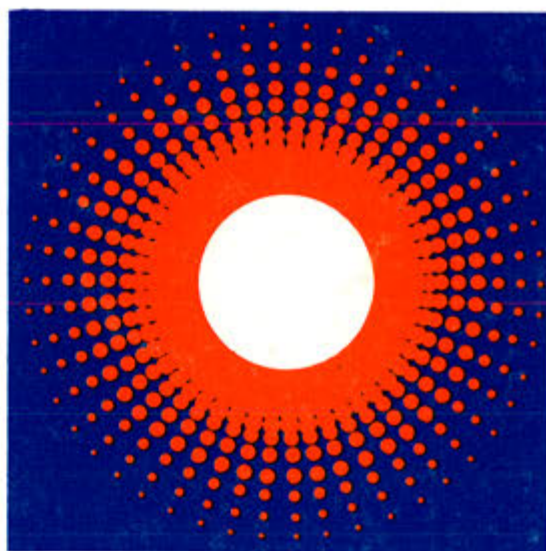


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~~ENERGY POLICY~~  
~~NEW YORK (STATE)~~

NEW YORK STATE  
**ENERGY**  
**MASTER PLAN**



**STATE ENERGY OFFICE**  
HUGH L. CAREY    JAMES L. LAROCCA  
GOVERNOR        COMMISSIONER

**EXECUTIVE SUMMARY**

**FINAL REPORT MARCH 1980**

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STATE ENERGY MASTER PLAN  
and  
LONG—RANGE ELECTRIC AND GAS REPORT

EXECUTIVE SUMMARY

March, 1980

*Hugh L. Carey*  
Governor

*James L. Larocca*  
Commissioner of Energy

**NEW YORK STATE  
ENERGY MASTER PLAN  
FINAL REPORT**  
*EXECUTIVE SUMMARY*

On August 7, 1979, the State Energy Office published the first Draft State Energy Master Plan and Long-Range Electric and Gas Report as required by Sections 5-110 and 5-112 of the Energy Law. Proceedings to review and evaluate the Draft Plan and Report were conducted during September, October and November by the New York State Energy Planning Board. Following a final vote on February 8, 1980, an Opinion and Order was issued detailing its actions in approving, with modifications, the Draft Plan and Report. The State Energy Office has modified the Draft Plan and Report in conformance with the Energy Planning Board's Opinion and Order and has adopted, as summarized herein, a final New York State Energy Master Plan and Long-Range Electric and Gas Report. The Board's Opinion and Order is Appendix F to this Final Plan and Report.

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# STATE ENERGY MASTER PLAN EXECUTIVE SUMMARY

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## PREFACE

The New York State Energy Master Plan and Long-Range Electric and Gas Report, and the proceedings which have led to its adoption, mark the State's first efforts at comprehensive and integrated State energy planning. The Plan represents a significant accomplishment and a significant improvement over past efforts, which were limited in scope and in perspective. New York has now taken positive steps to shape its energy future in a comprehensive and rational manner.

Under the Master Plan, New York will reduce its dependence on oil through a variety of strategies:

- Increased penetration of conservation measures and technologies into every phase of energy use. Energy conservation is the least expensive, environmentally safest, and most economically beneficial supply option now available to New York.
- Increased use of renewable energy resources, including hydroelectric power, resource recovery (energy from waste), wood and solar. The State Plan provides for 725 megawatts of electric load being met with small hydro and almost 300 megawatts from resource recovery plants. In addition, the State Plan sets forth the possibility of 325 additional megawatts of small hydro and 292 megawatts of resource recovery on the theory that success will breed success as the economic and environmental attractiveness of these energy forms is widely demonstrated. Further, the equivalent of 12.5 million barrels of oil annually could be displaced by 1994 by wood and solar.
- Increased coal use. The Plan projects the need for up to six major power plants, beyond those already under construction, providing a total of 4100-4600 additional megawatts of power by 1994. The Plan calls for five of these new plants to be coal or coal/refuse fired and one to be a pumped storage hydro plant. In addition, the Plan calls for the conversion of nearly 6000 MW of currently oil-fired generating capacity to coal during the next ten years.
- Increased gas use. Natural gas is the cleanest, most efficient major conventional source of energy. Use of natural gas in New York can be significantly increased during the forecast period by removing regulatory impediments to increased use, by promoting use, and by promoting aggressive pursuit of additional gas supplies by the State's gas utilities.

The Plan also calls for an increasing role for imported hydroelectric power from Canada in amounts of between six and twelve billion kilowatt hours per year.

The State Plan does not propose any new nuclear power plants beyond those already licensed or in the final stages of construction. Prior to increasing the State's reliance on additional new nuclear capacity, there is a need to first develop a fully adequate national nuclear waste disposal program, and a need to clarify substantial uncertainties associated with economic, safety and regulatory issues associated with the nuclear option.

The Plan projects cumulative economic savings in the State of at least \$10 billion by 1994 as a result of implementation of the broad range of proposed actions. The substantial savings to consumers associated with the State Plan will flow through the State's economy and create significant additional income for other purposes.

The Plan is projected to create an additional 40,000 jobs by the year 1994, just as a result of implementation of the conservation and selected renewable resource proposals.

Since issuance of the draft State Energy Master Plan last

August, a number of State and Federal energy initiatives have been undertaken which are consistent with this Plan.

- State Actions
  - Power Plant Siting — Boards on Electric Generation Siting and the Environment have approved the siting of coal-fired electric power plants on Lake Erie and Long Island and have denied a proposal to build a nuclear power plant at Sterling, New York.
  - Legislation — Significant measures to promote energy conservation and renewable resources, as well as to mitigate the impact of high energy costs on low income households, have been enacted by the Governor and the State Legislature. The enacted energy conservation proposals of the draft plan include:
    - ... Chapter 743 of the Laws of 1979, amending the State Lighting Efficiency for Existing Public Buildings Act of 1978, to extend the mandatory lighting efficiency standard to existing non-residential buildings, using the State Energy Office, local agencies, and self-certification procedures as enforcement mechanisms.
    - ... Chapter 741 of the Laws of 1979, amending the Home Insulation and Energy Conservation Act of 1977 to:
      - include as eligible measures furnace and boiler retrofits, furnace and boiler replacements, regardless of the fuel used, and heat pumps;
      - extend the program to four-family housing; and
      - increase the maximum loan amounts available.
    - ... Chapter 740 of the Laws of 1979, amending the Vehicle and Traffic Law to exempt van pool drivers of non-profit vans from the special licensing requirements needed for bus drivers.
- Federal Actions
  - Legislation — Final agreement is being reached in Congress on the President's Windfall Profits Tax, the creation of a national synthetic fuels industry, establishment of an Energy Mobilization Board, new energy conservation programs and the establishment of a federal solar and conservation bank. Furthermore, the President has submitted a legislative proposal to provide federal assistance for conversion of existing oil-fired power plants to coal.
  - Regulation — The Federal Energy Regulatory Commission is finalizing rules with respect to encouraging electricity production from renewable resource and cogeneration facilities by changing the pricing structure for the provision of standby electric service and electricity sales from such facilities.

While we take pride in the efforts New York is making, we must also recognize that much more needs to be done. The Master Plan calls for a broad range of actions and numerous additional studies. It is only through the successful pursuit of these many actions that our energy future will be improved. The Energy Planning Board, in approving this Plan, has indicated its intent to monitor the progress of the recommended actions of the Plan and take whatever action is necessary to further their implementation. The challenge of implementation, however, must go far beyond the Energy Planning Board, to all those whose decisions impact on our energy future, and thus to all New Yorkers.

James L. Larocca  
Commissioner of Energy  
and Chairman of the  
Energy Planning Board

## I. INTRODUCTION

### BACKGROUND

July 1978 — February, 1980

Legislation enacted in mid-1978 put in place a comprehensive energy planning process for New York State. Events of the past eighteen months have amply demonstrated the timeliness of this State energy planning initiative.

- In July, 1978, the benchmark price of crude produced by the Organization of Petroleum Exporting Countries (OPEC) was \$12.70 per barrel. Spot crude was selling at \$11-\$14 per barrel. In February, 1980, there was no longer a single benchmark price. The average U.S. import OPEC contract price was \$29 per barrel and spot crude was selling at \$35-\$38 per barrel.
- In July, 1978, Iran was a secure, major supplier of medium grade crude oil in the world market, exporting approximately five million barrels per day at stable prices. In February, 1980, Iranian production was 2.5 million barrels per day, 50% below year earlier levels; prices were erratic; and long-term prospects for sustained production at historic levels were dim.
- In July, 1978, Saudi Arabia's ability to anchor OPEC price movements was assured; its 1978 production capacity was estimated at 11.8 million barrels per day. In February, 1980, to an alarming degree, Saudi Arabia has lost its capacity to restrain price movements.
- In November, 1978, the price of natural gas was set on a schedule of deregulation by 1985; in June, 1979, the price of domestic crude oil was set on a schedule of deregulation by 1981.
- Estimates of nuclear power plant costs increased from \$226 per kilowatt in 1969 to \$1,684 per kilowatt in late 1978. On April 5, 1979, the Trustees of the Power Authority of the State of New York (PASNY) voted to sell the assets of a planned nuclear power plant in Greene County, citing, among other factors, dramatic unanticipated increases in projected capital costs. The incident at the Three Mile Island nuclear power facility near Harrisburg, Pennsylvania, on March 28, 1979 significantly reduced public confidence in the safety of commercial nuclear power and made future costs of nuclear power plants undeterminate.
- In the early fall of 1978, the average Statewide price of home heating oil was 48¢/gal. In February, 1980, the average price was almost \$1.00/gal. New Yorkers consume about 5 billion gallons of home heating oil per year—more than any other state.
- In the summer of 1978, there was a glut of gasoline in the marketplace and the average price of full service regular was 66.8¢/gal; in the early summer of 1979, tightness of gasoline supply became an emergency in the downstate area, and the price of gasoline, in certain cases, exceeded \$1.00/gal. In February, 1980, the price was \$1.17/gal. New Yorkers consume about 6.2 billion gallons of gasoline per year.

New York has been disproportionately affected by the events related to petroleum price and supply because the State relies on oil to meet 66% of all its energy needs (compared to a national average of only 45%). Of the petroleum products used in the State, 70% originates from imported crude compared to a national average of 46%). This over-reliance on oil is the principal reason why New York's

total annual energy bill has increased from \$8.5 billion in 1972, to approximately \$16.5 billion in 1978, and will surely exceed \$20 billion by 1980.

### *Scope and Impact of the Energy Planning Process*

Section 3-101(7) of the Energy Law provides that it shall be the energy policy of the State to conduct energy planning in an integrated and comprehensive manner through development of a long-range State Energy Master Plan, which shall provide the framework for energy-related decisions made throughout the State.

Sections 5-110 and 5-112 of the Energy Law require that the State Energy Office prepare, consistent with State energy policy (set forth in Energy Law, Section 3-101), a Draft State Energy Master Plan (Draft Plan) and Draft Long-Range Electric and Gas Report (Draft Report) and submit these documents to the Energy Planning Board (Board)\* for review and approval.

In the development of the Draft Plan, the State Energy Office must consider, among other matters: economic growth and development trends, the potential impacts of energy conservation, new energy technologies, indigenous energy resources and national energy policies. The State Energy Office must consider the effects of all these factors on the State's economy, the public health, safety and welfare and the State's environment (Energy Law, Section 5-110(a)).

The Draft Plan must contain, at least:

- A forecast of State energy requirements for five, ten and fifteen year forecast periods, together with the bases for such forecasts;
- A summary of the plans of the State's major energy suppliers for meeting forecasted energy requirements, including descriptions of new energy sources;
- An identification and analysis of emerging trends related to energy supply, price and demand; and
- A statement of specific energy policies, together with the reasons therefor, and recommendations for such administrative and legislative actions as the State Energy Office has determined are desirable to implement State energy policy (Energy Law, Section 5-110(b)).

The Report must contain "... specific findings with respect to projected long-range electric and gas demands in the state within the forecast periods, and with respect to supply requirements, together with estimates of the cost of electricity and gas to consumers ..." (Section 5-112(3)(b)).

Upon approval by the Energy Planning Board, and adoption by the State Energy Office, the statute provides that the Plan and Report serve a variety of purposes, principally:

- Public and Private Sector Planning. The State Energy Master Plan will "provide the framework for energy-related decisions made throughout the State" (Energy Law, Section

\* The members of the Energy Planning Board are: the Commissioner of Energy, appointed by the Governor to serve as Chairman, the Chairman of the Public Service Commission, the Commissioner of Environmental Conservation, the Temporary President of the Senate or his designee and the Speaker of the Assembly or his designee. David Blabey, Esq., has been appointed by the Temporary President of the Senate to serve as his designee on the Board. Ira Millstein, Esq. has been appointed by the Speaker of the Assembly to serve as his designee on the Board.



5-110). In addition, the Governor stated, when signing the legislation, that the Plan "shall control all energy-related decisions made by the State and will be the guide for energy-related decisions in the private sector." (Governor's Memorandum of Approval, McKinney's 1978 Session Laws, p. 1838).

- Public Service Law Article VIII and Article VII Decisions. On and after January 1, 1980, the specific findings with respect to projected electric demand in the Report are binding on the State Board on Electric Generation Siting and the Environment (Siting Board) with respect to any determination of need for future steam electric generating facilities under Article VIII of the New York Public Service Law (Energy Law, Section 5-112(3)(c)). In addition, the Siting Board must find that a proposed facility is consistent with the "long-range planning objectives for electric power supply in the state" established by the Plan before it may grant an application for a certificate under Article VIII (Public Service Law, Section 146(2)(e)). Moreover, on and after January 1, 1980, the specific findings with respect to projected electric and gas demand are binding on the Public Service Commission with respect to any determination of need for major electric and gas transmission facilities under Article VII of the Public Service Law (Energy Law, Section 5-112(3)(c)).

The Plan and Report also serve the purpose of coordinating State recommendations regarding Federal energy policy. Other uses of the Master Plan are depicted in Figure 1.

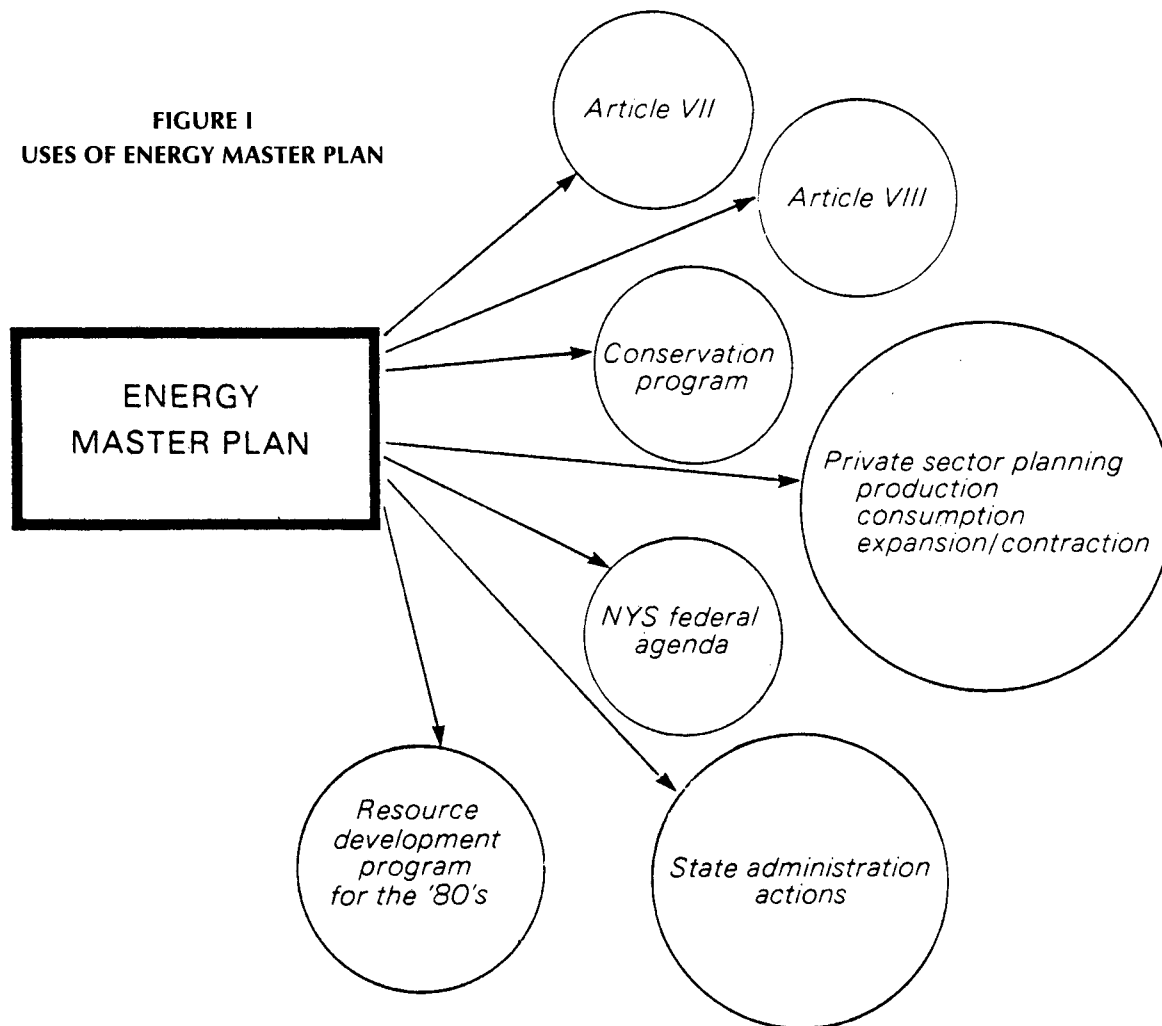
As presented herewith, the Master Plan and Report have been developed as a single document, given the fundamental relationships between comprehensive integrated energy forecasting and planning and the constituent findings of future electric and gas demands, supply requirements and prices.

#### Structure of the Master Plan

The Master Plan has been developed as follows:

- The State's historic and current energy supply and demand patterns have been specified in Section III of the Plan and implications for planning and policy formulation have been developed.
- Based on the State's current energy profile, assumptions related to future economic activity and future energy prices, and other inputs, forecasts of future energy demand by fuel type and end-use are made in Section IV of the Plan. These "base case" forecasts include the specific findings on electric and gas demands over the next five, ten and fifteen years that bind the Siting Board and Public Service Commission on decisions related to the need for

**FIGURE I**  
**USES OF ENERGY MASTER PLAN**



new generation and transmission facilities under Articles VII and VIII of the Public Service Law. These forecasts account for price effects, the impacts of current national and State laws and regulations, and recent OPEC pricing actions.

— To the extent that future conservation will occur as a result of the price responsiveness of demand and the impacts of current conservation requirements (e.g., the Energy Conservation Construction Code), that degree of conservation has been incorporated into the base case forecasts.

— To the extent that increased use of renewables, based on current trends, and legislative and administrative regulations will diminish demands for conventional fuels, those impacts as well have been accounted for in the base case forecasts.

