Power Authority of the State of New York 1979 Report

"The largest state-owned utility in the nation, the Power Authority is committed to freeing New York from its costly and dangerous dependence on the OPEC cartel."

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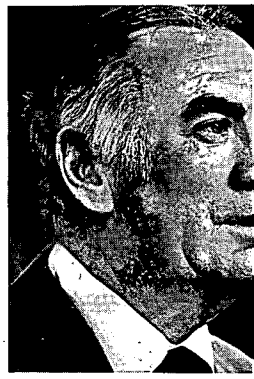
This report discusses activities of the Power Authority of the State of New York during 1979, its 49th year.

The Power Authority of the State of New York is a public benefit corporation of the state which finances, builds and operates electric generating and transmission facilities for purposes specified by the Legislature and Governor.

These projects, built without use of tax monies or state credit, are financed by sale of bonds to private investors. The bonds are repaid and the projects operated using revenues from operations.



Governor Hugh L. Carey

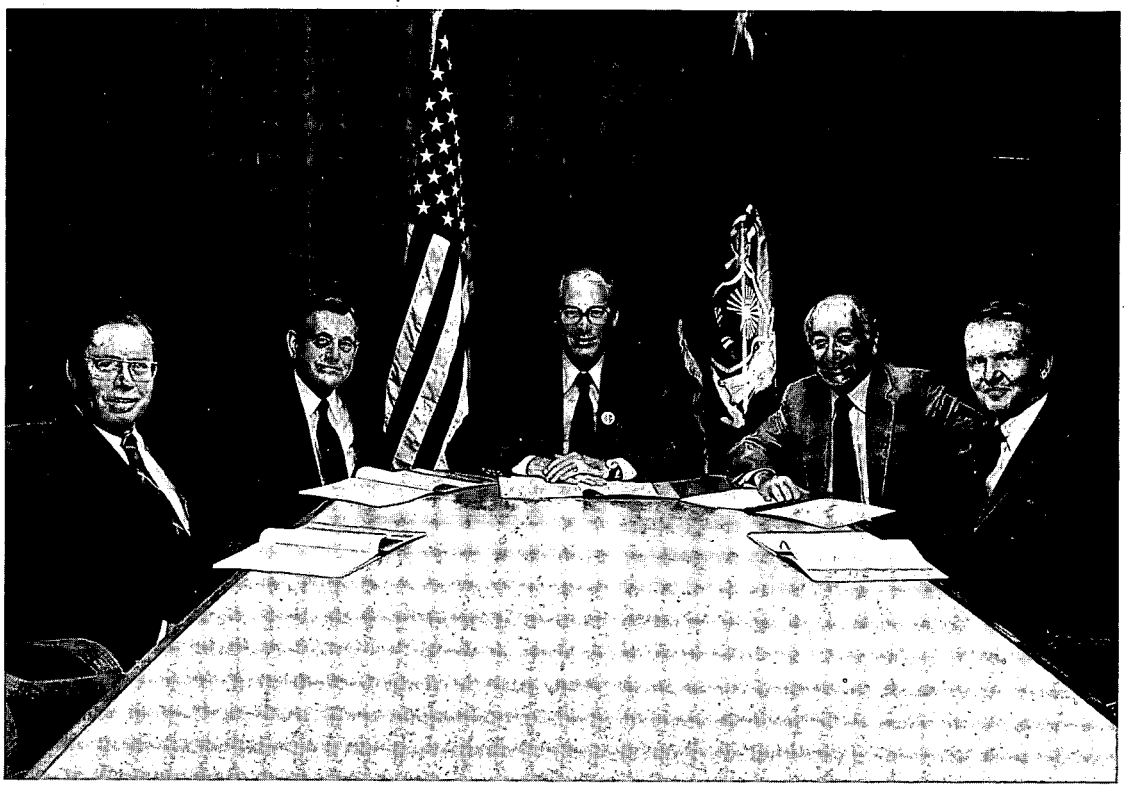
Generating plants include the 800,000-kilowatt St. Lawrence Project near Massena, the 2,400,000-kilowatt Niagara Project near Niagara Falls, the 1,000,000-kilowatt Blenheim-Gilboa Pumped Storage Project in Schoharie County, the 800,000-kilowatt James A. FitzPatrick Nuclear Plant in Oswego County, the 965,000-kilowatt Indian Point 3 Nuclear Plant in Westchester County and the 775,000-kilowatt oil-fired Astoria 6 Plant in New York City.

