforts to incorporate clean fueled vehicles into its daily operations. The Commissioner the New York State Office of General Services chairs the Council.

"Specialty vehicles" shall mean certain vehicles that are not suitable for general transportation purposes and are not licensed for highway use; for example, light duty construction vehicles, such as backhoes or front-end loaders; and light-duty material handling equipment, such as forklifts. Unlicensed neighborhood vehicles are also included in this category. Specialty vehicles should not be reported as part of the light-duty vehicle requirements.

"Vehicle acquisition" shall mean procurement of a vehicle by purchasing or leasing, or otherwise gaining possession or control of a vehicle.

APPENDIX H

Annual Energy Report

The following Annual Energy Report and all attachments and footnotes must be submitted by December 1st of each year to:

NYSERDA
Attn: Executive Order No. 111 Administrator
17 Columbia Circle
Albany, NY 12203

Executive Order No. 111
2004 Annual Energy Report Reporting Period ____/_____/_____ to ____/_____/_____

Agency: _____
Contact: _____
Title: _____
Address: _____
_____
City: _____
State: _____ Zip: _____
Phone: _____ Fax: _____
Email: _____
Agency Size: _____SF
Number of Bldgs: _____

Energy Usage:

Natural Gas:_____ MMBtu
Fuel Oil:_____ MMBtu
Electricity: _____ MWh
_____ MMBtu Source
Coal: _____ MMBtu
Steam: _____ MMBtu
Other _____ MMBtu
Total: _____ MMBtu

Base Year Information:
Previously Reported Base Year Energy Use Index (EUI):

_____
(Source- Btu/SF)

Adjusted Base Year Energy Use Index (EUI) Btu/SF:

_____ _____
(Source - Btu/SF) *(State Fiscal Year)*
If Adjusted Base Year is used, please include justification.

Metrics:
SFY 2003/2004 EUI: _____ Btu/SF
EUI Increase/Decrease Over Base Year: _____%
EUI Increase/Decrease Over Adj. Base Year:_____%

Electrical Demand Information:*(NYC & LI / Upstate)*
Current Summer Peak Demand: ____/____ MW
Target Summer Peak Demand 2005: ____/____ MW
Target Summer Peak Demand 2010: ____/____ MW

Procurement of Clean Vehicles

Number of new light-duty vehicles acquired this year and total number of light-duty vehicles owned: _____/_____ ____

Number and percent of new light-duty vehicles acquired this year that are exempted for the Order: ____/_____%

Number and percent of new non-exempted, light-duty vehicles acquired this year that are alternative-fueled: ____/_____%
Number and percent of non-exempted fleet of light-duty vehicles owned by your State Entity that are alternative-fueled: ____/_____%

Attach a description of strategies undertaken to reduce petroleum consumption and emissions for your medium- and heavy-duty vehicle fleet.

Renewable Power:*
Current year's annual electric requirements provided by renewable power:
Generated On-Site _____ kWh
Purchased _____ kWh
% of current year's electric requirements provided by eligible renewable power:_____ %

Target Purchase of Eligible Renewable power:
By 2005 (10%) _____ kWh
By 2010 (20%) _____ kWh

Green Buildings: *Attach a description of strategies undertaken to meet Executive Order No. 111 requirements for new building construction.*

ENERGY STAR® Buildings: Number of buildings meeting EPA ENERGY STAR® Portfolio Manager building criteria (a rating of 75 or higher):_____

Procurement: *Attach a description of strategies undertaken to meet Executive Order No. 111 procurement requirements.*

Submitted by:_____ Title: _____
Please Print

Signature: _____Date: _____

APPENDIX I

Historical Energy Consumption Information

The following two pages of data have been reprinted from the Annual Energy Report, July 2003, summarizing the energy consumption data of State Entities that reported building energy consumption for State Fiscal Year 2001/02.

Data shown as NA for a State Entity is generally a result of the agency not reporting energy consumption information for that category.

