REPORT OF THE
DEPARTMENT OF GENERAL SERVICES ON

Energy Conservation In State Facilities

TO THE GOVERNOR AND
THE GENERAL ASSEMBLY OF VIRGINIA

HOUSE DOCUMENT NO. 36

COMMONWEALTH OF VIRGINIA
RICHMOND
1992

TABLE OF CONTENTS

EXECUTIVE SUMMARY

I. INTRODUCTION

House Joint Resolution 428, agreed to by the 1991 Session of the General Assembly, requested the Department of General Services (DGS) to:

> investigate ways to conserve energy in state facilities;
>
> address issues including but not limited to attracting investment by utilities and other firms through the use of split energy cost savings contracts and by increasing utilities return on equity;
>
> examine the results of the State Corporation Commission's internal investigation of their policies on conservation and load management programs to determine their applicability to state agencies and educational institutions.

STUDY APPROACH

This study was assigned to the Department of General Services Energy Section. The Energy Section has been the focal point for all of the Commonwealth's facilities energy conservation programs since its creation in 1984. The section's principal responsibilities include: monitoring facilities energy consumption, providing technical assistance, administering project funding and negotiating utility contracts.

The study examines three specific areas:

- **Energy Conservation Opportunities;** realistic savings using proven strategies.
- **Attracting Investment;** performance contracting, leasing, utility investment.
- **SCC Investigation;** current policy, proposed policy changes.

II. SUMMARY OF FINDINGS

ENERGY CONSERVATION

Numerous energy conserving opportunities exist in the Commonwealth. Each year the Commonwealth's facilities consume over 9 trillion BTU's, costing more than 100 million dollars. Independent studies and a $10 million backlog of unfunded conservation projects, amplify the fact that opportunities exist to conserve energy in state owned facilities.

Previously, a lack of project funding and aggressive management involvement and support were the main obstacles to capitalizing on these opportunities. The Virginia Energy Plan, Executive Order Thirty Seven (91), provides a framework for implementing aggressive energy management programs and accomplishing a 25% reduction of the state's current energy consumption by 1998.

OUTSIDE INVESTMENTS

Successful soliciting of outside investments in Commonwealth projects can be accomplished in three forms. They are: Performance Contracting, Leasing and Utility Investment.

Performance Contracting

Performance Contracts are typically offered by energy service companies to building owners. For state agencies such contracts would be solicited using the Request For Proposal (RFP) process. The resulting contract would entail the retrofit or installation of energy conservation equipment or materials at the expense of the contractor. The contractor would be reimbursed by monthly payments equal to a predetermined percentage of actual utility cost avoidance.

Agencies having medium to large retrofit projects (e.g. building automation control system) that have a simple payback of greater than two but less than five years are good candidates for the performance contracting process.

In order to ratify and formalize this process it would be necessary for the Department of Planning and Budget to evaluate the possible need for additional language in the Appropriation Act, requiring performance contracts be reviewed and approved centrally and creating a general appropriation allowing payments of a portion of an agency's utility savings to a contractor in return for services and/or equipment supplied. DGS, through the Energy Section, could provide technical assistance in preparing and evaluating proposals and in monitoring actual versus projected energy savings.

Implementation of performance contracting would require pre-qualification of interested vendors and development of a list of approved contractors. The list would be available to soliciting agencies along with a model Request For Proposal. The RFP and the performance contract itself should be prepared by the Department of General Services' Purchases and Supply Division and reviewed by the Office of the Attorney General.

Lease Financing

This financing mechanism allows access to private credit markets for medium and large size equipment acquisitions. The Department of the Treasury currently maintains a master equipment lease program which could be expanded to include leasing of energy conserving equipment and systems using a share or percentage of energy cost avoidance to satisfy the debt.

To date, the Commonwealth's experience with using this mechanism has been limited to funding equipment intensive projects such as lighting retrofits and cafeteria equipment replacements, because existing security structures will not permit payment for design and installation of these improvements.

Utility Investment

The DGS Energy Section has begun talks on this subject with the Commonwealth's largest supplier of energy, Virginia Power. Existing SCC rulings typically prohibit this type of investment (promotional allowances) on the part of utilities. However, the Commonwealth is a non-jurisdictional entity, i.e. does not fall under SCC jurisdiction. Therefore, the prospect exists for the creation of a program whereby a utility could supply the Commonwealth with equipment or devices which would limit consumption and reduce the demand on natural resources in return for rate base considerations.