• The supply section of the Plan (Section V) is broadly conceived. Supply units analyze current and future sources, issues of major concern and relevant technology trends for the conventional fuel types: natural gas, petroleum, electricity and coal. In addition, units addressing conservation and renewable resources have been included in the supply section:

— Conservation is considered a relatively inexpensive, timely supply option—a desirable alternative to costly, environmentally harmful conventional energy supply options.

— Use of renewables is seen both as a way to reduce end-use demand for conventional energy forms (e.g., increased use of wood for home heating) and as a means to generate electric power (e.g., small hydro).

The three other units which complete the supply section address: research and development, financing and the impact of energy costs on low income groups.

• Each supply unit also includes proposed actions, developed in conformance with the State energy policies set forth in Section V-A of the Plan, as required in Section 5-110 (b) (4) of the Energy Law. The supply proposals call for specific State and Federal legislative and administrative actions.

• The Long-Range Electric and Gas Report is Section VI of the Master Plan.

#### State Energy Policies

In Section 3-101 of the Energy Law, the Legislature set forth the broad energy policy of the State:

“... to obtain and maintain an adequate and continuous supply of safe, dependable and economical energy for the people of the state and to accelerate development and use within the state of renewable energy sources, all in order to promote the state's economic growth, to create employment within the state, to protect its environmental values, to husband its resources for future generations, and to promote the health and welfare of its people;

... to encourage conservation of energy in the construction and operation of new ... buildings, and in the rehabilitation of existing structures ...

... to encourage the use of performance standards in all energy using appliances and in industrial and commercial applications of energy-using apparatus and processes;

... to encourage transportation modes and equipment which conserve the use of energy;

... to foster, encourage and promote the prudent development and wise use of all indigenous state energy resources ... ; and

... to encourage a new ethic among its citizens to conserve rather than waste precious fuels; and to foster public and private initiative to achieve these ends at the state and local levels.”

These broad objectives have been refined during the course of the planning process into a set of specific energy policies required by Section 5-110 (b) (4) to be specifically identified and justified in the Master Plan. These specific energy policies, listed in Figure 2, are the major themes of the Master Plan, from which recommendations for legislative and administrative actions flow. Together, these policies provide clear direction to State efforts to fashion its energy future.

#### OVERALL PROPOSAL IMPACT

The fuel mix impacts of the Plan's proposals are dramatic. Figure 3 shows the State's 1978 fuel mix and the 1994 fuel mix as modified by the Plan's proposals. Petroleum consumption, which currently accounts for 66% of the State's total primary consumption, would be reduced to 47% in 1994. Coal, which now accounts for 7% of the State's total primary consumption would account for 17% in 1994. Overall, the State would move toward a more balanced fuel mix over the next fifteen years.

The Plan will save over 850 million barrels of oil during the forecast period. By 1994, State oil consumption will be reduced by approximately 120 million barrels per year primarily due to the impact of conservation and direct renewables on oil use, and shifts from oil to coal and oil to renewable resources in the electric sector.

The cumulative economic savings associated with implementation of the Plan's proposals is projected to be at least \$10 billion over the fifteen year planning period. These savings result largely from displacement of expensive imported petroleum through less expensive conservation investments and through greater use of coal, natural gas and renewable resources.

Consumers benefit significantly from the Plan. Substantial cost savings to consumers would result in increased discretionary income which will flow through the State's economy and create significant additional jobs, earnings and personal income. There would be 40,000 additional jobs created by 1994 just as a result of full implementation of the conservation and selected renewable resource proposals.

The environmental impact of the conservation and renewable resource proposals in 1994, considered together, appears to differ only marginally from base case environmental impacts. However, there would be a net increase in particulate emissions due to increased reliance on wood burning and resource recovery facilities.

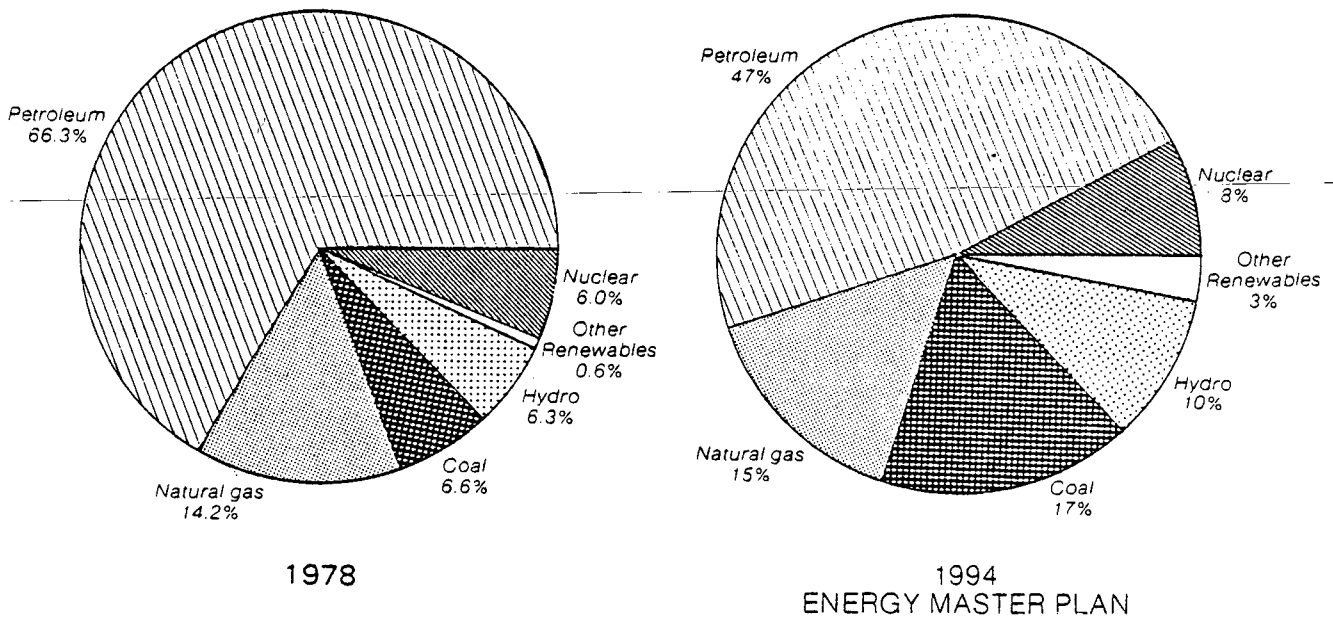
Full implementation of the plan will result in slight increases in most environmental residuals as the overall growth in energy consumption outstrips gains in environmental efficiency of the new sources which will meet these higher levels of consumption. Notable exceptions to this general rule are carbon monoxide and hydrocarbon emissions, which actually decline over the forecast period.

**FIGURE 2**  
**STATE ENERGY POLICIES**

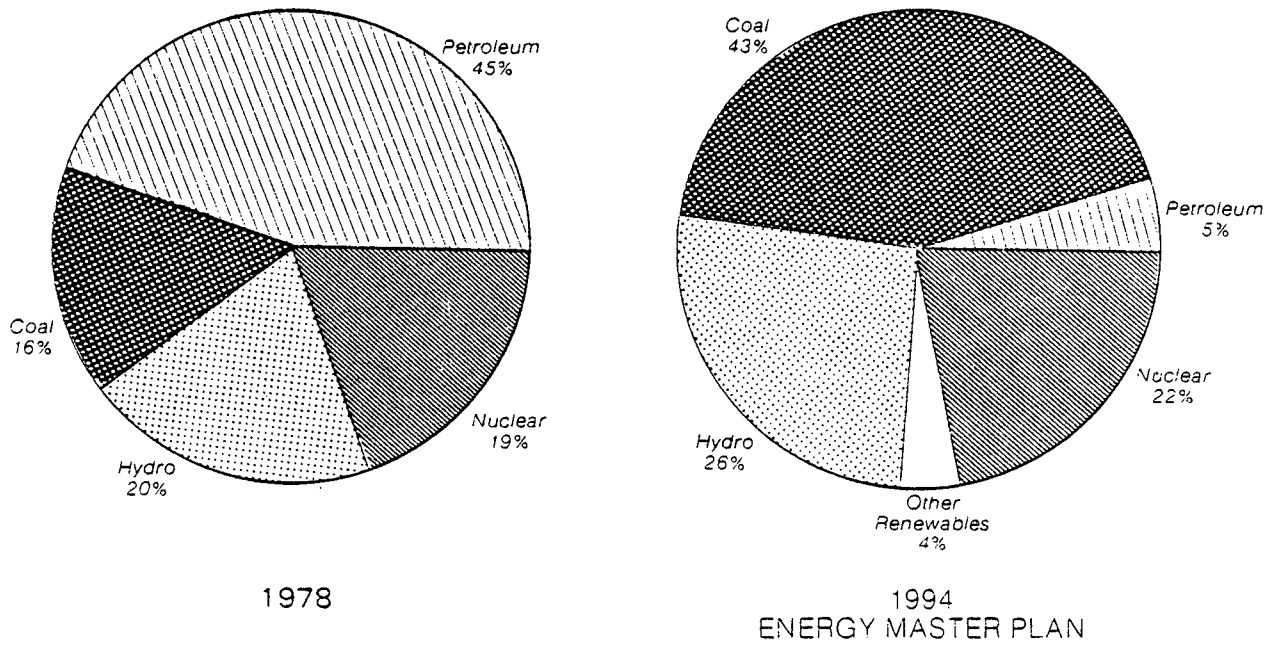
**State Energy Policies**

1. The State's consumption of petroleum products must be reduced. The economic costs and vulnerability to disruption resulting from the State's continued disproportionate reliance on oil strongly support actions to shift to less costly and/or more secure energy sources.
2. Conservation and renewable resources must make a greater contribution to energy supply and will require substantial additional government support to do so, at least in the near-term. In many applications, conservation and renewables appear to be the least costly, most economically productive and environmentally benign means to satisfy a portion of the State's current and anticipated energy requirements. Government action must enhance the respective contributions to be made by conservation and renewables in meeting those requirements.
3. The State of New York and its agencies should encourage the increased efficient use of natural gas and stimulate efforts to secure additional supplies of natural gas from sources that are economic, and compatible with environmental, public health, and safety standards in order to reduce New York's dependence on oil. This policy will help insure that supply and demand remain balanced throughout the planning period.
4. The increased use of coal must be promoted where economically feasible and consistent with applicable environmental standards. Compared to continued use of oil, particularly in the utility sector, use of coal will probably result in economic advantages, given current and forecast cost differentials between coal and oil, and significant improvement in certainty of supply over the forecast period. Increased utilization of eastern coal is likely to stabilize regional energy costs and will stimulate regional economic development. A regional energy development entity like the Energy Corporation of the Northeast (ENCONO) can provide a vehicle for maximizing the region's existing and planned production and use of coal and other energy forms.
5. Regional cooperation, coordination, and action must be promoted to enhance the region's energy supply prospects. Interconnection of New York's electric system with neighboring systems should be pursued as a vehicle for reducing costs and oil dependence to the extent economic and feasible. Interconnection may also lessen the adverse impacts on the State's environment from construction and operation of new generation facilities.
6. New nuclear power plants should not be included in the State's electricity supply plan at this time. There is first a need to develop a fully adequate national nuclear waste disposal program, and a need to clarify substantial uncertainties associated with economic, safety and regulatory issues related to the nuclear option.
7. All consuming sectors must be given increased choice among competing energy forms, including conventional fuels, conservation and renewable resources. Increased choice will benefit consumers by increasing price competition among energy forms and will benefit the State by stimulating innovation and efficiency improvements.
8. Government must act to remove any existing legislative and administrative barriers inhibiting the development of energy sources, competition among fuel forms and energy conservation, except where such action would clearly compromise public health, safety or environmental quality. Justification for any such institutional barriers must now be reexamined in light of compelling State energy needs.
9. The State's electric and gas utilities, as well as PASNY, should encourage and stimulate conservation and efficient use of energy by their customers. Consideration should also be given to inducing utilities to becoming active purveyors of conservation and renewable resource technologies.
10. No person should be without adequate heat or should be forced to forego conservation improvements by reason of inability to pay. A commitment to protect public health and safety requires no less.
11. The State's energy research, development and demonstration programs must continue to emphasize the development and demonstration of those technologies particularly suited for near and mid-term commercialization and implementation in New York State. Coordinated efforts in advancing such technologies should be consistent with other State energy policies.
12. In view of the extensive reliance on oil in the transportation sector, more comprehensive consideration of possible state actions in that sector should be undertaken as part of the Board's future review of the Plan.

**FIGURE 3**  
**TOTAL PRIMARY ENERGY CONSUMPTION**  
**NEW YORK STATE, 1978 AND 1994**



**PRIMARY ENERGY USED TO GENERATE ELECTRICITY**  
**NEW YORK STATE, 1978 AND 1994**



## II. CURRENT AND FORECAST ENERGY REQUIREMENTS

### STATE ENERGY PROFILE

By examining the past and present patterns of consumption and supplies of energy in the State—including the sources, types and quantities of energy utilized, the end uses of that energy, and prices and availability of supplies—conclusions can be drawn to help establish energy policy directions for the State.

#### *Trends in Energy Consumption*

New York experienced a steady increase in energy consumption through the 1960's. However, events in the early 1970's—first a major recession, then the Arab Embargo and resulting price increases—triggered a period of declining energy use. In fact, total energy consumption in 1970 and 1978 were approximately equal.

There are exceptions to the generally stable level of energy consumption since 1970. Gasoline sales dropped 1.4% from 1970 to 1978, while electric requirements increased 19.5%.

Major shifts in the consumption of energy by fuel type have occurred over the past two decades:

- a shift away from coal and a shift toward oil as a fuel for utilities and industrial boilers;
- increasing use of nuclear and hydro energy to produce electricity; and
- a shift to a greater proportion of oil use by New Yorkers as residual oil consumption increased.

Shifts in consumption of energy by sector have also occurred:

- the relative amount of energy consumed to generate electricity has increased as electricity has played a larger role in energy supply;
- industrial energy consumption has dropped as manufacturing levels in the State declined; and
- consumption in the residential-commercial sector remained stable.

#### *Energy Consumption by Sector*

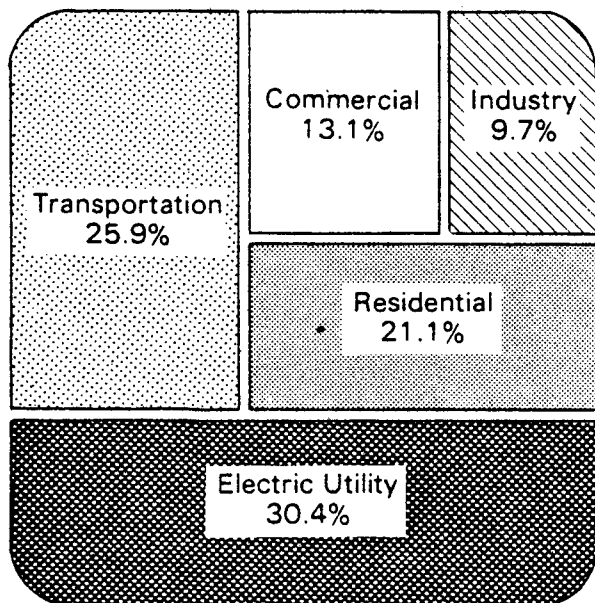
The profile of energy consumption by sector in New York State differs significantly from the U.S. profile (as shown in Figure 4):

- more of New York's energy is consumed by the residential sector;
- more energy is consumed by the commercial sector;
- less energy is consumed by the transportation sector; and
- less energy is consumed by the industrial sector.

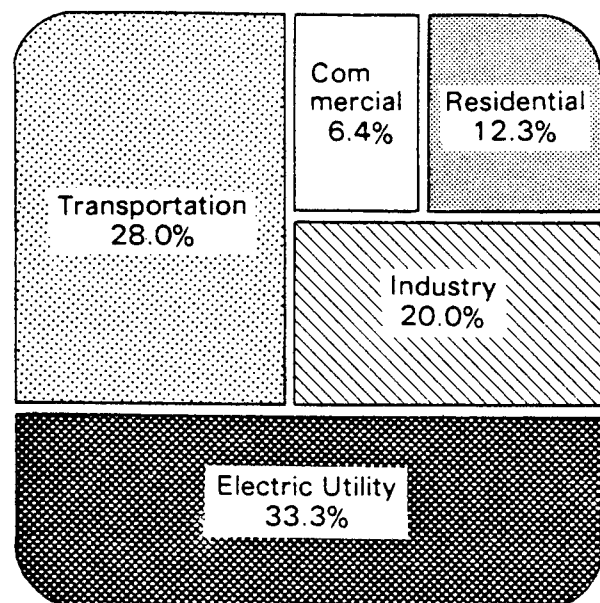
Figure 5 illustrates, in detail, energy consumption by end-use in each sector:

- space heating, a very weather sensitive end-use, accounts for 73.7% of residential and 76.2% of commercial use;
- hot water heating is significant, accounting for 13.9% of residential use and 9.3% of commercial use;
- industrial energy consumption varies significantly by specific industry. Four basic energy consuming industries—primary metals, chemicals, paper and allied products,

**FIGURE 4  
PRIMARY ENERGY USE BY SECTOR BY PERCENT  
NEW YORK STATE AND UNITED STATES, 1977**

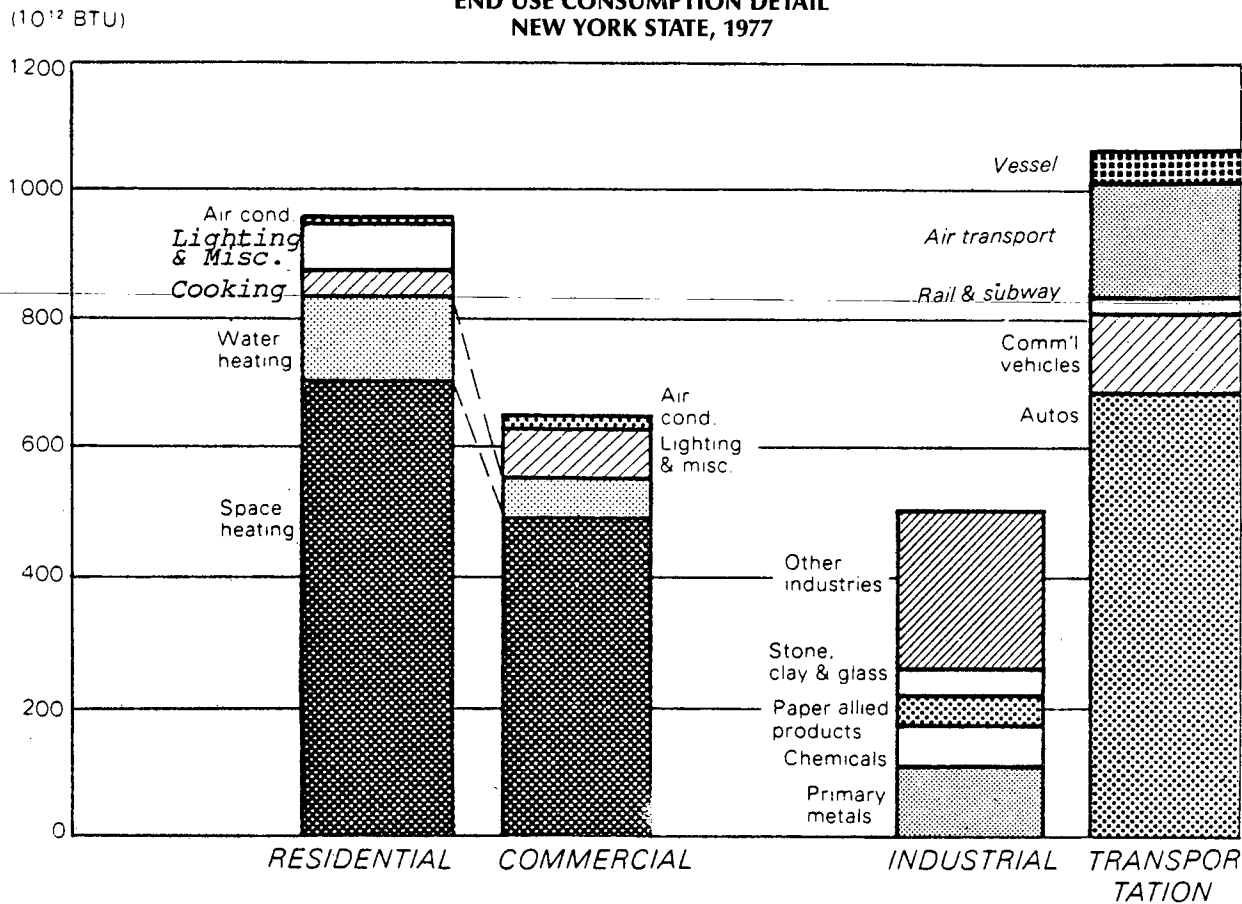


*New York State*



*United States*

**FIGURE 5**  
**END USE CONSUMPTION DETAIL**  
**NEW YORK STATE, 1977**



and stone, clay, and glass account for 50.1% of total industrial energy consumption; and

- the automobile accounts for 64.6% of total energy consumption for transportation.