Transmission lines connect the projects to the New York State power grid, to Vermont and to the Canadian provinces of Quebec and Ontario.

Principally a wholesale power supplier, the Authority sells electricity to municipal systems and rural electric cooperatives, to public agencies in the New York City metropolitan area, to private utilities for resale to their customers and to designated industries, as well as to the Plattsburgh Air Force Base. In accordance with federal law and licenses, allocations of hydroelectric power are provided to neighboring states.

The board of trustees consists of five persons appointed by the Governor with the advice and consent of the State Senate to serve overlapping terms of five years.

Trustees of the Power Authority



Left to right are: Vice Chairman George L. Ingalls, Frederick R. Clark, Chairman John S. Dyson, Robert I. Millonzi, Richard M. Flynn.

John S. Dyson, Chairman
George L. Ingalls, Vice Chairman
Richard M. Flynn, Trustee
Robert I. Millonzi, Trustee
Frederick R. Clark, Trustee

George T. Berry, President and Chief Operating Officer
John W. Boston, Executive Vice President and Director of Power Operations
Joseph R. Schmieder, Executive Vice President and Chief Engineer
Leroy W. Sinclair, Senior Vice President and Chief Financial Officer
Thomas R. Frey, Senior Vice President and General Counsel
Thomas F. McCrann, Jr., Vice President and Controller
John C. Bruel, Secretary

Chairman's Letter

Little more than a hundred years ago, Britain ruled the waves and poets boasted that the sun never set upon the British Empire. Prevailing from the defeat of Napoleon until World War I, this Pax Britannica was succeeded by the emergence of the United States as the nation destined to dominate the course of 20th Century history. During the latter decades of this century, however, a new and most unlikely challenge to American influence has emerged—not China, not Russia, but rather the OPEC cartel dominated by a handful of oil-rich potentates in the Middle East.

Billions of dollars from the United States flow into the coffers of OPEC annually as the most powerful nation in the world pays tribute to desert shiekdoms in return for the vital resource that they control. We have allowed ourselves to become captives of a small band of caliphs and ayatollahs who now control the price and availability of the world's energy supply. If this debilitating dependency continues, the year 2000 may well inaugurate an OPEC century.

The United States now burns over seven million barrels of imported oil a day. The cost of paying for this exorbitant consumption has eroded the bases of our economy. Discretionary capital, investment money that formerly fueled our technological advances, is being diverted from its primary function to subsidize a mixture of useful and wasteful projects half a world away. Costs have soared and productivity declined as funds that could be deployed to revitalize our moribund steel industry or to enable our auto manufacturers to compete with foreign cars, are underwriting the emergence of OPEC as a major political power.

New York State has been a particularly generous contributor to OPEC's well-being. We consume more OPEC oil than any other state and hence are most vulnerable to increases in world oil prices and potential cutoffs of supply. Offsetting this vulnerability to some degree, however, is the unique asset which New York enjoys in its Power Authority. The largest state-owned utility in the nation, the Power Authority is committed to freeing New York from its costly and dangerous dependence on the OPEC cartel.

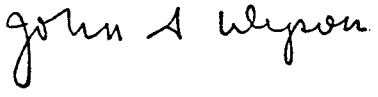
Last year the Power Authority provided one-third of all the electricity used in New York State. Less than six percent of that amount was produced by burning oil in a state where 43 percent of the electricity is generated from oil.

Despite this achievement, New York State has a long way to go on the road to energy self-reliance. The Power Authority is implementing Governor Hugh L. Carey's 10-Point Program designed to reduce New York's dependence on OPEC oil by about 50 percent over the next decade. Measures included in the program—conservation, development of additional hydropower, coal—will stanch the flow of our investment capital into OPEC treasuries.

But the Power Authority by itself cannot avert an OPEC century. It needs the support and cooperation of all New Yorkers to meet the challenge to our freedom and security that OPEC represents.

