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I. Purpose and Scope

The purpose of this item is to provide guidance to State agencies by bringing together the various actions that comprise the State Facilities Energy Conservation Program to reduce the State's energy consumption and energy costs. Agency actions will include:

- A. Identifying energy conservation measures through energy audits, energy technical assistance studies and energy performance contracts;
- B. Preparing annual energy plans to describe how they will reduce energy consumption in order to contribute to the State's ten-year goal of a 20 percent reduction in energy consumption;
- C. Preparing budget requests and five-year capital plans in a manner consistent with the State's energy conservation efforts and goals;
- D. Implementing energy conservation measures and projects such as operating and maintenance modifications, through guidelines and capital projects;
- E. Investigating and using alternative sources of funding and methods to implement energy conservation efforts such as certificates of participation, energy performance contracting, utility demand-side management programs, use of independent power producers cogeneration facilities and/or utility competitive bidding.

II. Energy Conservation Project Identification

Executive Order No. 132, signed by the Governor on January 2, 1990, established a State Facilities Energy Conservation Program. Among other things, it directed that State agencies file annual energy plans with the State Energy Office and the Division of the Budget. The plans are to identify agency buildings that should be the subject of technical assistance (TA) studies, energy audits and other measures or projects that identify potential energy cost savings.

In conjunction with identifying energy conservation projects agencies should make a priority of installing effective consumption monitoring systems. Such systems are necessary to ensure a fair accounting and budgeting of fiscal resources relative to actual agency needs. Energy conservation project identification methods are described in more detail as follows:

A. Energy Audits

Energy audits are to be conducted on all State-owned buildings of 10,000 square feet of heated floor area or greater which have not been audited since 1985. Buildings which had energy audits conducted proper to 1985 should have a new energy audit conducted for the building.

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As part of their first annual plan required by Executive Order 132, agencies are required to develop a schedule for completing the required energy audits and TA studies prior to January 2, 1995. Reasonable progress toward meeting this goal is to be made in each year and the schedule is to be updated in subsequent annual plans.

An energy audit is a walk-through survey of a building to determine its energy use and energy conservation potential. It is usually a prelude to the more in depth TA study and may determine whether a more detailed TA study is required. One of the energy audit's main purposes is to identify simple, no-cost or low-cost energy saving operational and maintenance (O&M) measures and capital projects, which generally have payback periods of five years or less. The energy audit should result in a written report conforming to the State Energy Office's format as described in section 5 of the State Energy Office's Guidelines for Annual Plans. The energy audit must be conducted by a licensed architect or engineer or a person who has received energy auditor training by the Energy Office or other programs, such as the utility company programs approved by the Energy Office.

All agencies are directed to examine the use of nonappropriated funding sources for energy audits to the maximum extent possible. Energy audit services are available, usually at no-cost, from the seven investor-owned electric utility companies, the New York Power Authority and the gas utilities. Such audits should examine the energy savings potential for all fuels used by the building. Agencies are encouraged to conduct energy audits of both small (less than 10,000 square feet) and large buildings (greater than 75,000 square feet) if there is sufficient potential for energy savings.

B. Technical Assistance Studies

Technical Assistance (TA) studies are to be conducted on all State-owned buildings of 75,000 square feet of heated floor space or larger, and with an energy use index of 250,000 BTUs per square foot per year or greater.

As part of their first annual plans required by Executive Order 132, agencies are required to develop a schedule for completing the required studies prior to January 2, 1995. Reasonable progress toward meeting this goal is to be made each year.

A TA study is a detailed analysis of energy conservation measures for a building or group of buildings conducted by a professional engineer or registered architect. A focused on-site engineering analysis conducted by a professional engineer on one specific measure, which is sometimes referred to as a project feasibility study may also be conducted. All TA studies must meet the requirements for a technical assistance study as defined within the New York State Energy Office's Guideline for Annual Plans.

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Funds for conducting TA studies may be available from a number of sources such as annual budget requests, utility programs, the Institutional Conservation Program (ICP), performance contracts and, to a limited degree, from the State Facilities Energy Conservation Program (SFECP) administered by the State Energy Office.