**Fuel Mix**

The New York State primary fuel profile differs significantly from the U.S. fuel profile (Figure 6);

- New York's consumption of coal is limited;
- New York's relative consumption of natural gas is far below that of the nation;
- New York's petroleum consumption is significantly greater than that of the nation; and
- the State is a relatively high user of hydro and nuclear energy.

New York's petroleum consumption profile differs markedly from the nation's as a whole:

- more residual oil is consumed in New York (37.5% vs. 22.6%), most of which is imported (89%) and
- less gasoline is consumed in New York than the nation (28.7% vs. 45.2%).

Figure 6 shows that New York State's consumption of energy in the generation of electricity differs significantly from the national profile:

- much less coal;
- much more petroleum; and
- more nuclear and hydro.

**Fuel Mix by Sector**

The diagram of New York State's energy flows (Figure 7) depicts the complex relationship between the primary fuel mix and end-use sectors;

- electric generation is the single greatest consumer of primary energy resources;
- much more energy is lost in conversion to electricity—transmission and conversion to mechanical energy—than is used by the final end-user; and
- petroleum is used extensively in all sectors.

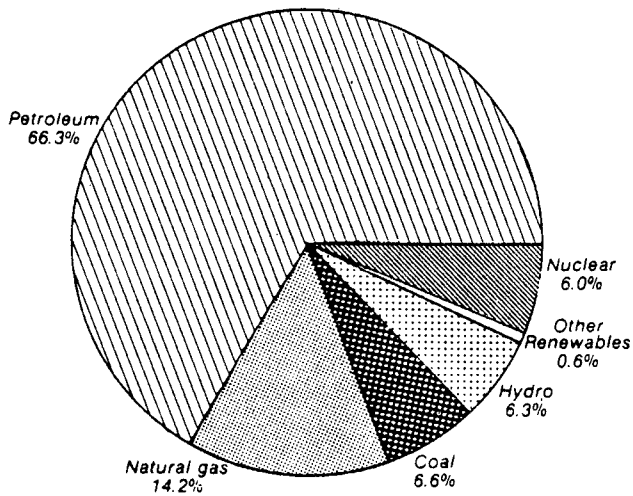
The end-use profile of major fuels is depicted in Figure 8. The variation between fuels is significant:

- the majority of electric energy is consumed by lighting and appliances, not space heating or cooling;
- residential and commercial end-users dominate the use of electricity;
- hot water is a greater user of electricity than is space heating;
- residential space heating is by far the dominant end-use for gas; and
- residential and commercial space heat end-uses combined consume more petroleum than either automobile transportation or electric generation.

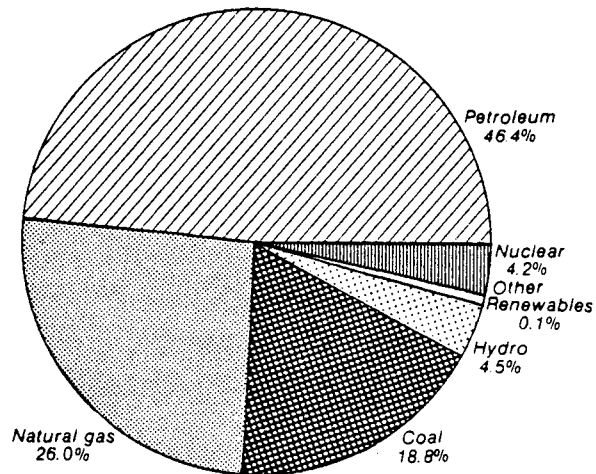
Weather-based variations in end-use patterns cause a significant seasonal variation in consumption of some fuels;

- gasoline consumption peaks in the summer; home heating oil consumption peaks in the winter; and

**FIGURE 6**  
**TOTAL PRIMARY ENERGY CONSUMPTION**  
**NEW YORK STATE AND UNITED STATES, 1978**

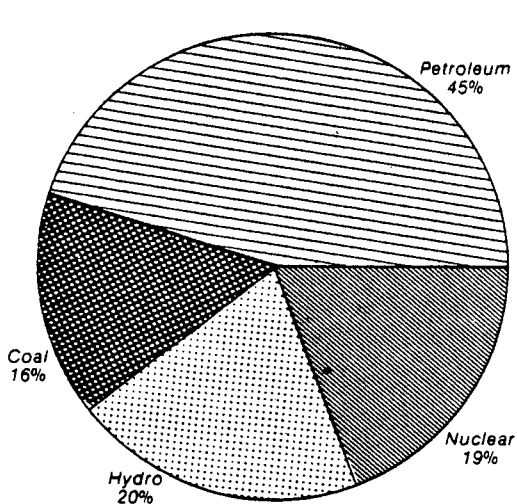


**1978**  
**NEW YORK STATE**

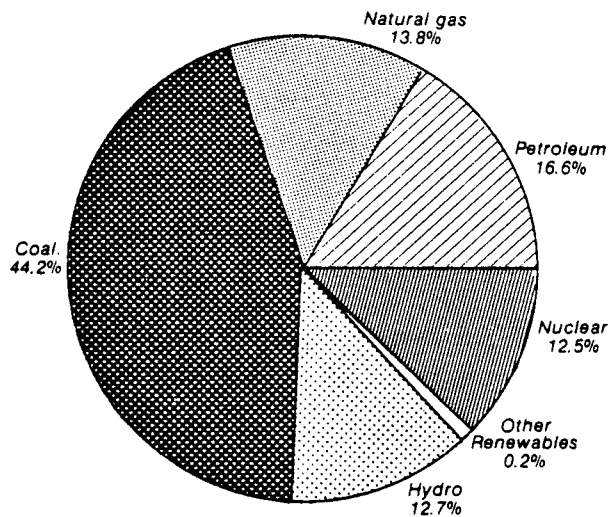


**1978**  
**UNITED STATES**

**PRIMARY ENERGY USED TO GENERATE ELECTRICITY**  
**NEW YORK STATE AND UNITED STATES, 1978**



**1978**  
**NEW YORK STATE**



**1978**  
**UNITED STATES**

FIGURE 7  
 NEW YORK STATE ENERGY FLOWS, 1977  
 T-Btu's

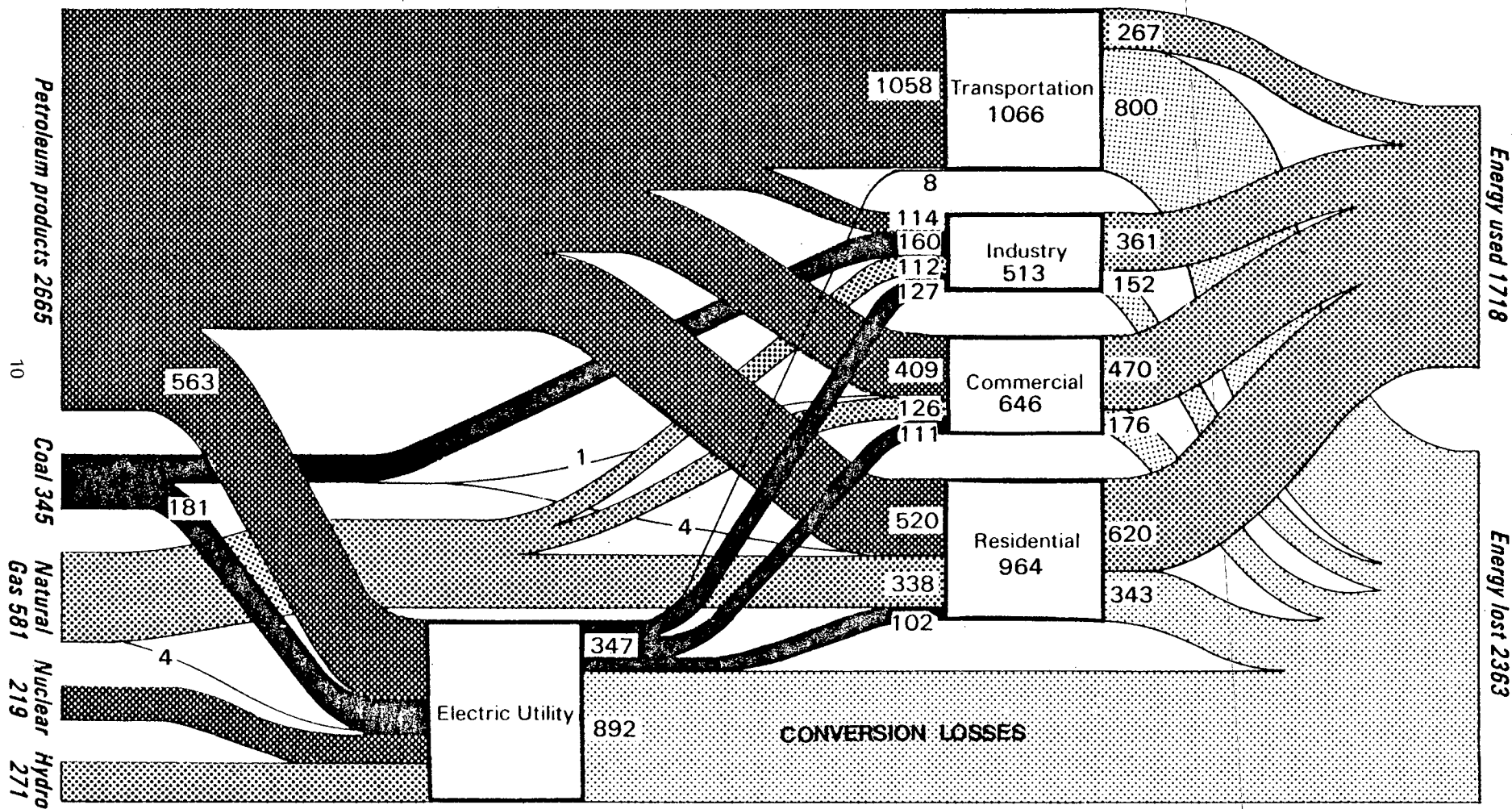
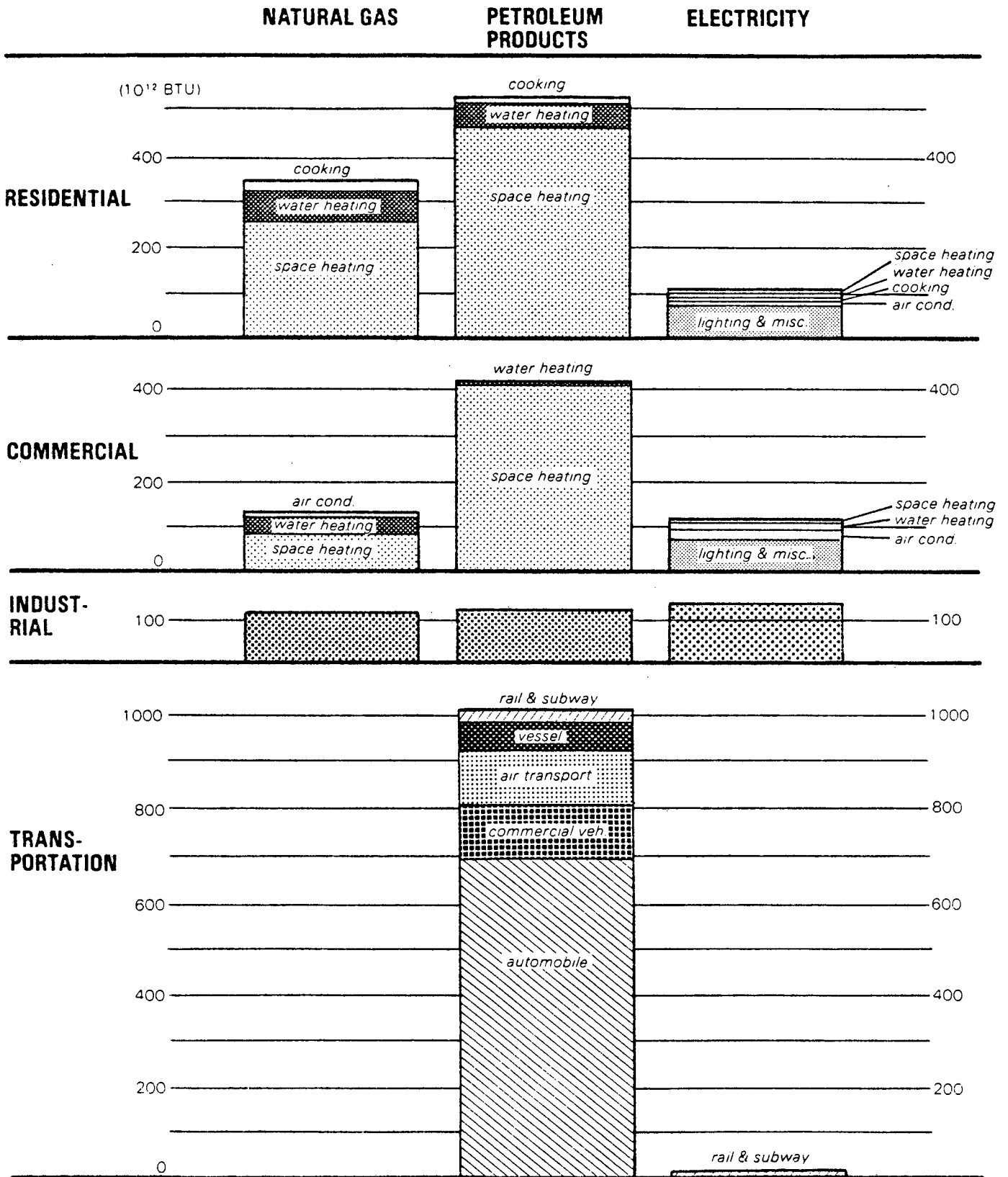




FIGURE 8  
FUEL USE BY END USE  
NEW YORK STATE, 1977



- natural gas demand peaks in the winter due to space heating demands; electricity peaks in the summer, due primarily to air conditioning.

#### *Per Capita Consumption*

New York's overall per capita consumption of energy is about 3/4 that of the nation, demonstrating that New Yorkers are not prolific consumers of energy. However, its per capita use of energy is higher for both the residential and commercial sectors.

New York's low per capita energy use is due to both the transportation and industrial sectors being significantly below the national average. The highly urban settlement pattern and related efficient transportation systems cause New York's per capita consumption of gasoline to be about 2/3 of the national average.

#### *Sources of Supply*

New York State is more dependent on imported petroleum than is the nation as a whole. In the entire country, only New England is more dependent on imported petroleum than New York State.

New York State is primarily dependent on Louisiana for natural gas (73%); New York's own gas wells directly supply only a very small share (2%).

New York imports over 70% of its coal from Pennsylvania—and all from the Appalachian Region. Western coal is not used at the present time in New York State.

#### *Prices*

The price of energy in general and the price of specific sources has increased over the past 18 years at very different rates. As of July, 1979, for example:

- imported crude oil price had increased 747% since 1960, as compared to a consumer price index increase of 120%;
- natural gas prices had increased 111% since 1960, mostly in the 1970's;
- electricity prices had increased 109% since 1960, mostly in the 1970's, and
- gasoline prices had increased 133% since 1960.

There is a considerable variation in electric prices throughout New York State. The highest prices are in the New York City area; the lowest in upstate areas.

New York City has considerably higher (75%, 71% and 104%) electric prices for residential, commercial and industrial customers than the national average. Electric prices in upstate metropolitan areas are more competitive.

#### *Conclusions*

Several conclusions can be drawn from New York's energy trends and profiles.

- Energy consumption is related to the level of economic activity; as the State's economy has grown or contracted, so has the State's energy consumption. A strong expansion of the State's economy will require supporting energy growth. However, national experience since 1974 has amply demonstrated that there is no necessary fixed relationship between energy and economic growth during a period of significant price, public policy, and institutional change.
- New York, over the past two decades, has become dependent upon petroleum for 2/3 of its energy needs—a most dangerous trend considering the loss of Western control over petroleum prices and supplies. Continuation of such dependence is unthinkable.

- Electricity, produced primarily from residual oil, has been steadily increasing as an energy source for the State. Considering recent OPEC price hikes and availability problems, this is a most alarming trend that must be clamped by energy conservation.

- New York's energy consumption is atypically concentrated in the residential and commercial sectors. Thus, New York State energy conservation efforts must emphasize buildings—their insulation levels, boiler or furnace efficiencies, HVAC systems, and lighting levels.

- The majority of New York electric consumption is by lighting and appliances, not space heating and air conditioning. Therefore, electric energy conservation must include more efficient lighting and appliances. Action toward that end is underway at present in New York State; much more needs to be done.

- Residential and commercial space heating and air conditioning, while not major electric energy end-users, do contribute significantly to electric peak demand. Therefore, they must be targeted for conservation actions to reduce electric peak demand.

- The State's industrial energy consumption is considerably lower than the national average, primarily because of relatively limited manufacturing activity. Yet, New York does have considerable activity in four energy intensive industries (state ranking by energy consumption is in parentheses): chemicals (2), stone, clay and glass (4), primary metal (1) and paper and allied products (3) (which rank 2, 3, 4 and 5 nationally). Therefore, the ability of New York's industries to reduce energy consumption via energy conservation is significant.

- New York's current energy mix has placed the State in a difficult economic situation in the 1970's because of the heavy reliance on imported petroleum. Government action is necessary to alter this energy mix.