It also seeks a change in the thinking of various bureaucrats who cite tangles of unreasonable regulations proclaiming what *cannot* or *should not* be done and refuse to become part of *any* solution. Such individuals play, perhaps innocently but most assuredly, into the hands of OPEC, the would-be superpower of the 21st Century.

The Power Authority will not shrink from its duty to the citizens of New York State to supply reliable energy independent of ultimatums from the OPEC cartel.



John S. Dyson
Chairman

10-Point Program

The 10-Point Program, devised by Governor Carey and the Power Authority, is a response to one of the most critical challenges that New York State has faced in the 200 years of its history. Of the over 19 billion gallons of oil consumed annually in the state, about 12 billion are imported.

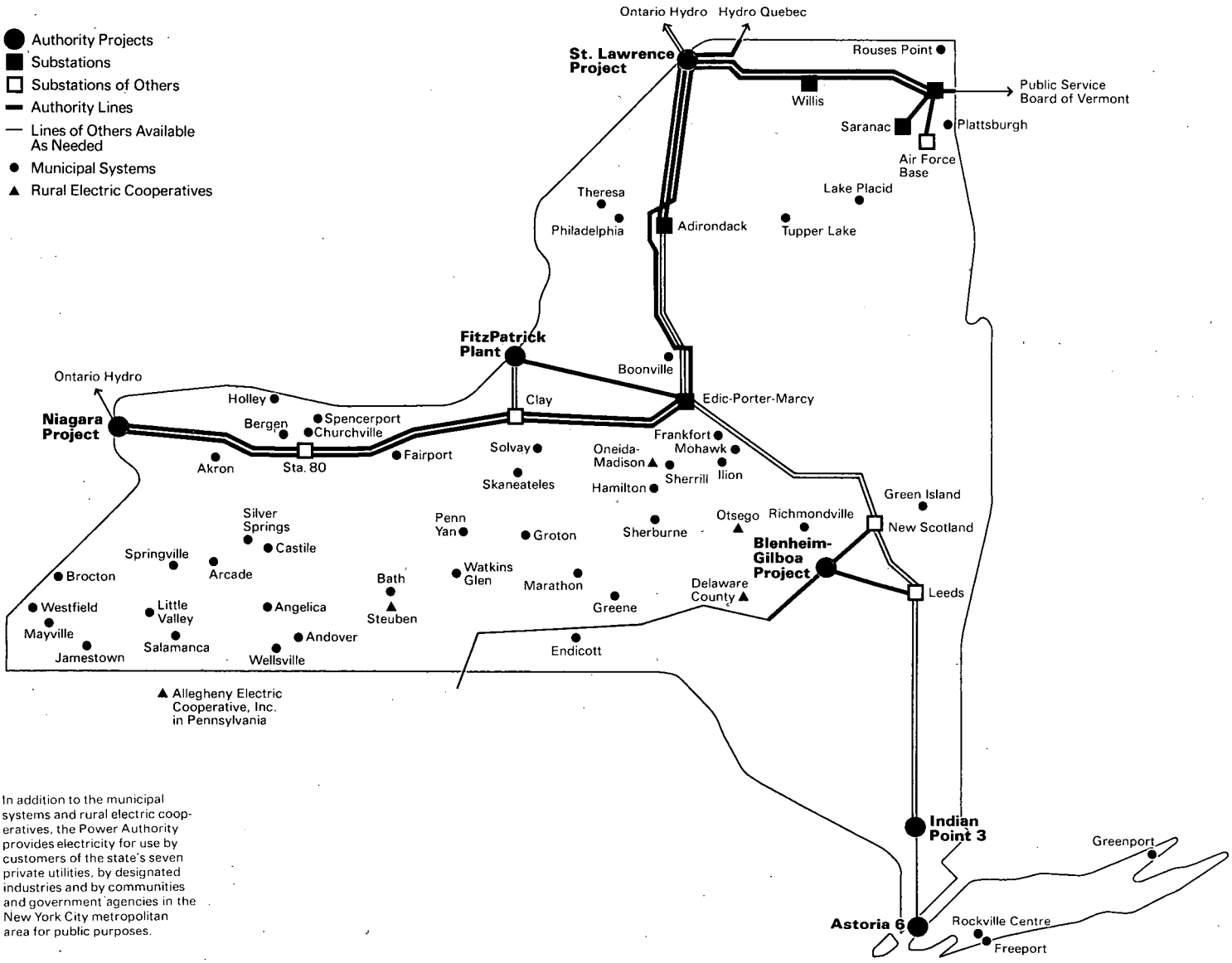
The 10-Point Program encompasses a wide range of solutions to the problem, each not complete in itself, but the 10 in concert promising to reduce New York's oil imports by 50 percent over the next decade.