All agencies are directed to examine the use of "off-budget" funding sources for TA studies to the maximum extent possible.

C. Energy Performance Contracts

Performance contracts are another means of conducting investigations of energy savings potential in combination with an "off-budget" source of funding for O&Ms and capital projects. A performance contractor contracts with the agency to identify, design, install, finance and maintain improvements to a building's energy systems. The contractor is paid a fee adjusted to the measured energy cost savings attributable to the work identified and implemented by the contractor. Such contracts are authorized pursuant to Article 9 of the State Energy Law.

In cases where a building or energy system is to be retrofitted under an energy performance contract, the annual plan requirements for an energy audit or TA study are fulfilled under the performance contract. For more information on the use of performance contracts, see Section VI.

III. Submission of Agency Annual Energy Plans

All agencies that own and operate buildings were required to submit their annual plan to the State Energy Office and the Division of the Budget by August 1 of 1990, and each year thereafter, in compliance with Executive Order No. 132: Establishing a State Facilitates Energy Conservation Program. The comprehensive energy plan should follow the Guidelines for Annual Plans published by the State Energy Office and should:

- detail the agency's plan to contribute to the State's ten-year goal of a 20 percent reduction in energy consumption by the year 2000;
- detail the agency's plan for energy conservation activities being conducted in the current year and in the coming fiscal year;
- review energy conservation achievements for the previous fiscal year; and
- inventory buildings and energy consumption and cost data for every energy-using facility operated by the agency.

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The Guidelines for submission of this plan already have been provided to agency energy managers.

The annual plan should be sent to each agency's budget examiner with a copy of the plan to the State Energy Office's State Buildings Unit.

The annual plan and information contained therein will be taken into consideration by the Division of the Budget when preparing each year's agency budget. The contents of the annual plan shall follow the outline provided in accordance with the Guidelines' exhibits. Agencies are required to provide any additional information requested by the Division of the Budget or the Energy Office to support their annual plan.

Agencies are advised that the annual plans will be reviewed by the Division of the Budget to assure that the Agency's goal for energy conservation is reasonable in relation, among other factors, to the agency's relative proportion of the State's total energy consumption, its past energy conservation performance and its potential for achieving energy savings. Division of the Budget review will assess if available resources for identifying and implementing energy conservation measures have been fully utilized.

IV. **Preparing Agency Budget Requests**

The expressed goal of Executive Order No. 132 is a 20 percent reduction in annual energy consumption by the year 2000.

A distinction should be made between a 20 percent reduction in energy use and a 20 percent reduction in energy costs. The primary purpose of this energy program is to reduce total energy requirements.

Agencies should coordinate the comprehensive energy plans with the budget request to reduce overall energy costs.

The agency budget request should reflect aspects of the agency energy annual plan goals and realistically include use of alternative funding sources.

A. Agency Request

The agency budget request should provide sufficient basic information to permit an evaluation of requested energy conservation projects, including:

1. Description of the requested project.
2. Basis of requested project. A description of the analysis undertaken to

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determine the benefits of the project should be provided. An energy audit or equivalent engineering study is the most persuasive justification. Detailed feasibility studies will generally be required for high technology proposals, such as cogeneration and resource recovery.

3. Estimated costs, including costs for design and construction supervision.
4. Other operating cost implications, such as staffing levels.
5. Type of fuel/energy saved.
6. Estimated payback period. The payback period is a major factor in determining the priority an agency assigns to a project. Payback periods will be evaluated as follows:
 - a. Priority will be given to energy efficiency improvements with simple payback periods of five years or less. The maximum payback period to be considered will be 10 years.
 - b. Energy conservation projects eligible for Federal aid. Current Federal regulations regarding maximum payback period should be used. (Federal regulations for the schools and hospital program, for example, specify a simple payback period of 10 years.) However, in no event should the payback of the State's share of a project exceed ten years.
 - c. Agencies are advised that SEO's Institutional Conservation Program issues grants usually for projects with a payback of 3 years or less. However, some other energy conservation projects, such as cogeneration, may in some instances require longer payback periods. In these instances, there should be a simple payback period of ten years or less, based on current energy prices.
7. Implementation schedule (expected date of project completion).
8. Identification of energy conservation capital projects implemented within the last two years where the requested project will be implemented.
9. Implementation status of identified operating and maintenance modifications (O&Ms). (O&M modifications identified by energy audits and surveys should generally be implemented before undertaking energy conservation capital projects at a particular building).