- Most of New York's petroleum supplies do not come from secure regions of the world. New York must be in the forefront of any move to diversify national sources of petroleum supplies and to develop strategic petroleum reserves.

- Electric generation, as the single largest consumer of primary energy in New York, consuming 17% of the nation's residual oil used for electric generation, must move toward a more diverse fuel mix. The only significant change possible in the next few years is to replace oil with coal as a fuel.

- Considering current coal shipment patterns, New York and Appalachia should have a natural partnership in the development of coal resources and their use in New York. New financial institutions, such as ENCONO, to promote such a partnership are necessary.

- New York's low supply and consumption of natural gas as compared to the nation as a whole, resulting in part from the curtailments of the 1970's, has been a significant disincentive for economic development. A major objective of New York's energy policy must be to expand access to its gas suppliers, thus reducing its dependence on imported petroleum products and promoting natural gas based industrial development.

The data, relationships, and conclusions presented in this energy profile are a general summary of the State's current energy situation. An understanding of the current energy demand and supply picture, its relationship and trends, is vital both in forecasting the future and devising a strategy to improve upon that future by government actions.

## NEW YORK STATE ENERGY REQUIREMENTS: 1978-1994

The Energy Planning Board approved the Energy Office forecast of New York State energy requirements by end-use and fuel type over the next fifteen years. (See Section IV of the Plan). The SEO base case forecast portrays the future energy profile for New York as present laws and energy forces continue to work throughout the next fifteen years. The base case forecast is consistent with and provides for the energy requirements of a growth economy. It reflects significant conservation resulting from rising energy prices, mandated efficiency standards and State and Federal conservation programs now underway. It considers in a systematic manner the interrelationships of economic activity, prices, national and State energy policies, fuel substitution, conservation and renewables, as well as the supply availability of conventional fuels.

The forecast of the State's energy requirements is unique in four important respects:

- The forecast is based on current data. The impacts of recent (1979) OPEC price increases, and rising energy prices in general, are accounted for. The price of oil is important since the current and future price of oil is a key driving variable in the overall forecasting effort.
- Impacts of all national energy legislation, including the National Energy Act of 1978 and related programs, through June 30, 1979, and all State conservation legislation and regulations now in force are fully accounted for.
- Requirements for all energy forms—electricity, natural gas, petroleum products—are integrated in the forecasts. In effect, then, inter-fuel substitution has been accounted for.
- Econometric and engineering end-use forecasting approaches have been combined. As a result, the impact of conservation policies and standards on specific energy end-uses can be determined with a higher degree of certainty than is possible using one or the other approach.

### *The Changing Profile*

The State's energy requirements will change significantly over the next fifteen years. The principal conclusion is that while growth in the State's energy requirements over the next fifteen years will be far below pre-embargo levels, a significant increase will nevertheless occur and will require, among other things, an expansion in electric system generation capacity beyond plants now under construction.

- The rate of growth of end-use energy requirements will drop to 0.5 percent annually—from 2.5 percent in the 1969-1973 pre-embargo years. The drop, however, will not be nearly as sharp as it was from 1973 to 1978; a half decade of limited economic growth in the face of a severe recession that impacted New York more severely than the nation at large. Energy price increases, conservation and a relatively slow national economic growth rate will be responsible for the reduced growth rate over the next fifteen years. Figure 9 shows the State's total end-use energy and electricity requirements from 1960 to 1994.
- Under the Plan assumptions, energy demand in all of the State's major economic sectors will rise moderately:
  - Energy demands in homes and residences will climb at an annual rate of 0.3 percent. Rising energy prices, more efficient building design and construction, higher appliance efficiency standards, and conservation will all play a part.

- Commercial energy consumption will grow annually by 1.0 percent.
  - Industrial energy demand will grow at a rate of 0.8 percent per year due to continued improvement in the State's economy and replacement of older plants and equipment.
  - Energy demand for transportation will grow yearly by 0.4 percent. Higher fuel prices and the impact of federal auto efficiency standards will be responsible for the reduced rate of growth.
- The rate of growth in electricity sales (KWH) will average 2.1 percent per year, down from a pre-embargo rate of 5.6 percent. (In the New York Power Pool report submitted to the State Energy Office, the Pool projected an annual demand growth of 2.6 percent.) Flexibility in uses for electricity, more intense price competition, energy conservation, and continued moderate economic growth will be the major factors affecting the projected growth rate. Figure 9 also shows electricity requirements for the State from 1960 to 1994.
  - Growth in electricity peak demand (MW) will average 1.8-1.9 percent annually, reflecting anticipated moderate improvements in the individual company and system load factors.

### *Findings on Electric and Gas Demands, Supplies and Prices*

Section 5-112 of the Energy Law requires the State Energy Office to prepare, and the Energy Planning Board to approve or modify, a Report making specific findings with respect to projected electric and natural gas demands and supply requirements, together with estimates of the cost of electricity and natural gas to consumers, over a fifteen year forecast period.

The findings of the State Energy Office as modified and approved by the Energy Board follow:

- **Electricity Demand, Price and Supply**

Statewide electricity consumption is likely to increase at an average rate of 2.1 percent per year over the next 15 years.

Total statewide electricity peak demand is likely to increase at an average rate of 1.8-1.9 percent per year over the next 15 years.

Individual electric utility and PASNY energy sales and peak demand are likely to increase over the next 15 years at the rates set forth in Figure IV-21 of the Plan.

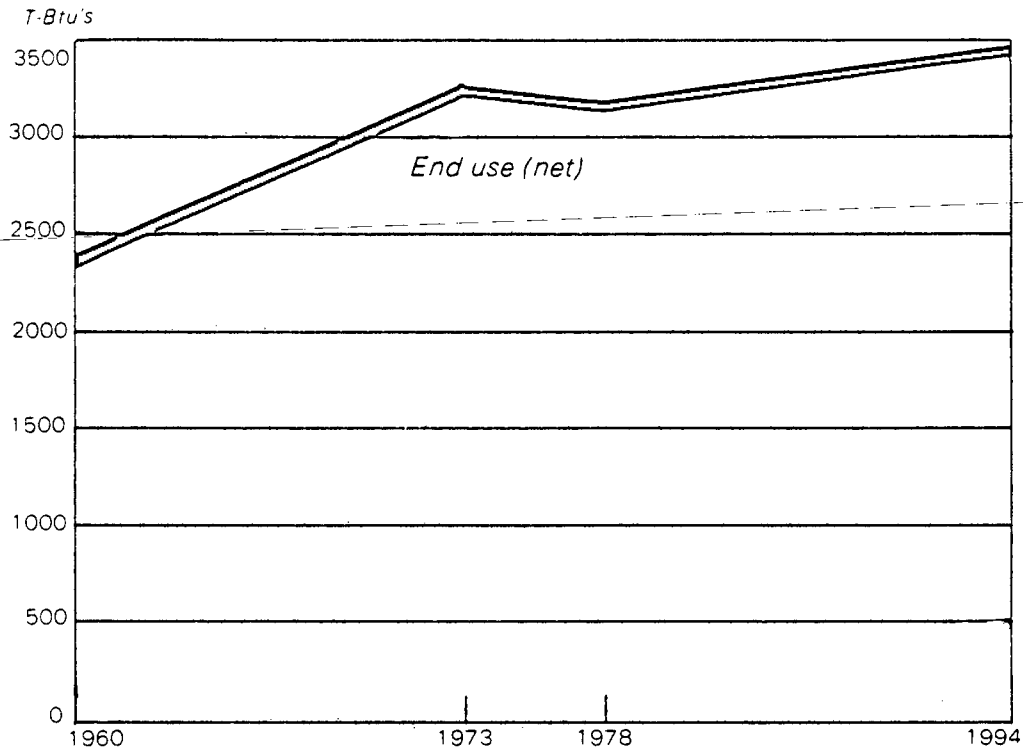
Real prices for electricity are likely to increase at an average rate of 1.8 percent per year, on a statewide basis, over the next 15 years.

Construction of the new electric generating capacity set forth in Figure 15 herein will assure that adequate reserve margins are met, or will allow existing oil-fired facilities to be operated less frequently.
- **Natural Gas Demand, Price and Supply**

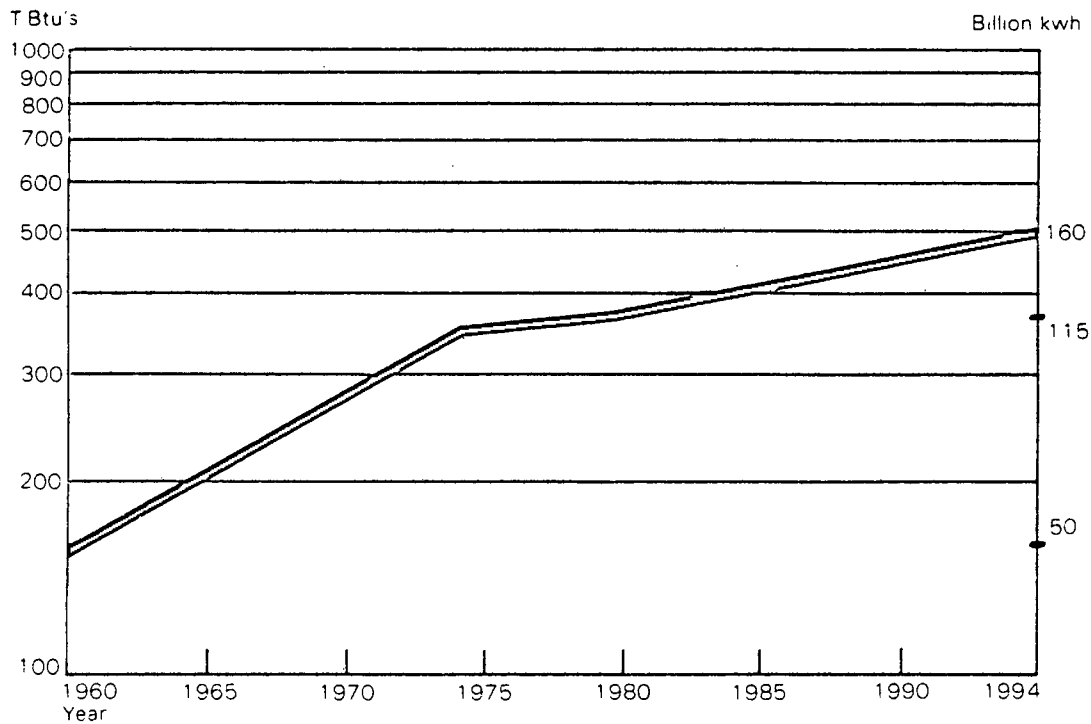
Total statewide natural gas demand is likely to increase at an average rate of 1.4 percent per year over the next 15 years. Supply should be adequate to meet this increased demand.

Real prices for natural gas are likely to increase at an average rate of 4.4 percent per year, on a statewide basis, over the next 15 years.

**FIGURE 9**  
**TOTAL END USE ENERGY AND ELECTRICITY REQUIREMENTS**  
**NEW YORK STATE, 1960-1994**



**ELECTRICITY REQUIREMENTS (SALES)**  
**NEW YORK STATE, 1960-1994**



### III. RESHAPING THE STATE'S ENERGY FUTURE

#### APPROACH

##### *Proposals*

The proposed legislative and administrative actions in the Plan further refine the broad energy policy mandates contained in the Energy Law and the more specific energy policies set forth below (and in Section V-A). Proposals have been fashioned as specifically as circumstances allow in order to provide maximum guidance to those who must review and evaluate their merits.

The bulk of the proposals are recommendations for State legislative and administrative action. The State can do much now to improve its energy future, and it makes little sense to rely unduly on the flux that is federal energy policy. However, the State cannot, acting on its own initiative, resolve the full range of its energy problems. National and international forces constrain the State's ability to act. There is then a need to develop an agenda for federal action that would, if implemented, fashion and refashion national policies to further reflect State energy interests. For that reason, the Plan's proposals cover Federal, as well as State, legislative and administrative actions.

The substantial impact which conservation could have in improving the State's energy future is the reason why conservation is treated somewhat differently in the Plan than other supply options. As in all other units, a series of conservation proposals are endorsed. But, in addition, there is a discussion of further actions beyond the proposals that would have additional substantial impacts on future State energy demand. This discussion, termed the "potential case," does not have attached to it specific action proposals. The line between the conservation proposals endorsed by the Plan and the potential conservation case has not been an easy one to draw: in general, however, "potential" options for further conservation are not, at present, as economically or institutionally feasible as the proposals offered for action.

Proposal impacts would vary dramatically: from reducing demand for conventional energy forms below base case forecasts, to significant changes in the role of the State's utilities in carrying out conservation and renewable resource initiatives, to radical shifts in fuel use within particular consuming sectors, to substantial increases in Federal support to relieve burdens imposed on low income households by high energy costs. For fuel mix impacts of the proposals, see Figure 3.

Where possible, estimates of impact on fuel mix, economic indicators and environmental quality have been made. However, the demand dampening impacts of the conservation and renewable resource proposals have not been accounted for in the base case demand forecasts, since these forecasts are based upon current Federal and State policies and programs. The impact of increased conservation and greater market penetration of renewables resulting from implementation of Plan proposals has, however, been determined, and is indicated in the Plan in the proposed case.

#### CONSERVATION

##### *Issues*

Energy conservation is the least expensive, environmentally safest, and most economically beneficial supply option available. The lead times necessary to develop renewable

resources, synthetic fuels, and other supply options limit their usefulness in the next few years. Conservation is one of the few energy supply options that can be used by New York State to create economic benefits within the State as opposed to elsewhere. Consuming out-of-state or foreign oil tends to support jobs elsewhere and draw capital out of the State. Conservation activities create jobs locally, especially in the construction and services industries for the on-site installation of energy conserving materials and devices.

Further, a dollar spent in conserving energy tends to achieve more than a dollar spent in energy production in terms of producing energy at lower costs and providing greater employment. Residential energy conservation may cost less per megawatt than a similar investment in a new nuclear or coal-fired power plant (See Appendix E).

New York State's energy conservation effort is well underway. Energy prices, Federal programs and State initiatives have resulted in significant energy savings.

Since issuance of the Draft Plan, a number of the recommended conservation legislative initiatives have been enacted into law, including:

- Chapter 743 of the Laws of 1979, amending the State Lighting Efficiency for Existing Public Buildings Act of 1978, to extend the mandatory lighting efficiency standard to existing non-residential buildings, using the State Energy Office, local agencies, and self-certification procedures as enforcement mechanisms.
- Chapter 741 of the Laws of 1979, amending the Home Insulation and Energy Conservation Act of 1977 to:
  - ... include as eligible measures furnace and boiler retrofits, furnace and boiler replacements, regardless of the fuel used, and heat pumps;
  - ... extend the program to four-family housing; and
  - ... increase the maximum loan amounts available.
- Chapter 740 of the Laws of 1979, amending the Vehicle and Traffic Law to exempt van pool drivers of non-profit vans from the special licensing requirements needed for bus drivers.
- Enactment through popular referendum in November of the Energy Conservation Through Improved Transportation Bond Issue.

However, additional energy conservation can and should be achieved within New York State over the next fifteen years. Increased use of improved conservation technology, particularly end-use controls, the possibility of an expanded conservation role for utilities, and expanded end-use regulations will be the major directions of energy conservation activity and study during the planning period.

Presented in the Plan are two alternate scenarios that go beyond the base case: the proposed case and the potential case. The proposed case is based on those programs, laws, and regulations that are proposed in this plan as immediate actions to be taken. The demand impact of the proposed case is presented in terms of additional savings over and above the savings of the base case or forecast.

The potential case is based on a set of programs, laws, and regulations which, while technologically feasible, are not proposed in this plan for reasons that are discussed in Section V-B. While not proposed, the potential case is assessed for two reasons. First, it shows the great potential for energy conservation. Second, it allows the reader to place the proposed case savings in perspective vis-a-vis that potential.

The demand impact of the potential case is also stated in terms of savings over those of the base case forecast, but potential case savings are inclusive of proposed case savings.

The proposals highlighted below are contained in the proposed case.

#### Proposals

- Amend the Energy Conservation Construction Code to reflect improvements in energy conservation design and construction practices and equipment effectiveness.

The Energy Conservation Construction Code is based on ASHRAE 90-75 and the Public Service Commission's residential standards. Energy prices have already changed sufficiently to warrant code amendments. Rising energy prices will call for building energy efficiency levels significantly higher than those now required by the Code.

The original Draft Plan proposal was to amend the Law to allow the Energy Commissioner to amend the code. This proposal has been modified to suggest specific code amendments through direct legislative approval pursuant to Sections 11-104(2) and (3) of the Energy Law. These code amendments could net another 5 to 10 percent energy savings in each new building. Annual energy costs could be reduced further by approximately \$50 per home, and approximately two cents per square foot per year in commercial buildings. Additionally, the Energy Commissioner should be authorized to amend the code by regulation to assure that future necessary changes are made promptly.

\* \* \*

- A task force should be established to assess the utility programs instituted elsewhere which broaden the service utilities have provided historically and, if a broader utility role appears advisable, the study should assess the proper institutional arrangements to best effect that new role. Consideration should also be given to inducing utilities to become active purveyors of conservation and renewable resources technologies.

The State's electric and gas utilities, as well as PASNY, should encourage and stimulate conservation and efficient use of energy by their customers. The investor-owned utilities and PASNY must increase efforts to achieve, through rate design and other economic means, efficient use of electric energy in order to minimize energy use, particularly oil use, in electric generation. In addition, consideration should be given to encouraging the utilities to become purveyors of conservation and renewable resource technologies on a broad scale to achieve the State's conservation goal. A task force from the State Energy Office, the Department of Public Service, and the Department of Environmental Conservation should undertake this study.

Among the possible approaches for utility involvement in conservation is for electric utilities to provide end-user assistance in the form of interest free loans for installation of conservation and renewable resource devices in residences as an alternative to investments in new electric capacity.

\* \* \*

- Enact a "Cost-of-Energy" disclosure act to require disclosure of a record of energy bills for existing homes at the time of sale.

Legislation has been introduced in each of the past three sessions requiring disclosure of a record of heating bills for existing homes at the time of sale. The requirement to disclose such information would induce the homeowner to

invest in conservation to improve the marketability of the home.

The essence of the proposal is to provide for disclosure of information that will be useful to the consumer in making a choice between homes on the basis of likely energy costs. Previous heating bills give this information for existing homes.

Since home energy use does vary substantially with the individual occupant's behavior and habits (e.g., practice of thermostat setbacks), information disclosed pursuant to this legislation must be used with care by the prospective buyer. However, this caveat does not detract from the usefulness of the information. Prospective buyers or tenants can utilize the information in much the same way that EPA auto-efficiency ratings are used in automobile purchasing decisions.

\* \* \*

- Amend Section 210 of the New York State Tax Law to provide an additional four percent business tax credit for load management device investments.

Section 210 of the New York State Tax Law currently provides a business tax credit of four percent. The proposal would increase to 8% the credit for business investments in eligible load management devices. Eligible load management devices would include those devices which have the capability to limit electric demand by: load shifting, load shedding and/or load cycling. Selection of an appropriate load management method for a given business depends on the types of loads to be controlled and the magnitude of control desired.