The mutual benefits which can be derived by jointly working to reduce consumption has led Virginia Power to offer to develop experimental energy consumption reduction programs aimed at the Commonwealth's special needs.

SCC INVESTIGATION

As of this writing, the State Corporation Commission has not announced their final rulings. However, preliminary staff recommendations and oral arguments presented by state and federal regulators, environmentalists, utility officials and consumer representatives, have urged the Commission to adopt policies which would ensure a proper balance between energy conservation and construction of power plants.

In order to achieve this balance, it will be necessary for the Commission to develop regulations which establish a cost recovery and rate setting process that insures a utility's investment in energy efficiency resources is as profitable as its investment in the construction of new generating facilities.

III. RECOMMENDATIONS

CONSERVATION OPPORTUNITIES

It is recommended that the Department of Mines, Minerals and Energy assist the appropriate committees of the General Assembly to review the Virginia Energy Plan and identify the legislative authorizations necessary to effect its full implementation. It is further recommended that state agencies and institutions be directed to identify and implement those conservation measures which can be accomplished at little or no cost.

ATTRACTING INVESTMENT

It is recommended that state agencies and institutions be allowed to pursue investment in conservation projects by outside sources for effecting energy performance improvements in the following areas:

(1) performance contracts with private suppliers/contractors who would finance improvements to be paid back from resulting energy savings. The Department of Planning and Budget (DPB) and DGS should provide strong central oversight for this program;

(2) leasing of major equipment, using guidelines developed by the Treasury Board;

(3) DGS should encourage utility companies to develop programs which would provide the Commonwealth with the necessary capital to accomplish energy conservation and load management projects in return for revised rate structures that would provide the utilities an appropriate return on equity. The revised rate structures should be negotiated centrally, as is the current practice. Proposed projects should be reviewed and approved centrally by DGS and DPB.

INTRODUCTION

This report presents the findings and recommendations of a study conducted pursuant to House Joint Resolution Number Four Twenty Eight (HJR 428) of the 1991 Session of the General Assembly (Appendix A) which requested the Department of General Services (DGS) to investigate ways to conserve energy in state facilities; attract investment by utilities and other firms in energy conservation and load management programs through (i) split-energy cost savings contracts; (ii) allowing rate base treatment of such expenditures in setting rates for the Commonwealth of Virginia as a ratepayer; (iii) awarding such an investment a negotiated return on equity greater than the most recent level set by the State Corporation Commission for Virginia customers, and (iv) examine the results and recommendations of the State Corporation Commission's (SCC) investigation of its policies on conservation and load management programs and the applicability of such recommendations to state agencies and educational institutions.

STUDY APPROACH

This study was assigned to the Department of General Services Energy Section. The Energy Section has been the focal point for all of the Commonwealth's facilities energy conservation programs since its creation in 1984. The section's principal responsibilities include: monitoring facilities energy consumption, providing technical assistance, administering project funding and negotiating utility contracts.

The study examines three specific areas:

- **Energy Conservation Opportunities;** realistic savings using proven strategies.
- **Attracting Investment;** performance contracting, leasing, utility investment.
- **SCC Investigation;** current policy, proposed policy changes.

Energy conservation opportunities were determined by compiling previous study recommendations along with specific agency requests relating to conservation initiatives. A recent survey of state agencies indicates a ten million dollar backlog of conservation projects which have an average payback of five years. Typical projects include:

lighting retrofits, heating and cooling system modifications and window replacements.

When considering ways to **attract investments** in conservation projects the Energy Section staff evaluated: (1) performance contracting, where respondents to an RFP would design and provide equipment enhancements, e.g. more efficient air conditioning equipment in return for a share of the energy cost avoidance achieved; (2) equipment leasing to provide high efficiency replacement equipment such as improved lighting systems which would be paid for in monthly installments from the savings experienced; and (3) rate base allowances for utility assistance where the utilities' return on equity would be increased to compensate them for supplying efficient equipment which would reduce agencies' energy consumption.