The Authority plans to play a major role in carrying out the 10-Point Program. Portions of the program have already been implemented, while others await authorization by the State Legislature.

Principal points of the program include:

- *Conservation.* The Authority will help homeowners conserve energy and dollars by providing customers of all the municipal systems and rural electric cooperatives it serves with free "custom-tailored" conservation audits, including projected costs of installing energy-saving devices. A pilot program involving the Villages of Freeport and Rockville Centre features free house inspections by experts. The Authority also hopes to participate in the financing of low-interest loans to permit homeowners to more fully weatherize their homes.
- *Coal Conversion.* Some private utility plants now burning oil can be converted to burn coal, saving 10 to 15 percent of the state's present foreign oil use. At least nine conversions could take place in the next few years.
- *Canadian Hydropower.* Canada represents a major potential source of additional hydropower for New York State. During 1979, the first full year of operation for the Authority's transmission system from the Quebec border to Central New York, more than seven billion kilowatt hours (kwh) were imported from Quebec. Chairman Dyson and Authority staff members have discussed prospects for additional hydroelectric supplies with Quebec, Newfoundland and Maritime Provinces officials.
- *Coal Plants.* The Authority has applied for permits to build a 700,000-kilowatt (kw) coal-and-refuse-fueled plant in the Arthur Kill section of Staten Island in New York City. This plant, scheduled for completion in 1987, would eliminate the need for 300 million gallons of oil a year. Two additional 600,000-kw coal-fired plants should be built within the next 15 years at sites yet to be determined.
- *Natural Gas.* The Authority has recently modified its Astoria 6 plant, its only oil-fueled facility, to also burn natural gas to the extent that gas supplies permit.
- *Hydroelectric Power.* The 10-Point Program envisions development of small hydroelectric facilities in New York State by the Authority and others. The Authority has applied to the Federal Energy Regulatory Commission for licenses to build such projects at two New York City-owned reservoirs in Westchester and Ulster Counties. Authority studies are proceeding at two other sites, one in Oneida and Herkimer Counties, and the other in Albany County. These four projects would produce a total of 20,000 kw of electricity. The Authority has begun studies of additional sites.
- *Resource Recovery.* New York City alone produces over 20,000 tons of burnable garbage each day. As part of its effort to generate electricity from refuse, the Authority has proposed to build small garbage-fueled facilities in each of the boroughs of New York City except Staten Island, which is the location of the proposed coal-and-refuse-fueled plant, as well as at various upstate sites.
- *Prattsville.* The Authority has applied for a federal license to construct a 1,000,000-kw pumped storage hydroelectric project at Prattsville, about 40 miles southwest of Albany.
- *Buffalo Coal Port.* Future consideration will be given to developing a coal port at Buffalo which could handle up to 15 million tons annually in conjunction with other coal projects now contemplated.
- *Alternative Technologies.* Renewable energy resources, among them wood, solar and wind, are under study as possibilities to help reduce our dependence on OPEC oil. The Authority, for example, is studying the feasibility of constructing a wood-burning plant in the Tupper Lake area. In addition, the Authority will help fund a new federal Department of Energy program to produce liquid fuel from coal, the country's most abundant fossil fuel.

Power Authority Network



In addition to the municipal systems and rural electric cooperatives, the Power Authority provides electricity for use by customers of the state's seven private utilities, by designated industries and by communities and government agencies in the New York City metropolitan area for public purposes.

Electric Sales to Municipal Systems and Rural Electric Cooperatives

173 Million Kwh

1959

1982 Million Kwh

1972

3613 Million Kwh

1979

Highlights of the Year

The Power Authority provided more than one-third of the electricity used in New York State during 1979, generating at its baseload plants or importing over a new transmission connection with Quebec a total of 40.4 billion kwh. Less than six percent of the energy was produced by burning oil.