Enactment of this proposal would aid in the goal of reducing electric demand on the utility system, thus potentially reducing utility peak demand capacity or additions. Most New York utilities offer large commercial/industrial customers time-of-day rates which can make these load management devices more economically attractive. But even in the absence of special rates, with the utility demand ratchet these devices are already energy and cost effective.

\* \* \*

Additional proposed State legislative actions are to amend the State's Multiple Dwelling and Multiple Residence Laws to establish minimum temperatures for space heating and domestic hot water.

The proposed Federal legislative agenda calls for: a five-fold expansion of existing U.S Department of Energy weatherization funding; extension of Federal tax credits to cover conservation investments in multifamily housing; increased aid for mass transit; a further increase in mandated automotive mileage standards in progressive steps through 1990; tax incentives for end-users and utility companies to invest in load management devices and equipment; increased funding and flexibility for the Energy Conservation Program for Schools, Hospitals, and Buildings Owned by Units of Local Government and Public Care Institutions; and enactment of the proposed Energy Management Partnership Act.

#### Impact

Figures 10 and 11 are estimates of the energy savings that would result in 1994 from implementation of the proposed case conservation proposals.

The projected energy savings of 128.2 TBTU includes reducing end use oil consumption by 14.6 million barrels annually by 1994. This savings would be 4 percent of the State's forecasted end-use demand in 1994. The 1994 TBTU conservation total would, in fact, increase if the savings in electric utility fuel use were included.

**FIGURE 10**  
**1994 NET ENERGY DEMAND IMPACT—PROPOSED CONSERVATION CASE**

Sector	Total TBTU	Oil			Natural Gas		Electricity	
		TBTU	10 <sup>6</sup> BBL	TBTU	TBTU	BCF	TBTU	10 <sup>9</sup> KWH
Residential	54.5	26.7	4.584	25.7	25.196	2.1	.615	
Commercial	49.5	34.1	5.424	7.5	7.353	7.9	2.308	
Transportation	24.2	24.2	4.611	0.0	0.000	0.0	0.000	
Industrial	0.0	0.0	0.000	0.0	0.000	0.0	0.000	
Total	128.2	85.0	14.619	33.2	32.549	10.0	2.923	

Compared to economic activity under the base case forecast, implementation of the proposed conservation measures will, over the planning period:

- create approximately 29,000 jobs;
- generate on the average approximately \$500 million in annual earnings; and
- save New York consumers on the average about \$445 million in annual energy costs.

*Potential Case*

The potential case presents a scenario of additional conservation actions which, although not presently proposed, would achieve substantial additional savings. Actions considered and evaluated in this scenario include: more stringent energy conservation construction codes applying to both space conditioning systems and building envelopes; a program of mandatory space conditioning, water heating and building envelope retrofits for existing buildings; mandated individual metering of multi-family dwellings; greater improvements in EPA mileage standards; higher tolls for

single occupancy vehicles and lower tolls for carpools; limits on parking in cities; and efficiency standards for industrial processes and equipment.

Potential case savings are shown in Figure 12.

Net demand impacts of both the proposed and potential cases are shown in Figure 13.

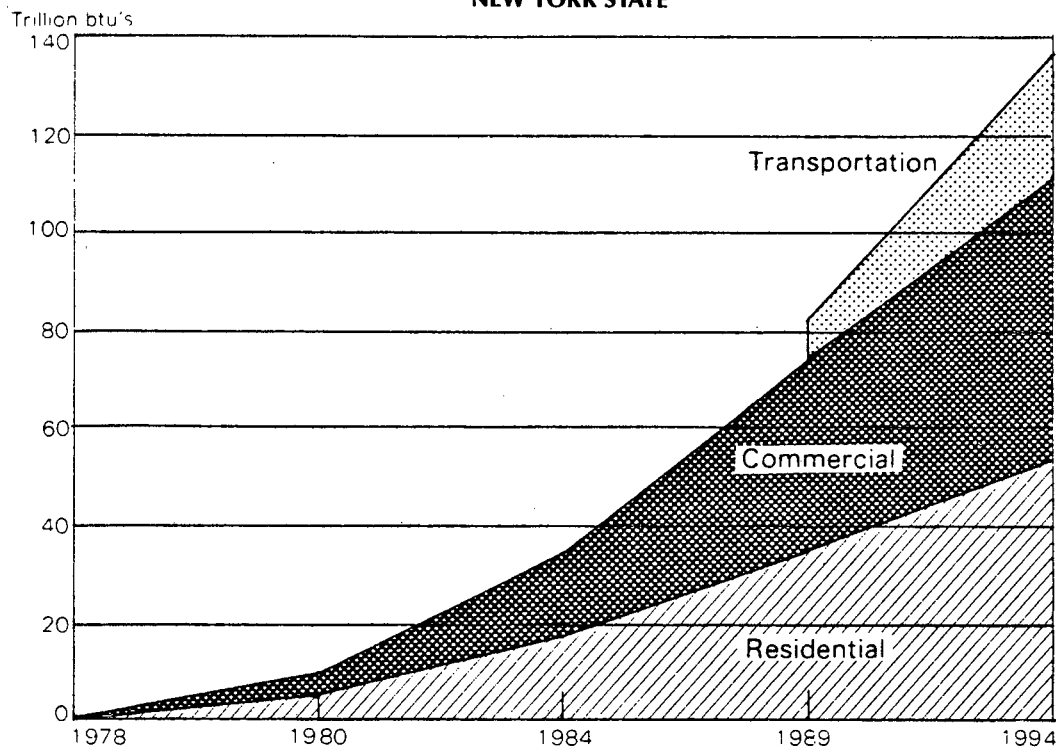
**RENEWABLE RESOURCES**

*Issues*

A renewable energy resource is one that is capable of being replaced by natural cycles and sound management practices. The term "renewable energy resources" includes many energy forms: active and passive solar energy, solar photovoltaics, wind, hydroelectric power, and biomass in all its forms (wood, refuse, agricultural waste, energy crops, etc.). Cogeneration technologies are included in the discussion because these technologies face many of the same barriers to their use as do renewables.

Besides providing new energy resources, the development

**FIGURE 11**  
**CONSERVATION SAVINGS (PROPOSED CASE)**  
**NEW YORK STATE**



**FIGURE 12**  
**1994 NET ENERGY DEMAND IMPACT—POTENTIAL CASE**  
**(INCLUSIVE OF PROPOSED CASE IMPACT)**

Sector	Total TBTU	Oil		Natural Gas		Electricity	
		TBTU	10 <sup>6</sup> BBL	TBTU	BCF	TBTU	10 <sup>9</sup> KWH
Residential	102.7	44.1	7.571	54.2	53.137	4.4	1.290
Commercial	151.4	108.3	17.226	19.4	19.020	23.7	6.939
Transportation	57.0	57.0	10.861	0.0	0.000	0.0	0.000
Industrial	40.0	10.5	1.673	10.0	9.804	19.5	5.709
<b>Total</b>	<b>351.1</b>	<b>219.9</b>	<b>37.331</b>	<b>83.6</b>	<b>81.961</b>	<b>47.6</b>	<b>13.938</b>

of renewable resources will create new job opportunities in the State.

Several factors inhibit the use of renewable energy resources, but perhaps the greatest problem is the current price structure for conventional fuels. Current energy prices generally reflect the average cost of producing energy. Current prices do not distinguish the 'lower' energy costs of older sources from the 'higher' costs of new or yet to be discovered sources. Average cost pricing of new conventional energy facilities discriminates heavily against the renewable technologies that are not similarly treated. While many renewables are able to compete economically with newly discovered conventional fuels (e.g. newly discovered outer-continental shelf oil) on a marginal cost basis, renewables are not generally competitive with averaged costs of those same fuels.

Primarily as a result of increased energy prices and current State and federal programs, renewable resources will make a moderate but growing contribution to the State's fuel mix over the next fifteen years. However, an additional contribution to the State's fuel mix could be made if the cost prob-

lem discussed above is addressed and if certain regulatory and institutional changes are made.

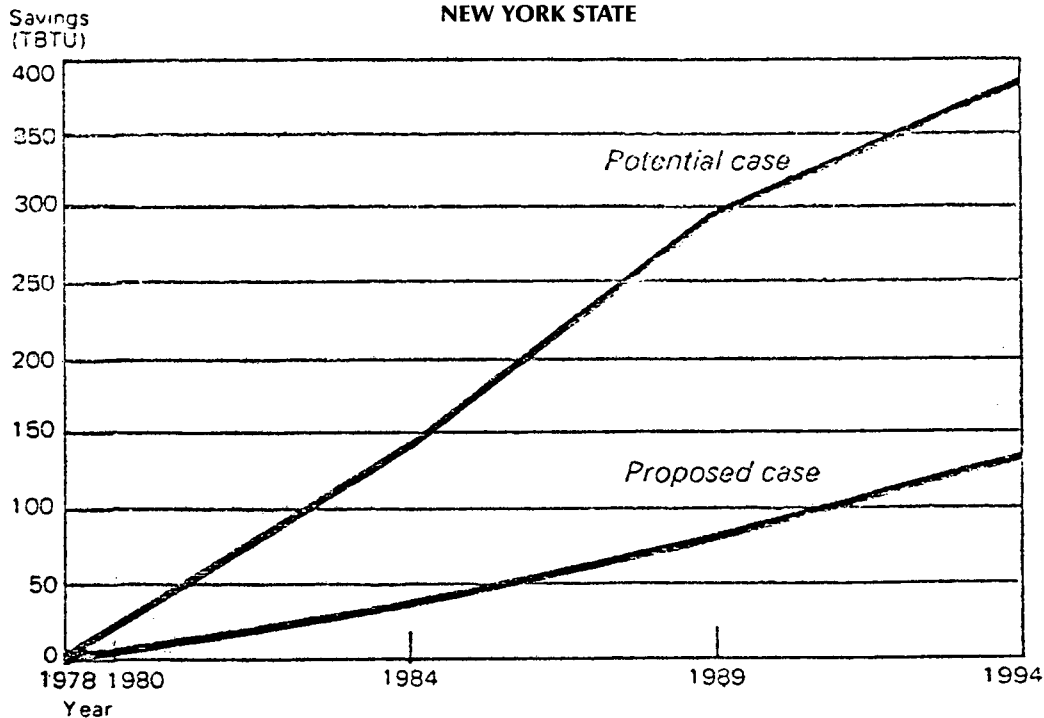
*Proposals*

- Amend Section 210 of the New York State Tax Law to provide an additional four percent business tax credit for renewable resource investments.

Section 210 of the New York State Tax Law currently provides a business tax credit of four percent. The existing credit for business investments in eligible renewable resource technologies should be doubled to a maximum of eight percent. Eligible renewable resource technologies would include equipment used in active and passive solar systems, small hydroelectric projects, cogeneration systems, wood boilers, resource recovery systems, wind turbines, and other types of equipment as specified by regulations of the Commissioner of the New York State Energy Office.

Enactment of the proposal would aid the elimination of financial barriers inhibiting business investment in renewable resources, directly and indirectly create additional jobs

**FIGURE 13**  
**NET DEMAND IMPACTS**  
**NEW YORK STATE**





within New York State, reduce the flow of energy capital from New York State, displace the use of oil within New York business establishments, and aid Statewide business development.

\* \* \*

- Amend the New York State Public Service Law to exempt certain non-utility owned alternate energy production facilities from Public Service Commission jurisdiction.

The Public Service Law should be amended to exempt certain energy production facilities, including those using conventional energy sources more efficiently and those using renewable energy resources, as well as their owners, from the regulatory jurisdiction of the Public Service Commission. These exemptions should ease the concerns of some potential alternate energy producers, who are reluctant to enter into production activities because of the possibility of PSC regulation. Although the primary business activities of potential alternate energy producers are unrelated to the furnishing of energy supplies, the breadth of PSC authority combined with the case by case nature of the exercise of jurisdiction create uncertainty which may well inhibit investments in alternate energy production facilities. And, most important, regulation is likely to be unnecessary because these producers will not have substantial monopoly power.

\* \* \*

- Amend the New York State Home Insulation and Energy Conservation Act of 1977 to include as a minimum those measures necessary to bring the program into conformance with the Federal Residential Conservation Service Program.

The Home Insulation and Energy Conservation Act of 1977 currently requires regulated gas and electric utilities within New York State to conduct energy audits and provide low interest financing for specified energy conservation measures which includes wood furnaces, upon the request of residential customers. The statute should be amended to include active and passive solar systems and wind energy systems, as defined by the regulations implementing the federal Residential Conservation Services Program, as measures to be financed by the utilities and require that residential audits conducted by the utilities provide the cost, payback period, and energy savings of such equipment.

The National Energy Conservation Policy Act of 1978 establishes a Residential Utility Conservation Service Program requiring utilities to offer energy audits to residential customers identifying appropriate energy conservation and solar energy measures and estimating their likely costs and savings. Utilities are also required to arrange financing of any such measures. The regulations issued by the Department of Energy to establish this program indicate that the solar measures will include active solar hot water and space heat, passive space heat, and wind systems.

\* \* \*

- Amend the New York State Tax Law to exempt active and passive solar, wood, and wind energy systems from state and local sales taxation.

All solar, wood, and wind energy equipment sold within New York State is currently subject to imposition of a 4% State sales tax. Under the New York State Tax Law, localities in the State can include an additional sales tax of up to 4% on such systems. Therefore, up to 8% of the cost of solar, wind, and wood systems can concurrently be subject to the sales tax.

The New York State Tax Law should be amended to exempt active and passive solar, wood, and wind energy systems from State and local sales taxation. Elimination of the sales tax will help reduce the high front end costs of these systems and promote the increased use of solar, wind, and wood technologies.

\* \* \*

- Amend Section 606 of the New York State Tax Law to provide a refundable personal income tax credit for the purchase and installation of active and passive solar energy systems for use in residences.

New York State should provide a personal income tax credit for the purchase and installation of residential active and passive solar energy systems in the amount of 25 percent of the first \$2000 and 15 percent of the next \$8000 expended. The State credit should be refundable so as not to unduly bias the credit toward higher income groups.

The proposed State tax credit would supplement the existing federal tax credit and make solar investments more attractive within New York State. A recent study conducted by the Polytechnic Institute of New York showed that the rate of return on investment in a \$2400 solar hot water system installed downstate increased from 19.6 percent without the State tax credit to 46.1 percent with the credit.

\* \* \*

- Enact State legislation to facilitate implementation of resource recovery projects.

State legislation should be enacted to remove existing impediments to resource recovery implementation and to provide new incentives for such projects. Passage of such legislation would provide municipalities with the flexibility needed to utilize the emerging technology of resource recovery in the manner most appropriate to each specific situation.

The proposed legislation should include provisions to:

1. Authorize municipalities to award contracts to resource recovery facilities through the evaluation of contractor proposals based on performance criteria, rather than solely on the comparison of bid prices submitted for a pre-selected technology.
2. Give sponsors of certain recovery facilities the option to obtain individual permits from separate state and local agencies, rather than through one approval through the siting procedures of the Public Service Law;
3. Modify siting and tonnage restrictions placed on New York City by existing statutes; and
4. Give New York City the authority to pass a local law governing the disposition of certain waste generated within its boundaries.

These and other similar provisions of legislation would give municipalities the ability to better implement resource recovery. The expanded procurement alternatives and the ability to select the most expeditious approval procedure should facilitate more rapid implementation of resource recovery. These factors should result in greater tonnage being processed and increase the amount of energy that can be recovered.

\* \* \*

An additional State legislative recommendation calls for amending the Public Authorities Law to authorize PASNY to finance municipal investments in resource recovery and small hydro projects.

To further enhance renewable resource use, certain actions

should be taken by State agencies within existing statutory mandates. Most important, among these are:

- The Public Service Commission (PSC) should assure that reasonable back-up rates are provided to customers using solar and wind energy systems;
- The Department of Environmental Conservation (DEC) should develop a standardized Environmental Impact Statement (EIS) for cogeneration facilities under the State Environmental Quality Review Act (SEQRA); and
- The Power Authority of the State of New York (PASNY) should expand its small hydro program and investigate the feasibility of owning and operating cogeneration facilities.

The recommended federal actions include: extending existing income tax credits to include passive systems; establishing national performance standards for all solar systems; establishing a national solar bank to subsidize and finance residential and commercial solar installations; extending tax credits to builders of solar equipped buildings; extending the federal residential energy conservation tax credit to cover wood stoves and furnaces; establishing a \$50 million wood fuel research, development and demonstration fund; and making permanent the excise tax exemption for gasohol.

#### Impact

Figure 14, below, compares 1994 estimates of the additional energy contribution of the major renewables with and without implementation of the proposals. For example, if

**FIGURE 14**  
**ENERGY CONTRIBUTION OF RENEWABLE RESOURCES IN NEW YORK STATE**

	(Additions by 1994)	
	<u>Base Case</u>	<u>Proposed Case</u> ( <u>impact over Base Case</u> )
Solar	.3 TBTU	5.5
Wood/Biomass	21.3 TBTU	38.3
Resource Recovery		
Electricity	266 MW	292
Steam	24.0 TBTU	15.8
Small Hydro	725 MW	325
Cogeneration		
Electricity	221.6 MW	337.4
Steam	15.0 TBTU	23.4

the solar proposals are implemented, a total of 5.8 TBTU would be provided by solar in addition to its current contribution.

The equivalent displacement of oil by solar and wood by 1994 would be 6.3 million barrels annually for the base case and an additional 6.2 million barrels of oil in 1994 if the recommended actions are implemented—thereby reducing current consumption by the equivalent of 12.5 million barrels.

By 1994 implementation of the proposed residential wood and solar measures (i.e. the direct uses of renewables) will:

- create approximately 10,856 additional jobs; and
- generate about \$195 million in additional personal income.