Agency	Energy Use Natural Gas (MMBtus)	Energy Use Fuel Oil (MMBtus)	Electricity Use (MWh)	Energy Use Electricity Source (MMBtus)	Energy Use Coal (MMBtus)	Energy Use Steam (MMBtus)	Energy Use Other (MMBtus)	Energy Use Total (MMBtus)	Base Year EUI (Btus/sq.ft.)	2002 EUI (Btus/sq.ft.)	EUI Change From Base Year (Percent)	Agency Size (Square Feet)	Number of Buildings
Albany Port District Commission	3,865	0	435	4,353	0	0	0	8,218	13,696	13,696	0	600,000	9
Battery Park City Authority	0	0	873	8,727	0	0	0	8,727	191,827	191,827	0	45,495	3
Board of Elections	0	0	31	312	0	0	0	312	16,059	16,059	0	19,441	1
Bridge Authority	92	2,026	2,445	24,447	0	0	0	26,565	189,517	187,286	-1	141,840	23
Central New York Regional Transportation Authority	9,509	1,820	2,764	27,642	0	0	0	38,971	253,485	199,926	-21	194,927	1
City University of New York	1,475,196	80,295	377,290	3,772,901	0	417,297	0	5,745,689	261,976	235,149	-13	24,837,272	326
Clinton County Community College	7,089	2,969	2,101	21,008	0	0	425	31,491	133,700	133,700	0	235,537	6
Columbia-Green Community College	0	4,647	3,462	34,622	0	0	0	39,269	193,073	193,073	0	203,389	8
Commission of Corrections	0	0	97	970	0	0	0	970	86,476	86,476	0	11,217	1
Commission on Judicial Conduct	0	0	89	892	0	0	0	892	86,304	86,304	0	10,332	2
Commission on Quality Care	0	0	259	2,587	0	0	0	2,587	122,122	117,787	-4	21,965	1
Department of Correctional Services	3,466,147	2,089,306	344,729	3,447,296	0	157,703	528	9,160,980	264,967	243,620	-9	37,642,885	3,379
Department of Environmental Conservation	24,893	13,324	11,741	117,407	0	0	1,005	156,629	197,307	169,109	-14	926,202	20
Department of Health	150,424	53,101	35,523	355,234	0	0	0	558,759	507,273	452,628	11	1,321,849	37
Department of Labor	31,548	0	671	6,714	0	0	0	38,262	125,252	93,879	-25	407,551	0
Department of Motor Vehicles	9,559	420	15,120	151,200	0	0	0	161,179	372,192	372,192	0	431,500	22
Department of Public Service	0	0	365	3,653	0	0	0	3,653	53,097	55,377	4	65,971	2
Department of State	7,277	0	415	4,148	0	0	0	11,425	97,970	77,773	-21	146,876	1
Department of Transportation	671,284	116,180	22,342	223,425	0	0	9,382	1,020,271	147,268	448,584	205	2,274,426	232
Division of Alcoholic Beverage Control	0	0	357	3,568	0	0	0	3,568	0	0	0	0	4
Division of Criminal Justice	3,227	0	3,255	32,548	0	0	0	35,775	233,361	233,361	0	153,304	3
Division of Military and Naval Affairs	345,463	139,262	47,124	471,245	0	0	3,529	959,499	111,682	140,084	25	6,849,446	287
Division of Parole	3,157	0	5,334	53,337	0	0	0	56,494	105,320	105,320	0	536,407	28
Division of State Police	13,828	10,517	6,541	65,409	0	0	262	90,016	178,870	156,395	-13	575,568	32
Division of Tax Appeals	0	0	188	1,880	0	0	0	1,880	107,418	107,418	0	17,500	1
Division of the Lottery	3,188	7	5,051	50,510	0	0	0	53,705	426,015	377,805	-11	142,150	4
Dormitory Authority	5,874	0	3,799	37,990	0	0	0	43,864	359,118	196,347	-45	223,400	3
Emergency Management Office	0	18	321	3,212	0	0	0	3,230	86,000	87,297	2	37,000	4
Finger Lakes Community College	7,941	2,294	6,133	61,328	0	0	0	71,563	218,905	221,766	1	322,698	4
Fulton-Montgomery Community College	20,337	260	3,074	30,744	0	0	0	51,341	194,432	180,313	-7	284,727	11
Herkimer County Community College	21,960	0	2	23	0	0	0	21,983	60,749	60,749	0	361,848	8
Higher Education Services Corp.	4	0	1,077	10,767	0	0	0	10,771	196,484	196,484	0	54,819	1
Hudson Valley Community College	437,444	25,622	11,094	110,940	0	0	0	574,006	783,611	579,192	-26	991,046	20
Jamestown Community College	22,866	0	6,469	64,693	0	0	0	87,559	204,244	161,428	-21	542,399	1
Metropolital Transportantion Authority	17,602	24,705	48,641	486,405	0	13,263	0	541,975	287,436	271,803	-5	1,993,983	9
Mohawk Valley Community College	32,781	0	7,873	78,730	0	0	0	111,511	285,770	182,940	-36	609,549	16