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10. Other factors. Factors other than purely economic ones may be considered in requesting energy conservation capital projects. These include:
 - a. Type of fuel saved.
 - b. Environmental factors (reduction in air pollution, etc.).
 - c. Operating implications (greater comfort for patients, etc.).
 - d. Value as a pilot project for research purpose.
11. Identification of efforts to utilize utility demand side management programs.
12. Explanation of the agency's current system for monitoring consumption, including efforts to expand metering capacity.

B. Five-Year Capital Plan

An agency's five-year capital plan submission should include the current and projected energy conservation programs. The goal of such a program should be to maintain or decrease the percentage of the total operating budget spent for energy. If this is not done, escalating energy costs may reduce the level of future funding available for agency program purposes.

The five-year plan should present a comprehensive approach to energy conservation, including energy audits and studies, implementation of operating and maintenance modifications, and approved, proposed or anticipated capital projects.

The agency's annual energy plan required as part of the Executive Order No. 132 should be consistent with the agency's five-year capital plan.

C. Annual Energy Plan

An agency's state operations budget request should include references to both the agency's energy plan and capital budget request. The purpose of this requirement is to have in one place all fiscal elements for implementing the agencies energy program. These elements should include progress in individual energy users energy conservation awareness education, use of energy performance contracts, installment purchases of energy conservation items, use of utilities demand side management programs and program effects of the energy conservation program.

The use of Federal funds should be maximized. This would apply particularly to

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agencies eligible for Federal aid under the schools and hospitals program. Eligible agencies should take all necessary steps to apply for available Federal grants. Projects for which Federal grants have been awarded should be expedited to ensure that there is no loss of Federal funds. Federal energy conservation programs are administered by the State Energy Office. State matching funds for federally aided projects must be provided by the agency receiving the Federal grant.

V. Implementing Energy Conservation Measures and Projects

A. Operating and Maintenance Modifications (O&Ms)

It is extremely important that all identified operating and maintenance modifications be implemented in a timely and effective manner. These are no-cost or low-cost measures that have a payback period of less than one year. Some examples of operation and maintenance measures are furnace tune-ups, steam trap maintenance, and repair caulking and weather stripping. The Office of General Services, Bureau of Energy Conservation, will be available to provide technical assistance and to ensure that these modifications have been properly implemented.

B. Capital Projects

Energy-saving capital projects should be expedited on a priority basis to capture savings. The priority should be based on such factors as projected payback, total dollar savings, time required for design and construction and seasonal implications.

For agencies requesting Office of General Services and/or Facilities Development Corporation design and construction supervision services for energy conservation projects, funding will be based on the respective fee schedule. Agency payments for these services will be made on a chargeback (i.e., fee-for-services) basis.

C. Energy Management Guidelines

State agencies should implement energy conservation practices in all buildings they own, lease or operate effective immediately. These practices are as follows:

1. Energy should not be used in buildings to heat above 68° F. nor cool below 78° F. Domestic hot water temperatures will not be set above 105°F. These limits will not apply in areas where other temperature limitations are required by law or where special use of an area demands other limits.
2. All air conditioning and ventilation equipment should be shut off on weekends, holidays, and all other unoccupied periods, except for electronic data

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processing installations and other scientifically critical or 24-hour operations. Wherever possible such equipment shall be restarted on a staggered basis to minimize peak demand usage.