## NATURAL GAS

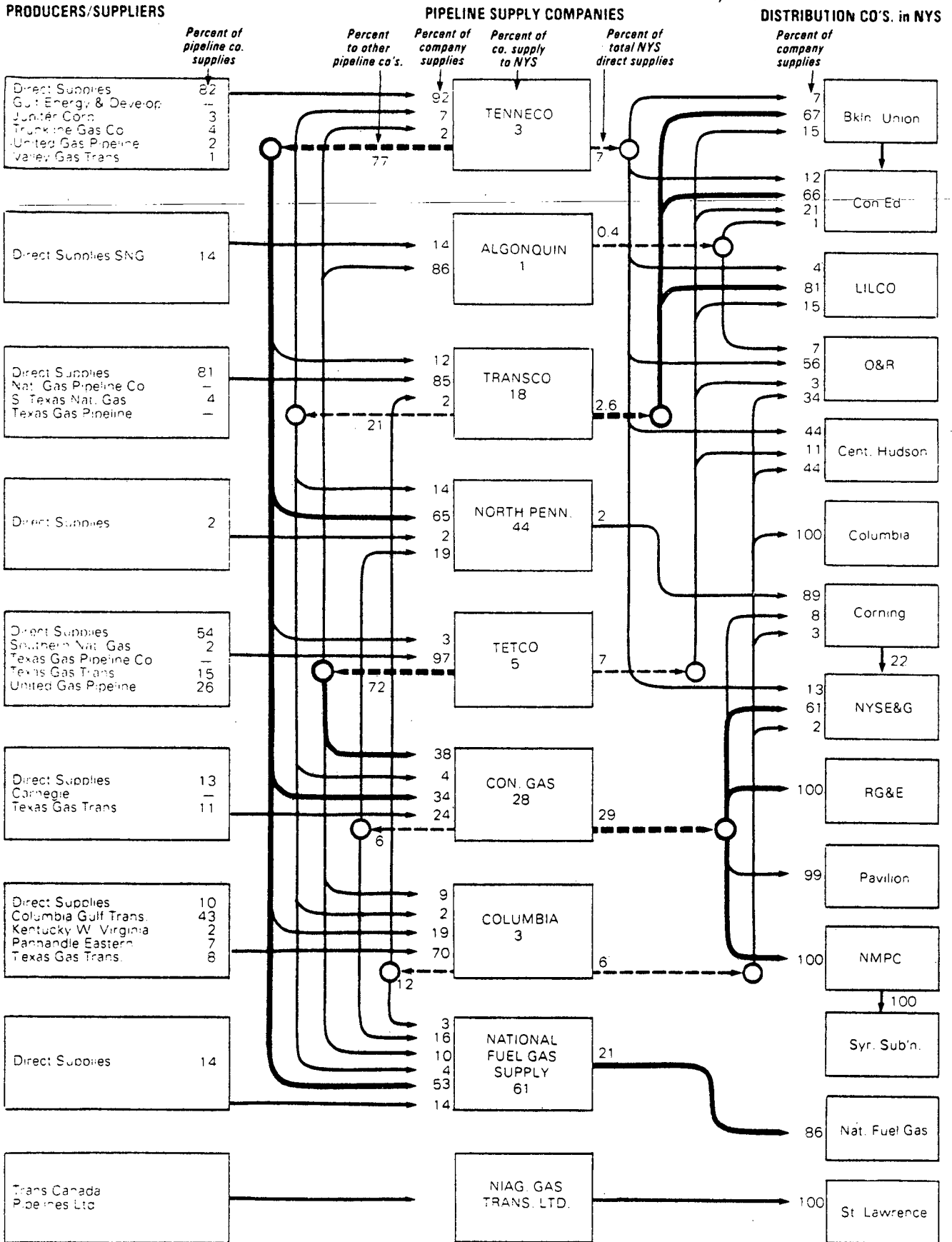
### Issues

Natural gas deserves priority in fuel mix planning.

- Natural gas is the cleanest, most efficient burning major source of energy.
- The present capacity of the interstate and intrastate distribution networks is under-used. Use of this system, as depicted in Figure 15, can be increased, delivering more energy at lower unit cost. The natural gas delivery system already provides consumers with energy at a significant cost savings compared to other energy delivery systems.
- The system is underground, out of sight, nearly fully automated, and gas mains can be installed with a minimum of environmental impact.
- Future sources of natural gas are diverse and include the North American continent, conventional, unconventional, and renewable sources.
- New York's consumption of natural gas is below the national average, accounting for 14.2 percent of primary energy consumption in the State, compared to 26.4 percent for the Nation.
- The Nation imports almost 44 percent of its oil and only 5% of its gas.

Forecasted end-use demand in the base case increases from 571 TBTU in 1978 to 714 TBTU in 1994. Most of this increased use would offset consumption of imported petroleum, resulting in both economic and environmental benefits to the people of the State. It is likely (but not assured) that through the planning period natural gas will be demand constrained. As constraints are lifted, demand will increase.

**FIGURE 15**  
**FLOW DIAGRAM: ULTIMATE SOURCES OF NATURAL GAS SUPPLY, NYS**



## Footnotes to Flow Diagram

(1) Figures do not necessarily add as they were obtained from several sources; the relative proportions give a good indication of flow volumes.

(2) Percent of Company Supplies: indicates the percentages of *total* sources for that Company and percentages of total available sources supplied to other pipeline companies. (All of these companies also supply other states.)

(3) Percent of Company Supply to New York State: indicates the percentage of available supplies which that company supplies to New York State. (The difference between the percent of supplies to other pipelines plus the percentage to New York State and 100 percent is the percentage of that companies requirements for other states.)

(4) Percent of total New York State direct supplies: indicates the percentage of total New York State *direct* supplies which come therefrom. Reliance on these figures, however, could be misleading because considering the interconnections between supply companies, actual major *indirect* supplies to New York are somewhat different (see Figure V-D-4).

### *New York State Distribution Companies*

Brooklyn Union—The Brooklyn Union Gas Company  
Central Hudson—Central Hudson Gas & Electric Corp.  
Columbia—Columbia Gas of N.Y., Inc.  
Con Ed—Consolidated Edison Co. of N.Y., Inc.  
Corning—Corning Natural Gas Corporation  
LILCO—Long Island Lighting Company  
National Fuel Gas—National Fuel Gas Distribution Corp.  
NYSE&G—New York State Electric and Gas Corp.  
NMPC—Niagara Mohawk Power Corp.  
O&R—Orange & Rockland Utilities, Inc.  
Pavilion—The Pavilion Natural Gas Company  
RG&E—Rochester Gas and Electric Corp.  
St. Lawrence—St. Lawrence Gas Co., Inc.  
Syr. Suburban—Syracuse Suburban Gas Company, Inc.

### *Interstate Pipeline Supply Companies*

Tenneco—Tennessee Gas Pipeline Company  
Algonquin—Algonquin Gas Transmission Company  
Transco—Transcontinental Gas Pipe Line Corporation  
North Penn—North Penn Gas Company  
Tetco—Texas Eastern Transmission Corporation  
Con Gas—Consolidated Gas Supply Corporation  
Columbia—Columbia Gas Transmission Corporation  
NFG Supply—National Fuel Gas Supply Corporation

### PROPOSALS

- Natural gas in New York should be priced to consumers in a manner that will (1) encourage New York consumers to rely on natural gas instead of oil in markets where use of gas is an economic alternative to imported oil; (2) encourage efficient use of gas by all gas consumers; and (3) advance the policies and objectives of this Plan.

Pricing may be far more determinative of the extent of interfuel competition than any other factor. This plan seeks to reduce New York State's reliance on oil, and, therefore, pricing of gas supplies and supplemental gas supplies in particular, must consider the interplay between price and consumption of alternative fuels and promote the pattern and extent of gas usage sought by this plan. Pricing schemes which will impede the expanded use of gas must be avoided because of the overriding need to reduce the State's oil dependency.

- \* \* \*
- Gas supplies should be acquired by New York gas distribution companies or interstate pipelines serving New York: (1) whenever they can be delivered to New York markets at a price that will be equal to or less than the delivered price of imported oil; or (2) whenever it is demonstrated that acquisition is in the public interest. Gas rates should be designed, consistent with the pricing policy expressed above, to maximize the use of such gas.

Pricing policy and acquisition policy are closely related. Since gas and oil are directly substitutable fuels in many applications and markets, the appropriateness of acquiring future gas supplies can be judged in reference to the price of oil. While this may raise rates to existing gas customers in the short-term, it will be in the State's long-term best interest because it will both decrease oil dependence and spread the fixed cost of owning and operating the gas systems over a larger sales base as supplies are augmented.

Further, new sources of gas which cost more than oil may be beneficial to a particular region in the State when the interest of all energy consumers in the region are considered and all factors (i.e., job impacts, environmental impacts, security of supply, etc.) are considered. Thus, the application of a benefit-cost test is the only way to determine whether acquiring a new source of gas more expensive than oil is advisable.

- \* \* \*
- NYGAS member companies should form a consortium, possibly in combination with gas utilities in the greater New York-New England area, to pursue acquisition of additional economic gas supplies, including Canadian gas. Competition with interstate pipelines serving New York for the same source of gas should, however, be avoided.

Significant new gas reserves have been found in Canada including frontier areas such as Melville Island. The lack of an adequate transportation system is one obstacle to delivering this gas to market. Another is lack of confidence that a market exists. An LNG mode is being proposed for delivery of the frontier gas to St. John or the St. Lawrence River area where the gas would be vaporized and transported to the U.S. via pipeline. Additionally, a surplus of gas from conventional sources exists in Canada. As a result, development of these frontier areas, as well as further exploration for additional reserves, is demand-constrained. A blend of gas from different sources (i.e., conventional, high Arctic, polar gas) could be an economically acceptable and reliable supply source by about 1984. A major new market would provide Canada with the incentive to develop these sources and encourage further exploration. However, if supplies are to be secured by 1984, initial agreements with Canadian suppliers must be consummated by 1981. The northeast area represents the closest market to the proposed delivery points for LNG and already has existing supply connections to the Trans-Canadian pipeline.

- \* \* \*
- New York State, through its Congressional Delegation and through agency intervention, should promote the following federal actions to improve U.S. natural gas supplies:
  - ... Expedite development of a reasonable and comprehensive North American gas policy that will facilitate additional exports of economically attractive supplies of gas from Canada and Mexico to the United States.

These countries currently have abundant supplies of nat-

ural gas for which the U.S., because of its proximity and existing trading patterns, is a natural market. Additionally, these countries are much more politically stable than the Middle East.

... Discourage use of gas in boilers that can convert to coal.

The Powerplant and Industrial Fuel Use Act (PIFUA) requires reduction or elimination of gas use at electric powerplants and major fuel burning installations. Preliminary estimates are that by 1985, 1 TCF/yr could be released to new markets, and by 1990, up to 3 TCF/yr—in effect, a significant supplemental source of gas. New York State should, for that reason, encourage rapid implementation of PIFUA in those instances where conversion is economic.

... Elevate R&D priorities and funding levels affecting gas supply projects.

DOE and Congress should increase funding for gas supply research projects. New York should further support firm R&D commitments by DOE and the Gas Research Institute for New York indigenous resources such as Devonian Shale.

... Approve alternate funding approaches, including federal government subsidies, to develop supplemental sources such as coal gasification and the Alaskan pipeline.

The difficulties in developing sources of capital for such supplemental sources is delaying their development. This has occurred because of the substantial risks in developing new supplementals with unproven technologies.

This problem can be ameliorated if the Federal government provides price and sales volume guarantees and/or guarantees of securities issued by entities constructing facilities. Such a system could be financed in whole or in part by the federal Windfall Profits Tax on oil companies. There is no reason why the federal government should not guarantee investments or otherwise foster development through direct subsidy, as it has done for other U.S. industries in the past.

... Deletion of the incremental pricing provisions of the Natural Gas Policy Act.

Incremental pricing is an unwarranted intrusion by the Federal government into retail gas utility ratemaking, something that should, in principle, be left to state regulation. Also, the rationale for incremental pricing is not cost justified.

## PETROLEUM

### Issues

The State's reliance on petroleum products, which accounted for 66% of New York's 1978 energy use, will be reduced significantly over the next 15 years. Conservation, industrial coal conversion, electric utility conversion of oil-fired generation plants to coal, and increased penetration of renewable energy resources, will reduce the total statewide share of oil from 66% to 47%. The total requirement includes energy resources consumed to generate electricity. This reduction in oil consumption over 15 years will represent a considerable improvement in New York's energy mix. Failure to implement the Plan will result in a negligible reduction in total statewide oil use by the end of the planning period.

The United States is dependent on oil for nearly half of its energy needs. Therefore, the Nation and the State must take appropriate action to insure an adequate supply of petroleum products for the future. In establishing policies and

programs to achieve this goal, two critical issues must be addressed—the amount of oil imported and dependence on OPEC nations as a source for that oil. Figure 16 shows the sources of, and distribution system for, petroleum production in the State.

High imports hurt the U.S. economy, because oil imports increase the balance of payments deficit. This negative balance of payments situation devalues the dollar, thus lessening the amount of oil and other foreign goods that can be purchased for the dollar. Therefore, greater amounts of capital leave the U.S. economic system, pushing up the price that must be charged for exports.

The present U.S. economy is tied to oil, yet Federal policy has never dealt head-on with the OPEC cartel. Federal policy simply accepts the OPEC set price. Current policy is aimed at permitting domestic prices to rise to OPEC prices. The high price that must be paid for OPEC oil also escalates consumer prices and stimulates inflation.

### Proposals

New York State has little ability to directly influence oil availability. What leverage the State does have is best applied through active participation in national legislative and regulatory processes. A discussion of the major Federal recommendations follows.

- Establish an extensive international and direct bilateral financing plan to accelerate exploration, development, and production of oil reserves in non-OPEC countries.

Non-OPEC developing nations currently produce only 6% of world oil but contain an estimated 40% of total prospective oil-bearing geological formations. As a group, these nations are already burdened by high levels of debt and a continuing need to borrow heavily to pay for imports required to sustain present growth rates. The oil reserves in the developing countries present a way for these nations to expand economically and are a source of increased worldwide oil supplies, thus weakening OPEC. The United States can assist such nations, in accessing current international sources of funding through the World Bank, International Development Association (IDA), Export-Import Bank, and United Nations development programs, to encourage oil exploration and production. Additionally, a direct bilateral assistance program of grants, loan guarantees, and technological exchange will further stimulate the search for oil, expanding global supplies.

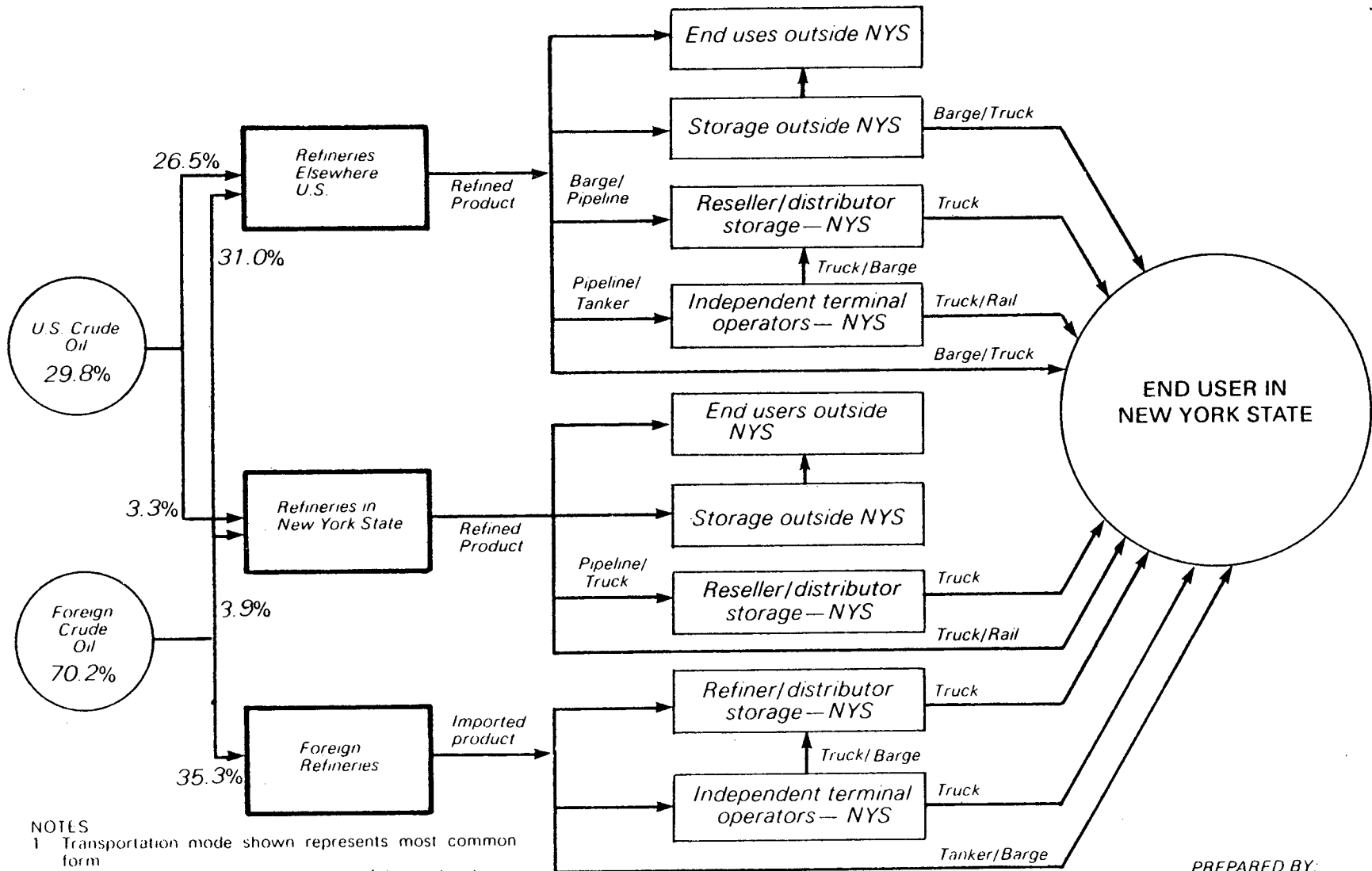
\* \* \* \* \*

- Amend present foreign income tax credit regulations to exclude OPEC production from benefit eligibility, but to allow favorable tax treatment to non-OPEC countries under a new and definitive royalty payment schedule.

The foreign tax credit was added to the Tax Code to avoid the inequities and disincentives to foreign investments by U.S. taxpayers that resulted from a domestic company having to pay taxes to two national governments. OPEC nations have abused the procedure, and their taxing practices are not needed to assure oil production and exploration investment in OPEC countries. Maintaining foreign tax credit eligibility for all non-OPEC countries would create strong incentives for expanding and diversifying (among nations) worldwide crude oil supplies. Revising the foreign tax credit segment of the Tax Code and formulating the definition of foreign royalty in a manner similar to the way domestic royalties are calculated would offer a start in preventing future abuse of this procedure.

\* \* \* \* \*

**FIGURE 16**  
**PETROLEUM PRODUCT DISTRIBUTION SYSTEM**  
**NEW YORK STATE**



24

- NOTES**
1. Transportation mode shown represents most common form
  2. Transportation is often a combination of the modes shown or others
  3. Numbers indicate estimated mix of petroleum products consumed in New York State by crude oil origin and refinery location

PREPARED BY:  
 New York State Energy  
 Office  
 August, 1979

- Negotiation of an agreement with the Canadian government to make Canadian heating oil and crude exports available at prices competitive with domestic supplies.

Canadian policy to achieve energy independence and new discoveries of natural gas have combined to create a 30 MMBBL/D surplus in heating oils, equally split between distillate and residual fuels. The Athabasca tar sands currently yield 50 MMBBL/D and under continued American and Canadian oil company development, are projected to attain a 1 MMBBL/D production level by the end of this century.

United States importers are discouraged from seeking product and crude oil supplies because of the present \$5-\$6/BBL Canadian fee on exports of petroleum. Additionally, the Canadian National Energy Board has implemented a plan to phase out crude oil exports after 1981. To promote trade that will benefit both nations, the Federal government should permanently eliminate all import fees on oil products from Canada and should strive through treaty or negotiations to eliminate or to reduce Canada's export stipend.

\* \* \* \* \*

- Achieving a bilateral agreement with Mexico granting technical assistance in exchange for assurances that a large proportion of its crude oil output will go to the United States.