The Authority's baseload hydroelectric projects—St. Lawrence and Niagara—produced almost 23 billion kwh, and its two nuclear plants generated 7.7 billion kwh. Operation of the 765-kilovolt (kv) transmission system from the Canadian border to Marcy for its first full year permitted importation of 7.3 billion kwh from Quebec, while the Authority's Astoria 6 oil-fueled plant was producing 2.4 billion kwh. Additionally, the Blenheim-Gilboa Project supplied 1.17 billion kwh during periods of peak consumer demand.

The output of the baseload hydroelectric projects and the nuclear plants eliminated the need to burn about 51 million barrels of oil—more than two billion gallons—or 12¾ million tons of coal, and the Quebec purchases replaced an additional 12 million barrels of oil or 3 million tons of coal.

The Authority during the year also moved forward in seeking permits to build new facilities to provide electricity in the 1980s, using both traditional and alternate technologies, and in developing a major conservation program in cooperation with the state's public distribution systems.

Hearings were resumed and neared completion on the Authority's proposal to build a 700,000-kw coal-and-refuse-fueled plant equipped with the most efficient and sophisticated pollution controls available. The plant, scheduled for completion in 1987 in the Arthur Kill section of New York City's Staten Island, would save annually more than $150 million and 7 million barrels of oil and would reduce the city's critical garbage landfill requirements.

Federal hearings were scheduled to start in 1980 on the Authority's application to build the 1,000,000-kw Prattsville pumped storage hydroelectric project in the Catskills. Like the present Blenheim-Gilboa Project, it would produce electricity when demand is greatest, principally reducing use of oil-burning generators. Operation is planned in 1987.

The Authority also readied for filing in 1980 applications to build its first two small-scale hydroelectric projects—at Kensico in Westchester County and at Ashokan in Ulster County, both New York City water supply reservoirs. Plans also were being developed to construct similar projects at existing State Department of Transportation facilities.

In August, the trustees elected John S. Dyson chairman and chief executive officer to succeed Frederick R. Clark, who remains a trustee. Mr. Clark previously had announced his intention to resign as chairman because of the demands of other business activities. His tenure as chairman was marked by completion of the Authority's 765-kv transmission line, start of imports of electricity from Quebec, implementation of improved budgeting and management procedures and the beginning of the Authority's small-scale hydroelectric expansion program.