3. The quantity of outdoor air used for mixing in ventilation air shall be set at a rate of 20 cfm/person (cfm - cubic feet per minuted). In designated smoking areas with no external exhaust system or operable windows, the quantity of outdoor air may be set at a rate of 60 cfm/person.
4. Portable electric heaters and fans shall not be permitted for use in State offices.
5. Personal computers and all other office equipment should be shut off when not in use and at the end of each work day unless there is a specific need for continuing operation to accommodate such functions as network file servicing or uploading or downloading of information during nonbusiness hours.
6. All lighting will be turned off when not in actual use, when rooms are unoccupied, and at the end of the work day. Janitors or other custodial personnel will turn lights back on only for time actually needed for custodial work.
7. Whenever possible, change shift hours of custodial personnel to daylight hours.
8. Lighting levels should be reduced to 50 foot-candles at work stations, 30 foot-candles in work areas, and 10 foot-candles in corridors, hallways and all other nonwork areas where consideration for security do not preclude such reductions.
9. When replacing burned-out fluorescent lamps, the performance of the replacement fluorescent lamps shall be no less than 75 lumens per watt and a color rendering index of 67.
10. When replacing burned-out incandescent lamps, compact fluorescent lamps shall be used wherever the physical characteristics of the fixture will permit the use of compact fluorescent lamps.
11. Use of lighting and other uses of electrical energy inside or outside of buildings will be held to the lowest possible level. Decorative lighting on building exteriors will be reduced as much as possible without impairing necessary security or safety. Purely decorative lighting inside or outside shall not be added, and will be eliminated on a continuing basis.
12. Shut off any pumps and motors used for nonessential and decorative purposes

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such as domestic hot water circulating pump during unoccupied period and pumps for decorative fountains.

13. All gas and oil-fired boilers and furnaces that have not been tuned for optimum efficiency within the past six months shall be tuned for optimum efficiency prior to their use for the 1990-91 heating season.
14. Air ducts, filters and registers and hot water terminal units shall be examined and cleaned prior to the start of the 1990-91 heating season.
15. Utilize existing draperies, blinds or exterior shading devices to regulate desired heat loss or heat gain, as well as to make maximum beneficial use of available daylight.
16. All employees should be instructed to remove obstacles to air flow from all air conditioning and heating vents. Adjust HVAC controls to ensure proper operations.
17. Flow restrictors should be installed on all faucets and shower heads where the design of such faucets or shower heads will permit the installation of flow restrictors.

VI. Use of Alternative Funding Source in Place of or to Supplement State Resources

Agencies are directed to use alternative funding sources wherever possible for implementing energy conservation measures. These sources include the use of installment purchase financing, energy performance contracts, utility demand-side management programs, independent power producers and utility competitive bidding. Assistance is available from the State Energy Office in identifying alternative funding sources. It should be noted that these measures may not be entirely funded from capital appropriations and may involve the use of operating funds. In some instances other than State funds are involved, as in the case of utility demand-side management programs. These items are detailed below.

A. Installment Purchase Financing

Agencies are encouraged to use Installment Purchase Financing (IP) commonly referred to as Certificates of Participation (Budget Request Manual item 34 and Budget Policy and Reporting Manual item H-101) if this is the optimal use of State resources.

B. Energy Performance Contracting

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Energy Performance Contracting (authorized by Article 9 of the State Energy Law) is an alternate method for procurement and implementation of energy projects which requires no up-front capital investment. Operations of "performance contractors" are distinguished from those of conventional engineering firms and equipment vendors in that they combine the various aspects of large energy conservation projects--engineering and design, equipment purchase and installation, project financing, and ongoing maintenance--into a single package. The customer's contract payments are usually scaled to actual reductions in energy costs attributable to the project. This approach transfers to the contractor a portion of the financial commitment, risk, and project management functions building owners typically face in implementing energy-related capital improvement projects. The contractor's compensation systems are structured to account for the costs and risks associated with their expanded role.

Some vendors will provide financing with their own resources, while others may involve third party investors or may represent third party investors.

Factors Contributing to Energy Performance Contracting Feasibility:

- Energy audit or inspection identifies significant opportunities to save energy.
- Facility uses higher-than-usual amount of energy for its size and principal use.
- Annual energy bills exceed \$50,000 for one building.
- Occupancy and use of the facility has been stable over the past few years and is expected to remain so.
- Energy use has been relatively stable over the past few years.
- The building is in relatively good repair. Energy improvements can proceed without extensive expenditures on deferred maintenance items.
- A good rule of thumb in most cases is if the energy conservation measure has a payback of less than one year, the agency should install or implement the measure themselves.
- Flexibility must be allowed for the contractor to propose a package of measures which are financially viable.