The **SCC's internal** investigation produced an internal report, written comments by interested parties and public hearing testimony which was reviewed in order to determine the potential and necessity for changes to existing SCC policy. This information was examined for initiatives that might be applicable and advantageous for use in achieving the goals of the Virginia Energy Plan.

FINDINGS

ENERGY CONSERVATION OPPORTUNITIES

In 1983 the General Assembly commissioned the study entitled "Ways To Control Energy Costs In State Facilities" that determined, in part, savings of 10% to 20% could be realized without significant capital expenditures by facility managers who are enlightened and motivated in energy conservation. The Department of General Services' experience over the past eight years indicates the existence of opportunities for additional reductions of 15% to 20%, through substantial investments in new or upgraded equipment and control systems.

The Energy Section's efforts have emphasized identification of energy saving opportunities and the training and motivation of agency energy managers. A combination of these practices and the implementation of an energy tracking system has contributed to holding annual energy consumption increases to an average of 3%, compared to the average 12% in previous years. This annual energy cost avoidance was accomplished with little or no capital expenditures. Agencies have already identified additional energy conservation projects which they feel have attractive payback periods (2-5 years). These are estimated to require $10 million in initial capital outlay funding which should generate $2 million in annual savings. If these projects can be shown to have effective paybacks, then further delay in funding is allowing the wasteful outflow of energy dollars to go unchecked. A reliable and ready source for funding these conservation opportunities is needed. Subsequent sections address possible means for financing energy conservation projects and programs.

ATTRACTING INVESTMENTS

The current financial status of the Commonwealth severely limits the availability of general funds to finance energy conservation initiatives. Therefore, the Department of General Services focused on examining alternative techniques for securing funds and attracting investment by utilities and other firms in energy conservation and load management programs. The techniques described hereafter envision agencies soliciting proposals for outside investment for improvements in state property with a guarantee of a fixed share of the potential savings in energy dollars.

Performance Contracting

Performance Contracting is the most popular form of split-energy cost-savings contracts. They are typically offered by energy service companies to building owners. For state agencies, such contracts would be solicited using the request for proposal process. The resulting contract would entail the retrofit or installation of energy conservation materials or equipment with the contractor financing the acquisition and installation costs. The contractor would be reimbursed by monthly payments equal to a predetermined percentage of actual utility cost avoidance for a specified period of time or until an equitable return on investment is achieved.

Agencies having medium to large retrofit projects (e.g. building environmental control system) that have a simple payback of greater than two but less than five years, are good candidates for the performance contracting process.

The addition of language to the Appropriations Act requiring performance contracts be reviewed and approved centrally and creating a general appropriation allowing payments of a portion of an agency's utility savings to a contractor in return for services and/or equipment supplied would ratify and formalize this process. DGS, through the Energy Section, could provide technical assistance in preparing and evaluating proposals and in monitoring actual versus projected energy savings.

Implementation of performance contracting would require pre-qualification of interested vendors and development of a list of approved contractors. The list would be available to soliciting agencies along with a model Request For Proposal (RFP). The RFP and the performance contract itself should be prepared by the Department of General Services' Purchases and Supply Division and reviewed by the Office of the Attorney General.

Treasury Master Lease Program

Leasing programs are a commonly used, cost-effective conservation and load management technique. These financing mechanisms allow access to private credit markets for medium and large size equipment acquisitions with longer payback periods (e.g. central chiller or heating plant replacement).

The Department of the Treasury currently maintains a master lease through which energy efficiency improvements may be financed subject to certain limitations. In the event such improvements are permissible, lease-revenue bonds or certificates of participation could then be sold with the funds being made available for the identified projects.

Depending on the lease structure, lease payments are then made by each agency, through the Treasury or other appropriate state authority.

To date, the Commonwealth's experience with using this leasing mechanism has been limited to funding equipment intensive projects such as lighting retrofits and cafeteria equipment replacements, primarily due to the fact that existing security structures will not permit payment of design and installation costs.

There appears to be little central management of agency energy projects submitted for consideration for funding under the current master lease program.