The national oil company of Mexico estimates proven crude oil reserves at 40.194 billion barrels. The Mexican government's self-imposed decision to limit annual production to no more than one-thirtieth of proved reserves is the primary constraint on extracting this oil. Clearly, a bilateral agreement to exchange excess Mexican oil for American dollars and technology could benefit both nations.

\* \* \* \* \*

- Enacting a Federal program of grants, loan guarantees, preferential tax treatment and technical assistance to develop synthetic crude oil from non-traditional sources.

President Carter, in proposing to Congress the establishment of an Energy Security Corporation, has already recognized the need for such a program. The major source of funds for this federal effort is the proposed industry windfall profits tax. Consequently, if Congress fails to adopt the windfall profits tax proposal, establishment of an Energy Security Corporation is seriously threatened.

Since the Arab Embargo, synthetic crude oil costs have risen similar to OPEC oil import prices. Currently DOE prices oil from shale at \$22 to \$25/BBL, and oil from coal in the upper \$20's/BBL. Industry places synthetic crude oil prices in the \$20 to \$25/BBL range. Even at these high prices, synthetic crude oils appear marginally competitive with spot market purchases from certain OPEC countries. As domestic prices rise and as OPEC raises its prices again, synthetic oils could become more competitive with available traditional oil supplies. Consequently, it is essential that government financial assistance be extended to the industry in a timely manner to assist in meeting synthetic oil front-end cost and expedite development of environmentally acceptable technologies.

\* \* \* \* \*

- Ensure that more federal land becomes available for oil exploration and development through appropriate regulatory actions.
- Ensure that regulatory agencies expedite the leasing and permit process associated with federal lands currently available for oil exploration and development activities.

An estimated 32-60% of all undiscovered domestic crude

oil is located on the Outer Continental Shelf, but only 4-6% of this region has been leased for oil and gas exploration. Despite time lags between leasing and production, these reserves can be delivered to end-users well in advance of synthetic oil dependence on new technologies (i.e., coal liquefaction, tar sands, and shale).

A recent DOE report concludes that time delays between the Department of Interior's request for resource reports on potential locations and the issuing of a lease, average 35 to 44 months. If the site is in a new and sensitive area, the delay may be extended by up to 30 months. Thus, there could be a potential six-year delay that would increase both the cost of oil when it is produced and present U.S. reliance on imports. This situation is unacceptable.

\* \* \* \* \*

Additional federal proposals are: expedite the siting of two distinct west-to-east pipelines to transport Alaskan crude oil from the West Coast to mid-continent and Gulf Coast refineries; expand the Strategic Petroleum Reserve (SPR) from 1.0 billion barrels to 1.4 billion barrels to provide a full year's level of protection against a loss of OPEC imports; and locate a regional petroleum product reserve within New York State to serve the needs of the Northeast during a critical emergency period.

The proposed State actions call for: creation of a task force to evaluate the economic and environmental impacts of extending the Buckeye and Colonial pipelines to the Albany region, and requiring, by regulation, petroleum product suppliers to notify the State Energy Commissioner prior to major market withdrawals.

#### Impact

The federal agenda set forth here could add an estimated 6.2 to 7.4 MMBBL/D to the U.S. oil supply. In turn, these additional supplies could assist in lowering foreign imports by 36-48 percent from 1978 levels. Also, they could substantially reduce the need for OPEC oil. Consequently, New York State, which currently is heavily reliant on foreign oil, would substantially lower its dependence.

#### ELECTRICITY

Use of electricity in New York is projected to increase during the next fifteen years at a rate of approximately 2.1 percent per year. At the same time, the electric system in the State currently suffers from an overdependence on imported oil-fired generation. And, to further emphasize the need for action in the electric sector, there are over 1800 megawatts of currently installed generation which will come due for retirement over the next fifteen years.

The electric plan recommended herein will maintain electric system reliability, substantially reduce oil consumption and substantially increase coal consumption. It will also result in electricity costs which grow significantly slower than the costs of competing conventional fuels.

In this recommended plan, nuclear plant additions are limited to those currently under construction. The "energy strategy" which is an integral part of the plan, is achieved by converting almost 6000MW of existing oil-fired generation to coal, by increasing imports of hydropower from Quebec, by developing additional non-oil generating capacity from solid waste, small hydro, and cogeneration, and by constructing new coal-fired power plants, in excess of those needed to reliably meet peak demand growth, for the purpose of reducing the operation of existing oil-fired plants.

Implementation of this generation plan and maintenance of a reliable electric system will also require upgrading of

the State's electric transmission system. In addition to the generator leads required to connect plants to the grid, upgrading of the transmission system will be required between Hydro Quebec and the New York interconnected system, between the Utica area and the Albany area, and in the Hudson Valley corridor between Albany and New York City.

The electricity generation plan is summarized in Figures 17 and 18.

Adoption of the recommended electric plan would reduce oil consumption in the utility sector by nearly 70 percent, from approximately 89 million barrels per year in 1978 to approximately 28 million barrels in 1994. Coal consumption, on the other hand, would increase from about 8.5 million tons per year currently, to about 31 million tons per year by 1994. Full implementation of the Plan's proposals in all areas would result in further petroleum reduction in the electricity sector to approximately 14 million barrels in 1994.

The change in conventional fuels consumed to generate electricity is shown in Figure 19. Figure 20 shows the changes

which would result in the percentage of electric energy generated by the various conventional fuels.

Figure 21 shows the environmental impact of the electricity supply plan in terms of the environmental residuals created. Environmental residuals are unintended by-products of electricity generation which may affect the environment.

This electricity supply plan is projected to save over \$2.7 billion over the next 15 years, compared to a plan with no coal conversions and only that new coal capacity necessary to satisfy peak demand growth.

This plan will result in electricity prices which grow at 1.8 percent per year above the rate of inflation. This is significantly slower than the projected rate of growth of other conventional fuel prices.

The electricity generation and transmission plans discussed above comprise the major recommended action in the electric sector. However, several additional actions are recommended in this Plan to further improve New York's electric energy posture. They are:

- Increase Niagara Power Project Output

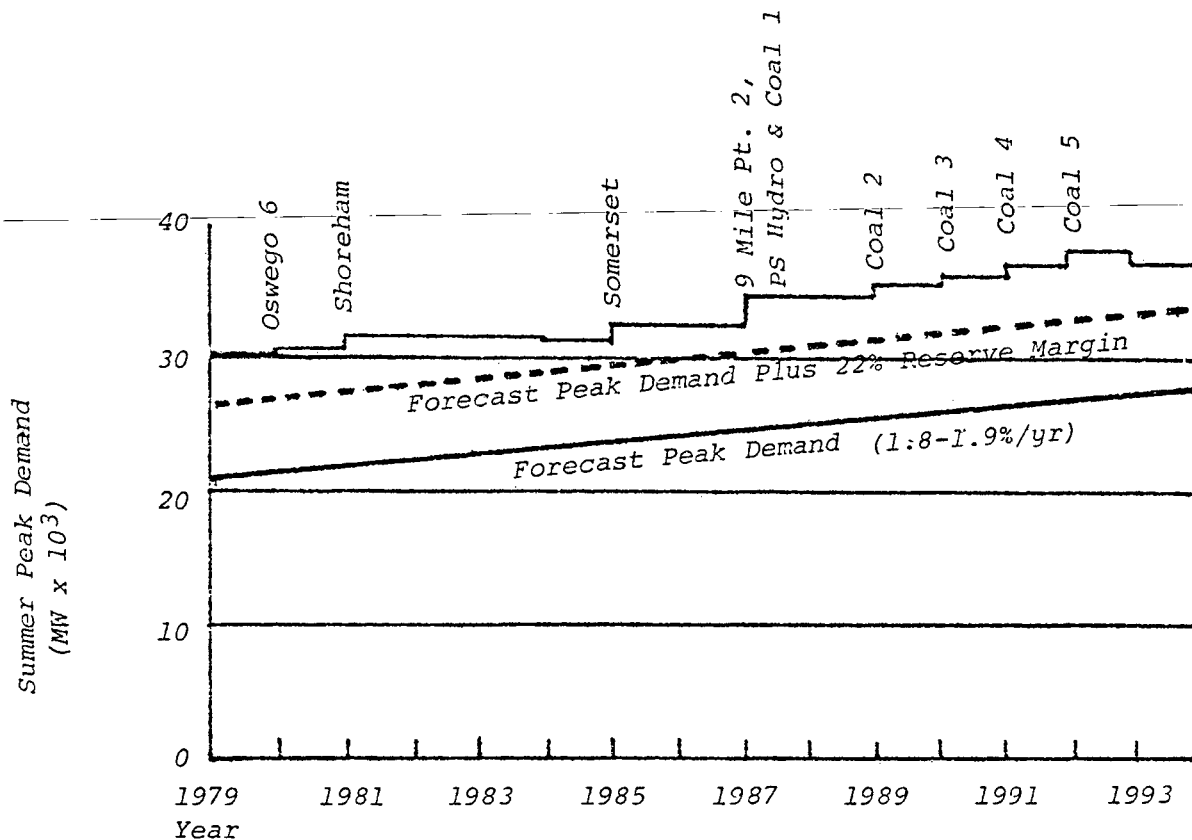
**FIGURE 17  
ELECTRICITY GENERATION PLAN  
(1979-1994)**

<u>New Facilities</u>	<u>Capacity (MW)</u>	<u>Fuel</u>	<u>Date</u>
<u>Under Construction</u>			
Oswego	850	Oil	1980
Shoreham	820	Nuclear	1980
Nine Mile Pt. 2	1080	Nuclear	1984
Somerset	850	Coal	1984
<u>Planned</u>			
Pumped Storage Hydro	1000	Ps Hydro	1987
Coal and/or Coal-RDF (5 units)	3100-3600 MW*	Coal/RDF	1986-1992
<b>TOTAL</b>	<b>7700-8200</b>		
<u>Conversions</u>			
Danskammer 3	122	oil to coal	1982
Danskammer 4	220	oil to coal	1982
Albany 1-4	400	oil to coal	1984
Ravenswood 3	928	oil to coal	1984
Arthur Kill 2	350	oil to coal	1984
Arthur Kill 3	501	oil to coal	1984
Port Jefferson 3&4	380	oil to coal	1984
Lovett 4&5	399	oil to coal	1986
Ravenswood 1&2	770	oil to coal	1987
E.F. Barrett 1&2	380	oil to coal	1988
Northport 1-4	1532	oil to coal	1989
	<u>5982</u>		
<u>Other (cumulative additions)</u>			
<u>Small Hydro</u>	<u>282</u>	<u>402</u>	<u>725</u>
Total (MW)			
<u>Solid Waste</u>	<u>208</u>	<u>298</u>	<u>298</u>
Total (MW)			
<u>Cogeneration</u>	<u>42</u>	<u>132</u>	<u>222</u>
Total (MW)			
<u>Canadian Imports</u>			
	<u>1979-83</u>	<u>1984-87</u>	<u>1988-94</u>
Capacity (MW)	800	800	800
Energy (Billions of KWH per year)	8.0	12.3	6.0

\*600-800 per unit.



**FIGURE 18**  
**ELECTRIC DEMAND AND CAPACITY**  
**1979-1994**



Subject to the provisions of a 1950 treaty between the United States and Canada, at least 100,000 cubic feet per second (CFS) of water must flow over the falls during daylight hours from April through October. The flow at other times may be reduced to 50,000 CFS. The remaining water flow in the Niagara River, which has an average flow of 203,000 CFS, is available for use equally by the two countries to generate electricity.

Various proposals are currently under review which would reduce the falls flow during non-tourist sensitive periods. These proposals could, if mutually agreeable to both countries, increase the generation of electricity from the Niagara facilities by as much as a billion kilowatt hours. This is approximately the equivalent of the output of a 150 MW generating plant operating at a 70 percent capacity factor.

Development of proposals by PASNY should continue as should discussion with appropriate Canadian officials in pursuit of a mutually beneficial agreement to allow greater power production without jeopardizing the tourism value of the Falls.

- Study Future Out-of-State Sales of Hydropower

PASNY currently sells approximately 280MW of low cost hydropower to neighboring states—100MW to Vermont from St. Lawrence; 50MW to Vermont from Niagara; 107MW to Pennsylvania from Niagara; and 23MW to Ohio from Niagara.

This power is sold pursuant to Federal Power Commission licenses and, for the Niagara facility, pursuant to federal laws. The law requires that a "reasonable portion"—up to 10 percent of the project power—is to be sold to neighboring states. Currently the full 10 percent of Niagara power, and over 10 percent of St. Lawrence power, is being sold.

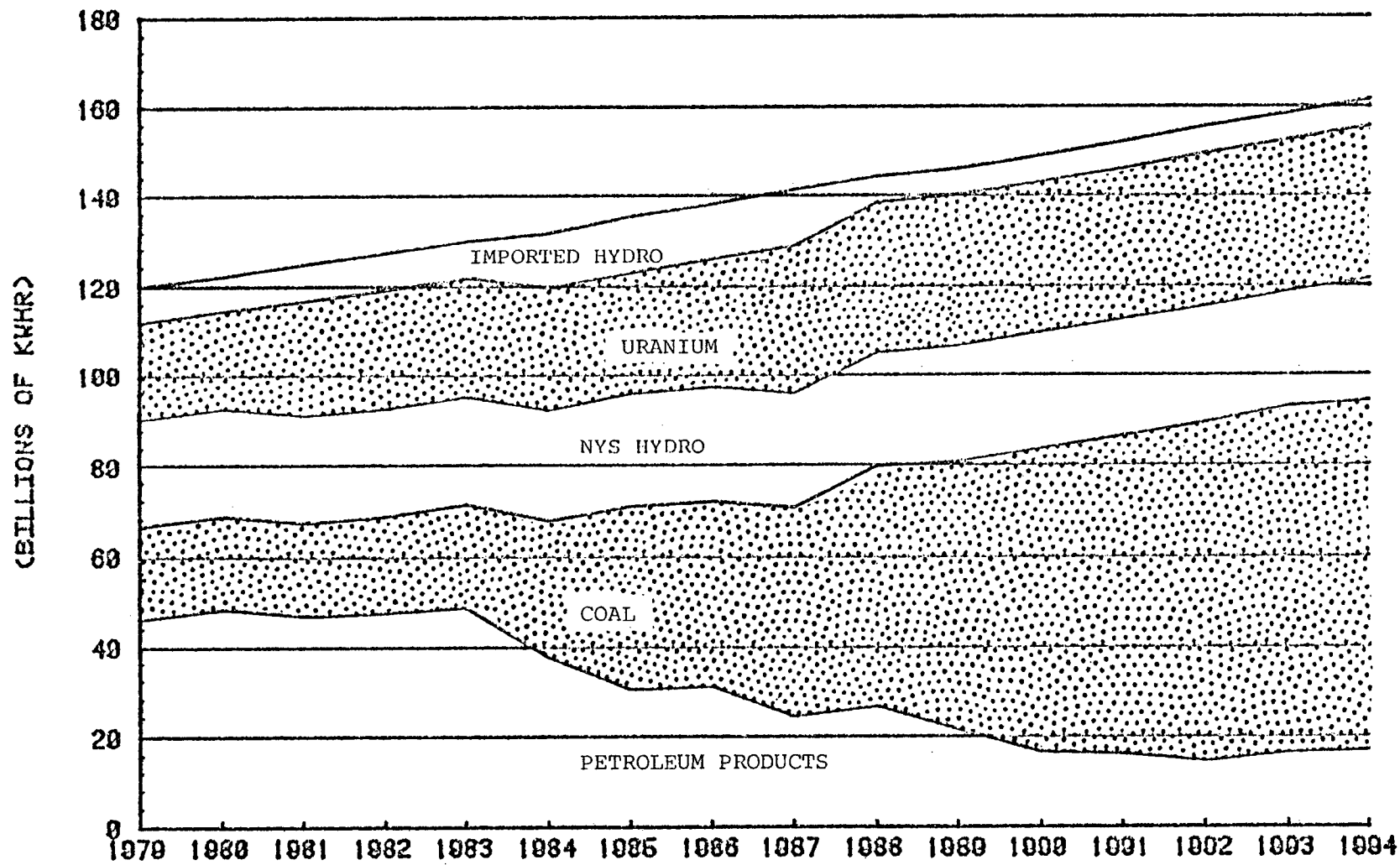
Contracts for sale of Niagara power have recently been renegotiated, to expire in 1985, in a manner such that both firm capacity and electric energy sold to neighboring states is reduced compared to prior years. The St. Lawrence contract with Vermont also expires in 1985.

Since all current contracts expire in 1985, and since circumstances relating to the value of these resources have substantially changed and are continuing to change, a study should be undertaken by PASNY to determine appropriate and reasonable amounts of out-of-state power sales for the future. This study can provide a basis for renegotiation of the Niagara and St. Lawrence contracts in 1985.

- Expand NYSEDA's non-recourse tax-exempt revenue bond program to include financing oil to coal conversion projects to the extent permitted by the Internal Revenue Code.

The Authority is presently authorized to promote the construction of new energy technologies and pollution-abatement modifications on power generating facilities through the issuance of revenue bonds which are exempt

FIGURE 19  
 ELECTRICITY GENERATED BY PRIMARY ENERGY SOURCE  
 NEW YORK STATE (1979-1994)



**FIGURE 20**  
**CAPACITY AND ENERGY CHANGES**  
**1978-1994**

	Installed Generating Capacity		Electric Energy Generated	
	(Percent of Total)		(Percent of Total)	
	1978	1994	1978	1994
Oil	58	31	Oil	44
Coal	12	36	Coal	16
Nuclear	13	15	Nuclear	18
Hydro	17	18	Hydro	22
			Imports	0
				4

from State and Federal taxes, but which are not obligations of the State. Under this program, the Authority has issued more than \$136 million in pollution control bonds to date. This tax-exempt pollution control financing program is a form of Federal subsidy to the State, which ultimately reduces the cost of electricity and gas to consumers. This ERDA revenue bond program should be expanded (consistent with the provisions of the Internal Revenue Code) to include financing of utility oil-to-coal conversions. The extension of such financing to coal conversion can provide significant savings to New York consumers.

- A panel should be created to evaluate fully and comprehensively the status of nuclear power development in the State of New York.

This panel should review all pertinent information, including the reports of all Federal, State and local government entities which have examined issues associated with nuclear power and which reports can aid the work of the panel. Every effort should be made to obtain federal funds for this project. The panel should consist of distinguished scientists, engineers, businessmen, labor leaders, environmentalists and citizens. Upon its creation and funding, the panel should

consider the following, insofar as New York State is concerned, and report to the Board, the Governor and the Legislature.

- Within six months, with respect to:
  - ... Impacts of phase-down or elimination of existing plants and contingency plans to assure adequate electric supplies in case of federally mandated nuclear plant shut-downs;
  - ... Adequacy of emergency evacuation programs; and
  - ... Adequacy of arrangements for secure transportation of nuclear materials.
- Within twelve months, with respect to:
  - ... Feasibility of Federal or other government responsibility for operation of existing nuclear power plants;
  - ... Feasibility of Federal or other government responsibility for construction and operation of new nuclear power plants; and
  - ... Adequacy of current and proposed Federal nuclear waste management programs.
- Increased economic interconnection of New York's electric system with neighboring and distant U.S. systems and all other necessary arrangements to increase purchases of non oil-fired capacity should be vigorously pursued. Congress and the relevant Federal agencies should reduce any constraints that may exist affecting economic power sales between regions.