State Energy Office (SEO) has begun a program to inform agencies about performance contracts. In the Winter of 1990, SEO will have technical, financial and legal consultation available to help agencies negotiate and implement these contracts.

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Educational materials are also available from SEO including the guide "Energy Performance Contracting in New York State Agencies" (The Blue Book) which is a tool for anyone involved in the performance contracting process.

In addition, utilities are retaining energy service contractors (ESCOs) under contract who will be able to provide services to State facilities.

C. Utility Demand Side Management Programs

This section describes the electric utility demand-side management programs and the New York Power Authority's (NYPA) High Efficiency Lighting Program and directs State agencies to participate to the fullest extent possible.

Each of the seven investor-owned electric utilities is implementing demand-side management programs for its commercial customers including State facilities. The programs generally include energy audit services and rebates for certain energy conservation measures such as more efficient lighting, motors and air conditioning.

NYPA is also beginning a program to reduce electrical consumption in New York City and Westchester County, targeted to all users of NYPA electricity in this area including State agencies.

NYPA is designing the program to achieve maximum participation. To this end, NYPA will provide the following turnkey services:

- conduct a lighting analysis at no cost to the customer;
- install energy efficient lighting measures;
- provide sufficient rebates on the project cost to bring the payback down to two years; and,
- if requested, provide a low interest loan to finance the project. After the project is completed, loan repayments will be included in the electric bill which will not change until the loan is paid off, at which time the bill will decrease.

All agencies and departments are directed to participate in the utility demand-side management programs and NYPA program to the maximum extent possible.

Information and assistance on these programs is available from the State Energy Office.

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D. Independent Power Producers

Other alternatives to standard energy conservation approaches exist. Rather than simply consume commercially available electrical energy in the most efficient way, it may be feasible for a facility to generate its own electricity and to contract with a utility for the purchase of any excess electricity the facility produces beyond what it needs. The electricity is produced under contract by an independent power producer which locates the power facility on State grounds. In this manner, the facility receives steam and electricity. Excess power/electricity can be sold to neighboring consumers or to the utility.

E. Utility Competitive Bidding

The seven investor-owned electric utility companies across the State, by order of the Public Service Commission, have begun to solicit through a competitive bidding framework, proposals for customers (including State facilities) and energy service companies to reduce electricity consumption and demand in order to free up existing supplies to satisfy future electric capacity requirements. The utility companies will enter into contracts and make payment to customers, energy service companies and developers of energy supply projects for those projects which win a bid for each kilowatt reduced through conservation.

Utility bidding Request-for-Proposal (RFP's) are to be put out to bid on a biennial basis through the State. SEO has submitted a notice of intent to bid in the Fall 1990 on behalf of the State agencies in the New York State Electric and Gas (NYSEG) service territory. Agencies wishing to participate in this process and having energy projects in NYSEG's territory which will reduce electric demand and consumption (e.g., efficient lighting, energy management systems), should contact SEO for more information. SEO will provide technical assistance to identify potential projects, funding of appropriate identified measures and monitoring of savings.

VII. **Agency Incentives**

In order for the State to achieve its goal of a 20 percent reduction in energy requirements by the year 2000, the fullest possible agency participation will be necessary. Therefore, agencies will be offered the opportunity to enter into agreements with the Division of the Budget for fiscal incentives to encourage energy conservation efforts. Conversely, fiscal penalties may be incurred by agencies that fail to implement identified energy conservation activities on a timely basis.

- A. State agencies may be entitled to the use of up to 50 percent of documented fiscal savings achieved through the implementation of energy conservation actions in any

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fiscal year, for program purposes in the fiscal year of implementation or in the following fiscal year(s).

- B. State agencies participating in utility rebate programs may be able to accept utility rebate checks for the implementation of lighting and other energy savings measures. However, the amount of the rebate checks plus the energy cost savings retained by the agency should not exceed 50 percent of the total savings, during the payback period of the project.
- C. The remaining 50 percent of energy cost savings may be used for the implementation of additional energy conservation actions, including operating and maintenance modifications.
- D. Funds available for program purposes may be reduced by an amount equivalent to potential savings not achieved due to the lack of timely implementation of identified energy conservation actions.