Utility Investment

The DGS Energy Section has held talks with the Commonwealth's largest supplier of energy, Virginia Power, concerning using rate based treatment to compensate utilities for conservation investments in state owned properties. Existing SCC rulings typically prohibit utilities from making payments, subsidies or allowances to influence the installation, purchase or use of any appliance or equipment. However, the Commonwealth is a non-jurisdictional entity, i.e. does not fall under SCC jurisdiction. Therefore, the prospect exists for the creation of a program whereby a public utility could supply the Commonwealth with equipment or devices which would limit consumption and reduce the demand on natural resources.

The mutual benefits which can be derived by jointly working to reduce consumption, has led Virginia Power informally to offer to develop experimental energy consumption reduction programs aimed at the Commonwealth's special needs. The Commonwealth should continue discussions with Virginia Power and other public utilities, to develop and formalize such conservation programs.

SCC INVESTIGATION

The Department of General Services was requested to examine the results and recommendations of the State Corporation Commission's investigation of conservation and load management programs and the applicability of such recommendations to state agencies and educational institutions. To date, no final decision has been announced by the Commission. Information on how to obtain copies of the SCC staff report is contained in Appendix B.

On January 7, 1991, the Virginia State Corporation Commission initiated an investigation to consider rules, if appropriate, and Commission policy toward electric and gas utility conservation and load management programs. The principal focus of this study was to determine what State Corporation Commission policy was necessary to promote optimal investment in demand side resources on the part of the utilities in Virginia.

The influence of federal and state conservation and energy efficiency policy on public utility regulations and utility conservation programs has been substantial. The previous federal and state administration plans did not focus on conservation efforts. Likewise, the SCC has not adopted broad policy statements concerning conservation and load management, preferring instead to address such issues on a case by case basis.

The Commission staff's initial report of April 26, 1991, stated that most of Virginia's natural gas and electric utilities are expecting continued growth in demand through the mid-1990's. It went on to say that the majority of these utilities plan to satisfy most of the increased demand by purchasing and/or building capacity and that only a small portion of the load growth would be met using demand side programs.

The SCC staff commented that current Commission "policy" regarding conservation and load management is not a comprehensive policy statement, but rather a collection of orders and administrative practices established in various cases and proceedings over the last twenty years.

The Need For Policy Modification

The SCC's policy regarding utility conservation and load management programs can be an important component of the energy policy of Virginia in the 1990's. As the Commission recognized in its order establishing their policy review, there is the "potential for energy efficiency and conservation measures to meet a significant portion of the projected growth in energy demand in Virginia". The staff report concluded that this potential can be achieved if the Commission adopts a comprehensive policy to encourage cost effective conservation and load management.

During oral arguments before the commission, held October 29, 1991, staff attorney Deborah V. Ellenberg stressed the need for policy modifications and advocated the creation of a formal process to review utility long range plans which would ensure a proper balance between energy conservation and construction of power plants.

The need for policy modifications is based not so much on any one factor, but rather a combination of factors. The following is a listing of the key policy issues the SCC staff believes need to be addressed in order to promote optimal investment in conservation and load management.

- Promotional Allowances and Advertising
  The Commission's 1970 order regarding promotional allowances limits the options available to utilities to promote conservation and load management programs.

- Cost Recovery of Demand Side Program Costs
  Traditional techniques for recovering costs can inhibit utility enthusiasm for such programs.

- Environmental/Societal Costs
  This issue involves the extent to which environmental and other societal benefits of conservation programs are included in cost/benefit analyses of such programs.

- Rate Design
  Utility consumers respond to the level and structure of the rates they are charged. Important price signals should not be overlooked.

- Commission Review of Conservation and Load Management Programs
  Formalize the process to review and approve long-range plans to ensure a proper balance between energy conservation and construction of power plants.

- Utility Incentives for Conservation
  This issue involves whether incentives are needed, and if so, how they should be structured.

Open discussions and the promise of policy modifications which address the above issues have provided a positive message and incentive to Virginia electric and natural gas utility companies to evaluate and expand their own conservation and load management programs.

In addition, DGS believes that the Commonwealth should initiate negotiations with the utilities to evaluate the possibility of either awarding utility investment with a return on equity higher than the most recent level set by the SCC for jurisdictional customers or allowing rate base treatment of such expenditures in setting rates for the Commonwealth.