The Department of Public Service should have principal responsibility for preparation of a study of the potential for economic interconnection and the institutional and transmission system changes that may be necessary to increase economic power transactions. The Energy Office and the New York Power Pool should provide the DPS their full support and cooperation. This study should be completed within six months, and each Planning Board member should

**FIGURE 21**  
**IMPACT OF ELECTRIC GENERATION PLAN ON ENVIRONMENTAL RESIDUALS**

	1978	1984	1994
<u>Non-Radiological</u>			
SO <sub>x</sub> (10 <sup>5</sup> tons)	5.520	5.527	6.619
NO <sub>x</sub> (10 <sup>5</sup> tons)	2.687	2.412	3.221
CO (10 <sup>4</sup> tons)	1.418	1.344	1.904
Particulates (10 <sup>4</sup> tons)	4.698	5.403	8.320
Hydrocarbons (10 <sup>3</sup> tons)	4.953	4.573	6.180
Solid Waste—Ash (10 <sup>5</sup> tons)	8.340	17.26	44.17
Solid Waste—Sludge (10 <sup>5</sup> tons)	—	1.607	40.30
Solid Waste—Land Use (acres)	15.85	35.91	161.2
Thermal Rejection—Air (10 <sup>14</sup> Btu)	1.505	1.371	2.290
Thermal Rejection—Water (10 <sup>14</sup> Btu)	6.390	6.172	7.587
<u>Radiological</u>			
Liquid Effluents <sup>1</sup> (10 <sup>2</sup> curies)	17.64	18.79	21.29
Atmospheric Gaseous <sup>2</sup> (10 <sup>3</sup> curies)	67.32	69.54	83.41
Atmospheric Particulates (curies)	5.694	4.891	7.491
Low-level Waste, Volume (10 <sup>3</sup> cubic meters)	3.817	3.646	4.829
Low-level Waste, Activity (10 <sup>4</sup> curies)	1.618	1.548	2.046
Spent Fuel, Volume (cubic meters)	73.20	73.38	90.78
Whole Body Dose (10 <sup>2</sup> Man-rem)	3.547	3.560	4.397

<sup>1</sup>Tritium and non-tritium.

<sup>2</sup>Tritium, C-14, Radioiodine, Noble Gases (Krypton-85 and others).

be kept informed periodically of the progress of the study. The State Siting Boards, in their review of new applications for construction of facilities, should also evaluate fully the potential for capacity contributions which might reasonably result from improved economic regional interconnection.

- A detailed and comprehensive study of the cumulative impacts of the coal conversion and construction program contained herein should be undertaken.

Principal responsibility for preparation of this study should rest with the Department of Environmental Conservation, who should work in consultation with the Department of Public Service, the Energy Office and the Department of Transportation. Upon completion of this study, which should be submitted as soon as possible consistent with the necessity to coordinate fully with related Federal studies, the full range of coal conversion targets contained herein should be reviewed.

- NYSERDA, with support and cooperation from SEO and the Department of Public Service, should support projects to demonstrate the potential for use of coal-oil mixtures at baseload oil-fired generating stations where conversion to direct combustion of coal is infeasible.
- As a matter of State policy, no transmission line importing power should traverse the Adirondack Park in violation of Article 14, or any other applicable environmental laws, or in such a manner as will cause degradation to the environmental quality and open space character of the Park.

## COAL

### Issues

Coal is the only *fossil* fuel with known reserves capable of meeting both State and national energy needs for many years into the future. Over the last fifteen years, however, coal has become a less attractive energy source for a number of reasons. The most significant has been the cost to use it. Although the price of coal, on a heat content basis, may be as little as one-third that of oil, additional equipment needed to move and handle coal, larger boiler requirements, and more extensive pollution control needs often raise coal consumption costs beyond those of other fuels.

The greatest opportunity for increased coal use in the near-term is in the generation of electricity. Beyond 1985, the greatest potential for coal use is in the development of a coal-based synthetic fuels industry. In both cases, a reduction in the use of imported petroleum products will result. This will also enable the State to tap a more secure energy source at more acceptable, and more controllable prices.

Increased coal use in the State also increases the potential for air, water and land pollution. However, in all cases conformance with environmental standards must be achieved.

### Proposals

- Convert existing baseload oil-fired power plants to coal, where economically and environmentally possible.

Candidate facilities for conversion are: Danskammer #3 and #4, Albany #1-#4, Ravenswood #3, Arthur Kill #2 and #3, Port Jefferson #3 and #4, Lovett #4 and #5, Ravenswood #1 and #2, E. F. Barrett #1 and #2, and Northport #1-#4.

The State now uses oil for 44 percent of its electric energy requirements and approximately 90 percent of this oil is from foreign sources. Conversion of existing oil-fired generation to coal where possible will not only reduce oil dependence but generally decrease the costs of electricity to the residents of the State.

The utility companies in the State recognize the importance of these coal conversions and many already have efforts underway to achieve these objectives.

- \* \* \*
- NYSERDA, with support and cooperation from SEO and DPS, should support projects to demonstrate the potential for use of coal-oil mixtures at baseload oil-fired generating stations where conversion to direct combustion of coal is infeasible.

While there are many oil-fired units in New York where conversion to direct combustion of coal should be pursued, there remains a significant amount of oil-fired capacity which, due to engineering, economic or environmental constraints, may not be able to be converted. The potential for reducing oil consumption at these units through use of coal-oil mixtures as fuel should be explored.

Niagara Mohawk's Oswego generating station (Units #1-6) could be a potential candidate for this venture. If all units at Oswego were to utilize COM, there would be an estimated savings of approximately 10 million barrels of oil per year.

Use of coal-oil mixtures may be a short-term solution to some of our energy problems and may be used while longer term solutions such as synthetic fuels from coal and shale are being developed. Again, the utilities in the State recognize the importance of the use of alternative fuels and many are currently considering efforts to achieve these objectives.

- \* \* \*
- Encourage development of a coal-based synthetic fuels industry in the Northeast by:
    - Enacting the proposed windfall profits tax.
    - Creating the proposed Energy Security Corporation.
    - Enacting the Regional Energy Development Corporation Act of 1979.

The potential production capacity of a national coal-based synthetic fuels industry is quite large, at least insofar as the availability of the resource is concerned. However, several factors introduce considerable uncertainty as to the levels of synthetic fuels production that will be realized during the next several decades.

Cost considerations and venture capital availability are perhaps the greatest uncertainties. Competing energy sources, as well as technology for direct coal combustion, are in many cases, more attractive than synthetic fuels processes at present. There are also many other technological, environmental, socio-economic, and political factors that must be resolved before synthetic fuel production can become a reality.

However, as world oil production inevitably levels off and then falls, coal will have to make up this deficit in imports and also meet the normally expected increase in energy demands. Much of this makeup will likely be in the form of synthetic oil and gas.

Substitutes for natural petroleum and gas need to be created, and because of the long lead times involved, development of appropriate production capability must begin immediately. While these efforts should start at the national level, a regional program for commercializing a synthetic fuels industry, with existing technologies, must be pursued simultaneously to move the Northeast into an era of more secure, reliable, and economic energy supplies. To carry out such a program, the Congress should pass the Regional Energy Development Act of 1979, that would in turn authorize creation of the Energy Corporation of the Northeast

(ENCONO). (See discussion of ENCONO in Energy Financing — Institutional Changes.)

### Impact

Conversions to direct coal burning at all of the units identified would result in an increase in coal consumption of nearly 15.5 million tons per year and an annual decrease in oil consumption of approximately 40 million barrels (based on 1978 actual consumption). This alone is projected to result in a life-cycle cost savings of over \$4 billion.

## RESEARCH AND DEVELOPMENT

Within New York State a vigorous and diverse energy research and development effort is being supported and carried out by a variety of participants. They include the New York State Energy Research and Development Authority (NYSERDA), the New York Gas Group (NYGAS), the Empire State Electric Energy Research Corporation (ESEERCO) and the individual gas and electric utilities.

This ongoing R & D effort involves private engineering and scientific firms, universities, industries, state agencies, and local government. The utility research organizations and NYSERDA also coordinate their work with the two national energy research organizations—the Gas Research Institute (GRI) and the Electric Power Research Institute (EPRI)—and also with the United States Department of Energy (DOE).

The overall purposes of New York's collective energy research and development activities are to:

- Establish ways to use energy more efficiently while reducing waste;
- Produce and distribute energy less expensively; and
- Improve the safety or environmental compatibility of energy production and use.

It is recognized, however, that these goals are being pursued within New York with limited resources compared to the costs of creating new technological solutions to basic energy problems. New York utilities and agencies together spent \$53 million on energy research and development in 1978.

The R & D areas that are the highest priority for the State follow. Some overlap exists among the priorities that the State is encouraging the Federal government to pursue since several of these areas require efforts at both levels. These areas are also identified. The priorities are:

- Developing cleaner and more economic methods of using coal.
- Developing less expensive coal-based "synthetic" fuels, such as coal gasification and liquefaction.
- Conserving energy.
- Developing unconventional gas sources.
- Developing renewable and indigenous resources.
- Recovering industrial waste heat.
- Transmitting DC power.
- Protecting health and the environment.

Meeting New York's energy needs requires the development of all options open to the State. Conservation, renewable energy sources, and indigenous resources are the most attractive means of meeting needs because of their relatively benign environmental impacts and their availability. All resources must be explored, developed and demonstrated, however, to ensure meeting these needs in an economical, safe and environmentally sound fashion. Furthermore,

a balance must be maintained in meeting short-term needs and longer-range goals.

## ENERGY FINANCING — INSTITUTIONAL CHANGES

### Issues

The next fifteen years will require institutional changes in the energy finance field within the nation and New York State. Although conventional securities will be used to finance many energy projects, new financing mechanisms must be developed because of the magnitude of necessary investment dollars.

The cost of developing new energy projects such as synthetic fuel plants is high. In addition, financing will be needed for small power producers constructing renewable resource facilities and for conservation investments. Also, end-users will need funds to finance conservation improvements and small renewable resource items such as wood burning stoves and solar systems. Although some of these potential energy producers and users will obtain conventional financing, others will not.

New York's energy future can be improved if new types of financial institutions and mechanisms are implemented. These include a national synthetic fuel industry with federal financial assistance, as well as the establishment of a Solar and Conservation Bank, a regional energy development entity, ENCONO, and a reorientation of existing State mechanisms such as the Power Authority of the State of New York and the New York Energy Research and Development Authority to channel funds into renewable resources, conservation and coal conversions on the State level.

Actions are needed to ease the financing problems of future energy investments. The following proposals will lessen future energy financing difficulties.

### Proposals

- Congress and the New York State Legislature should enact legislation authorizing the establishment of the Energy Corporation of the Northeast.

Legislation to authorize the creation of the Energy Corporation of the Northeast (ENCONO) is being considered by Congress. If passed, this legislation would authorize ENCONO to be established as a regional energy development authority whose purpose is to finance energy supplies for the Northeast. In addition to Federal legislation authorizing ENCONO, the New York State Legislature should enact a bill enabling New York State to join ENCONO.

ENCONO is designed to be both a planning and a financing mechanism designed to own projects in the start-up phase. After initial development, ownership of the projects will be transferred to others. ENCONO would raise capital by subscriptions from each member state amounting to \$1.00 per capita. States could increase their investments above the initial per capita contribution and capital could be invested by private investors. Once ENCONO's equity base were established, Federally guaranteed bonds up to 15 times the amount of equity could be issued. Thus, ENCONO could develop and fund projects on a regional basis to lessen the Northeast's dependence on foreign oil.

- Enact legislation to provide financial assistance for conversion of existing oil-fired capacity to coal and for construction of new coal-fired capacity to reduce oil dependence.

The need for the United States to decrease its dependence on foreign oil is a national problem with national and

international implications. Therefore, the conversion of existing oil-fired capacity to coal requires Federal policies and funding. Federal legislation which mandates coal conversions should also provide for funding of those conversions. In addition, federal money should be available to utilities which wish to convert other powerplants to coal when such conversion appears to be in the national interest. Presently, the Carter Administration has proposed a two phase 10 billion dollar program for oil reduction in the utility sector by coal conversions and the stimulation of renewables and other non-oil sources to decrease utility oil use.

Four billion dollars has been proposed to be used for utility coal conversions to hasten the coal conversions ordered under the Energy Supply and Environmental Coordination Act (ESECA) and the Power Plant and Industrial Fuel Use Act. This proposal offers New York State and the Northeast needed funding to convert those plants presently under federal coal conversion orders and to shield the ratepayers from the temporary rate increases incurred by the addition of expensive pollution control equipment. An additional six billion dollars has been proposed to stimulate the use of any other technologies, including renewables, to back out oil use in the utility sector.

Such legislation should be enacted and funds appropriated as expeditiously as possible to decrease the use of oil in the utility sector as well as to shield ratepayers from the increased costs of coal conversion.

## **RISING ENERGY COSTS & LOW INCOME HOUSEHOLDS**

### *Issues*

Energy expenditures for all New Yorkers have risen dramatically since 1973. Recent OPEC and national oil pricing actions will drive energy prices higher for New York State residents. For example, the average price of a gallon of home heating oil in New York State rose 334 percent from 20.4 cents per gallon in 1973 to 88.6 cents per gallon by January 1, 1980.

The burden of higher energy costs falls heaviest on low income households. In 1978, the average low income household spent approximately 33 percent of its income on direct energy costs whereas the average median income household spent about 9.6 percent of its income on direct energy costs. It has been estimated that the percentage of income spent by the average low income household on direct energy costs would increase up to 40 percent as a result of a 25 percent rise in energy prices. The same price hike would increase the amount spent on direct energy costs by the average median income household to 11.5 percent of its disposable income.

Since energy is a necessity of life, rising costs may force many low income households into the intolerable choice of staying warm or buying food. This presents a very serious energy and social problem for the federal and state governments.

It is of particular importance to the State of New York and other Northeastern states because low income households within these states are impacted more severely than similar groups nationally. Differences in climate, dependence on oil for residential heating, transportation costs, and the condition of the existing housing stock cause seasonal energy costs within the Northeast to exceed the national average. Figure 22 depicts the dependence on oil consumption for home heating by county in the State. In New York, all households, including those classified as low income, pay about one-third more than the national average for energy.

While recent Federal and State actions have begun to address the problems of rising energy costs faced by low

income households, the following actions are necessary to further alleviate this social problem.

### *Proposals*

- New York State, through its Congressional delegation, should seek increased funding for all Federal programs, including CIP (now the Federal Energy Crisis Assistance Program), which assist low-income households in meeting energy costs, through the use of revenues to be derived from the proposed Windfall Profits Tax and other sources.

The level of funding from the Federal assistance programs, although helpful in easing the burden of low-income households, is inadequate to ensure that these households will be able to afford their essential energy requirements. Increased funding for these programs at the federal level from funds derived from the Windfall Profits Tax and other sources should aid this problem.

\* \* \*

- The Energy Conservation and Production Act should be amended to improve the Department of Energy weatherization program by expanding the number of homes weatherized, increasing the types of items eligible for weatherization assistance, and expanding program spending limitations.

For any federal action, such as the federal energy assistance program, to be cost effective, the thermal integrity of New York homes must be improved. Continued financial aid to the low income population is a must, but without expanding such programs, the potential energy and financial savings to low income persons—and to the State and Federal governments—may never be fully realized.

As of February 19, 1980, DOE regulations stated that a maximum of \$800 may be spent to weatherize each dwelling unit. Included in this \$800 is a set maximum amount allowed to buy repair materials (\$100), before weatherizing begins. Repair materials include, but are not limited to: lumber used to frame or repair windows and doors that could not otherwise be caulked or weatherstripped; roofing materials used to repair leaks that damage insulation installed under the program, replacing furnace parts; and protective materials, such as paint, to seal materials installed under the program. The \$100 repair limit places possible activities such as fuel burner retrofit in direct competition with other necessary measures, such as roof repairs. Program spending constraints of this kind greatly limit the number of energy conserving structural improvements that could be made to a low income home.

The primary aim of the weatherization program should be to lower the fuel bills of low income people. This goal will not be met if the program continues at its present funding level and holds to its present limits.

\* \* \*

- Congress should amend the National Energy Act of 1978 to expand the National Weatherization Program for federally assisted public housing.

The National Energy Act of 1978 authorizes the Department of Housing and Urban Development (HUD) to make grants to finance energy conservation improvement to multi-family projects. Priority is given to projects in financial difficulty because of high energy costs. The Act requires HUD to establish minimum standards for energy conservation in multi-family dwellings and authorizes \$25 million for the program this year.

There are an estimated 160,000 federally subsidized apartments in New York City and 30,000 others located through-



out the State. Many are in a deteriorating condition. To improve such situations and help these low income dwellings conserve energy, a weatherization program is necessary.

An expanded, federally-backed, public housing weatherization program would address the energy conservation needs of more tenant-occupied public housing projects. It would also reduce the amount of fuel cost pass-along that is likely when the rent is raised to cover rising heating and utility costs.

\* \* \*

- Department of Energy should revise its weatherization program regulations to allow funds to be utilized for labor.

The unavailability of an adequate number of laborers under the CETA program to carry out the weatherization

activities limits the program's effectiveness. Moreover, CETA provides little training for the majority of workers, who are often unskilled, and too little pay for those workers who are skilled.

The Department of Labor's budget for FY 1980 proposes over a 50 percent cut in the number of CETA workers, long-term prospects for adequate weatherization in New York and the U.S. as a whole are insecure at best.

Out of the local Community Action Agency budget, DOE regulations allow 30 percent of the grant funds to be used to pay for on-site supervisory personnel and foremen for other program support and administrative costs. DOE should revise its weatherization program regulations to allow local grant funds to be used to pay for weatherization labor. This action would improve the weatherization program by allowing local agencies to fund labor.



## SCHEDULE FOR PLANNING PROCESS

August 7	Draft State Energy Master Plan and Long-Range Electric and Gas Report issued by the State Energy Office	October 4	Planning Board meeting to consider and adopt procedures for the October and November public hearings
August 29	Conference in Albany	October 8	Procedures for the October public hearings issued by the Planning Board
September 5	Submittal of testimony	October 19-27	Public hearings in Albany for questioning of witnesses
September 6	Public hearing in New York City for written or oral statements	November 7-9	
September 10	Public hearing in Syracuse for written or oral statements	November 26	Submittal of initial briefs to the Planning Board.
September 11	Public hearing in Buffalo for written or oral statements	December 5	Submittal of reply briefs to the Planning Board.
September 20	Public hearing in Mineola for written or oral statements	December 12	Energy Planning Board Meeting
September 21	Submittal of rebuttal testimony	January 10-11, 1980	Energy Planning Board Meeting
September 28	Conference in Albany	January 31	Energy Planning Board Meeting
October 2	Submittal by the hearing officer to the Planning Board of recommended procedures for the October and November public hearings	February 4	Final Environmental Impact Statement Issued
		February 8	Energy Planning Board meeting at which the Final Plan was approved



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