Agency	Energy Use Natural Gas (MMBtus)	Energy Use Fuel Oil (MMBtus)	Electricity Use (MWh)	Energy Use Electricity Source (MMBtus)	Energy Use Coal (MMBtus)	Energy Use Steam (MMBtus)	Energy Use Other (MMBtus)	Energy Use Total (MMBtus)	Base Year EUI (Btus/sq.ft.)	2002 EUI (Btus/sq.ft.)	EUI Change From Base Year (Percent)	Agency Size (Square Feet)	Number of Buildings
New York Power Authority	9,632	248	8,423	84,230	0	0	0	94,091	224,741	189,685	-16	496,035	3
Niagara Frontier Transportation Authority	130,225	0	31,676	316,760	0	0	0	446,985	414,869	357,663	-14	1,249,737	18
NYC School Construction Authority	0	0	5,640	56,400	0	0	0	56,400	276,507	276,507	0	236,522	1
NYSERDA	6	0	316	3,155	0	0	0	3,161	101,147	99,433	-2	31,790	1
Office for Technology	1,282	0	181	1,813	0	0	0	3,095	0	0	0	0	8
Office of Alcoholism and Substance Abuse Services	1,543	0	1,319	13,188	0	0	0	14,731	188,859	188,859	0	78,000	2
Office of Children and Family Services	104,823	24,761	22,604	226,040	0	0	2,631	358,255	211,476	188,403	-11	1,901,536	285
Office of General Services	1,721,663	193,622	253,855	2,538,586	0	0	0	4,453,871	385,277	262,966	-32	16,937,003	46
Office of Mental Health	782,846	1,007,010	196,491	1,964,907	0	162,867	0	3,917,630	282,102	204,159	-28	19,189,138	995
Office of Mental Retardation	736,764	329,844	83,643	772,733	0	0	601	1,839,942	331,759	240,138	-27	7,662,016	427
Office of Parks, Recreation & Historic Preservatio	112,806	26,769	16,516	165,160	0	0	15,970	320,705	35,166	35,166	0	9,119,656	4,847
Office of Real Property Services	572	0	2,806	28,062	0	0	0	28,634	260,310	260,310	0	110,000	1
Office of the State Comptroller	5,379	0	604	6,044	0	0	0	11,423	0	0	0	425,000	1
Office of the State Inspector General	0	0	173	1,728	0	0	0	1,728	107,479	90,962	15	19,000	1
Onondaga Community College	37,038	0	12,992	129,917	0	0	0	166,955	270,142	196,399	-27	850,078	10
Port Authority of the State of New York	0	0	568,121	5,681,210	0	0	0	5,681,210	32,279	32,279	0	176,000,000	30
Rockland Community College	40,831	4,790	6,528	65,276	0	0	0	110,897	213,013	182,903	-14	606,317	17
Roosevelt Island Operating Corp.	0	0	4,470	44,700	0	0	0	44,700	64,000	64,595	1	692,000	10
State Education Department	24,797	0	11,591	115,910	0	0	0	140,707	110,305	121,300	10	1,160,000	12
State University of New York	4,241,285	821,279	1,123,995	11,239,950	87,426	1,700,215	7,245	18,097,400	267,646	216,502	-19	76,743,540	2,650
Sullivan County Community College	0	0	3,826	38,257	0	0	0	38,257	173,669	173,669	0	220,288	12
Taxation & Finance	0	0	8,282	82,820	0	0	0	82,820	161,571	161,571	0	512,592	9
Thruway Authority	295	0	13,929	139,286	0	0	0	139,581	143,067	143,067	0	975,634	99
Tompkins-Cortland Community College	12,408	0	3,817	38,168	0	0	0	50,576	168,584	168,584	0	300,000	1
Ulster County Community College	0	9,607	4,771	47,707	0	0	0	57,314	190,181	193,751	2	295,817	10
Westchester Community College	3,893	46,383	3,024	30,240	0	0	0	80,516	80,515	118,854	0	677,433	22
State Wide Totals	**14,760,643**	**5,031,086**	**3,366,678**	**33,603,114**	**87,426**	**2,451,345**	**41,578**	55,975,192				**399,723,651**	**14,028**
									Average Base Year EUI (Btus/Sq.ft)	**Average 2002 EUI (Btus/Sq.ft.)**	**Percent EUI Changed from Base Year to 2002**		
									191,091	174,208	-8.84		

APPENDIX J

Conversion Factors

Natural Gas ..... 1 Therm = 100,000 Btus
..... 1 Cubic Foot = 1,028 Btus
..... 1000 Cubic Feet = 1,028,000 Btus

Manufactured Gas ..... 1 Therm = 100,000 Btus
..... 1 Cubic Foot = 650 Btus
..... 1000 Cubic Feet = 650,000 Btus

#2 Fuel Oil ..... 1 Gallon = 140,000 Btus

#6 Fuel Oil ..... 1 Gallon = 152,000 Btus

Butane ..... 1 Gallon = 92,000 Btus

Propane ..... 1 Gallon = 91,333 Btus

Electricity (Site) ..... 1 Kilowatt Hour (kWh) = 3,412 Btus

Electricity (Source) ..... 1 Kilowatt Hour (kWh) = 10,000 Btus

For information on other
NYSERDA reports, contact:

New York State Energy Research and
Development Authority
17 Columbia Circle
Albany, New York 12203-6399

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Executive Order No. 111
"Green and Clean"
State Buildings and Vehicles Guidelines Second Edition

State of New York
George E. Pataki, Governor

New York State Energy Research and Development Authority
Vincent A. DeIorio, Esq., Chairman
Peter R. Smith, President

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