RECOMMENDATIONS

CONSERVATION OPPORTUNITIES

It is recommended that the Department of Mines, Minerals and Energy assist the appropriate committees of the General Assembly to review the Virginia Energy Plan and identify the legislative authorizations necessary to effect its full implementation. It is further recommend that state agencies and institutions be directed to identify and implement those energy conservation measures which can be accomplished at little or no cost.

ATTRACTING INVESTMENT

It is recommended that state agencies and institutions be directed to pursue investment in conservation projects by outside sources for effecting energy performance improvements in the following areas:

(1) performance contracts with private suppliers/contractors who would finance improvements to be paid back from resulting energy savings. DPB and DGS should provide strong central oversight for this program;

(2) leasing of major equipment, using guidelines developed by the Treasury Board that provide for financing appropriate design and installation costs along with the purchase of the equipment;

(3) DGS should pursue agreements with utility companies to invest in energy conservation and load management projects in return for revised rate structures that would provide utilities an appropriate return on equity. Revised rate structures should be negotiated centrally, as is the current practice. Proposed projects should be reviewed and approved centrally by DGS and DPB.

APPENDIX

1991 SESSION

LD9185500

HOUSE JOINT RESOLUTION NO. 42
AMENDMENT IN THE NATURE OF A SUBSTITUTE
(Proposed by the House Committee on Rules
on January 29, 1991)
(Patron Prior to Substitute—Delegate Keating)

Requesting the Department of General Services to investigate ways to conserve energy in state facilities.

WHEREAS, the Persian Gulf crisis has resulted in higher oil and energy prices paid by governmental agencies and localities of the Commonwealth; and

WHEREAS, the Commonwealth, its educational institutions and localities, are facing constricted budgets which do not permit sizable capital investments; and

WHEREAS, there is the potential to substantially reduce energy use in state agency buildings through capital investments in proven conservation and load management technologies and practices; and

WHEREAS, the environmental benefits of reduced energy consumption include lower quantities of harmful particulate and gaseous air pollution, such as 135 pounds per year by replacing a single incandescent light bulb with a fluorescent bulb; and

WHEREAS, the cost of energy provided by electric and natural gas utilities to state buildings now exceeds $100 million annually; and

WHEREAS, the utility rates paid by state and local governments are negotiated and are not regulated by the State Corporation Commission; and

WHEREAS, encouragement of utility investment in conservation and load management has been a goal of the State Corporation Commission, the Department of Mines, Minerals and Energy, and the Department of General Services; and

WHEREAS, the State Corporation Commission has initiated an investigation of Virginia's policies affecting the energy conservation and load management programs of Virginia's electric and natural gas utilities; and

WHEREAS, innovative techniques such as rate basing conservation and load management plant investments and split-energy cost saving contracts have been used in many other states; now, therefore, be it

RESOLVED by the House of Delegates, the Senate concurring, That the Department of General Services is requested to investigate ways to conserve energy in state facilities. The Department is requested to examine the results and recommendations of the State Corporation Commission's investigation of conservation and load management programs and the applicability of such recommendations to state agencies and educational institutions. The Department is also requested to determine ways of attracting investment by utilities and other firms in energy conservation and load management programs through (i) the use of split-energy cost-saving contracts; (ii) allowing rate base treatment of such expenditures in setting rates for the Commonwealth of Virginia as a ratepayer, (iii) awarding such an investment a negotiated return on equity greater than the most recent level set by the State Corporation Commission for Virginia customers, and (iv) by encouraging the use of cost-effective conservation and load management programs in Virginia and state agencies and educational institutions.

The Department of General Services shall complete its work in time to submit its findings and recommendations to the Governor and the 1992 General Assembly as provided in the procedures of the Division of Legislative Automated Systems for the processing of legislative documents.

Appendix B

The staff of the State Corporation Commission has produced the following reports:

REVIEW OF COMMISSION POLICY TOWARD
CONSERVATION AND LOAD MANAGEMENT PROGRAMS
(CASE NO. PUE900070) APRIL 26, 1991

APPENDICES TO STAFF REPORT
(CASE NO. PUE900070) APRIL 26, 1991

STAFF SUPPLEMENTAL REPORT
(CASE NO. PUE900070) JUNE 21, 1991

Copies of the above reports are available by contacting the State Corporation Commission, Document Control Center:

Jefferson Building
1220 Bank Street
Richmond, VA 23219
(804) 786-6033