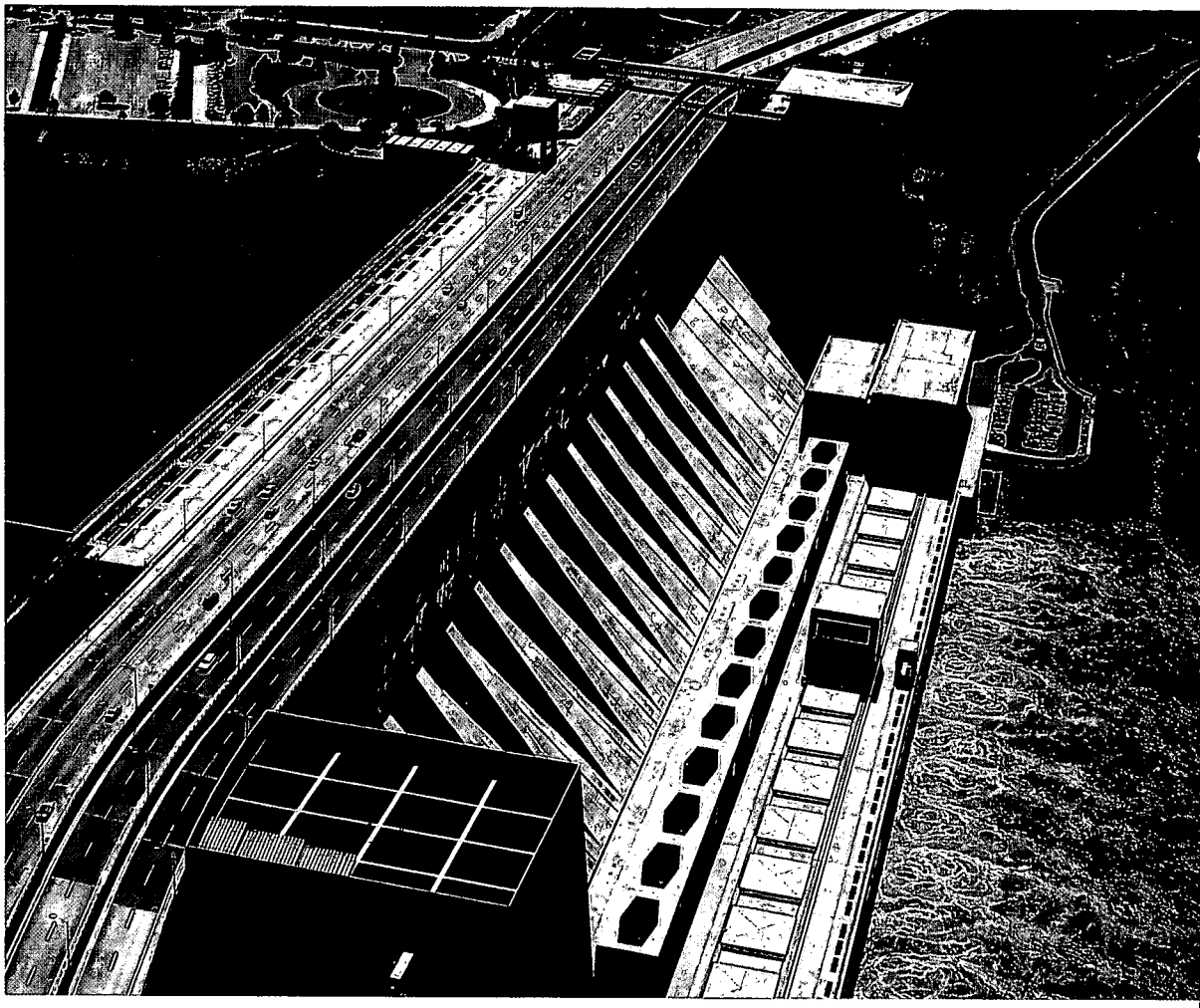
As the result of increased cost estimates and licensing uncertainties, the trustees determined to sell the assets of the proposed Greene County Nuclear Power Plant.

Firm power deliveries were started in 1979 to three Long Island municipal systems—Freeport, Greenport and Rockville Centre, which previously had been provided with Authority-produced power on an interruptible basis.

Although the Niagara power available for growth of the 50 public systems served by the Authority has been allocated, those municipal systems and rural electric cooperatives continuing to increase their electric power consumption received power from the FitzPatrick Plant for the first time in accordance with plans developed in 1968.

During the year, the trustees completed review of sales of hydroelectric power outside New York State. These sales are required by federal law and license. Revised allocations of Niagara power reduced the energy previously sold outside New York. The allocations were made to agencies in Pennsylvania, Vermont and Ohio, the latter acting in behalf of the City of Cleveland.

Niagara Power Project



The Niagara Power Project is the largest producer of electricity in New York State. The plant's units generated 15.8 billion kwh in 1979, increasing its output to about 250 billion kwh since it first produced power in 1961. The 1979 generation would have required burning 26.3 million barrels of oil or 6½ million tons of coal if it had been produced in a fossil-fired plant, raising to more than 416 million barrels of oil or 104 million tons of coal the fossil fuel savings since start of project operation.

The project uses the United States' half of Niagara River water available for power production. A 1950 treaty with Canada, which insures the scenic beauty of Niagara Falls, specifies a flow over the Falls of 100,000 cubic feet per second (cfs) of water during daylight hours in the tourist season and 50,000 cfs the rest of the year.

Canada and the United States produce electricity by sharing the rest of the total Niagara River flow, which averages 204,000 cfs.

The Niagara River drops 326 feet on its 36-mile course from Lake Erie to Lake Ontario, and the project was designed to take advantage of 310 feet of this drop. Water is diverted from the upper Niagara River 2½ miles above the 176-foot-high Falls and then travels through two underground conduits to the powerplants some 4½ miles downstream from the Falls.

The conduits discharge into an open canal and forebay that connect the project's Lewiston Pump-Generating Plant and the main Robert Moses Niagara Power Plant. The Lewiston plant's 12 units, operating as pumps, can lift water which can be stored into an eight-billion gallon reservoir at times when maximum river diversion is available but electrical demand is reduced.

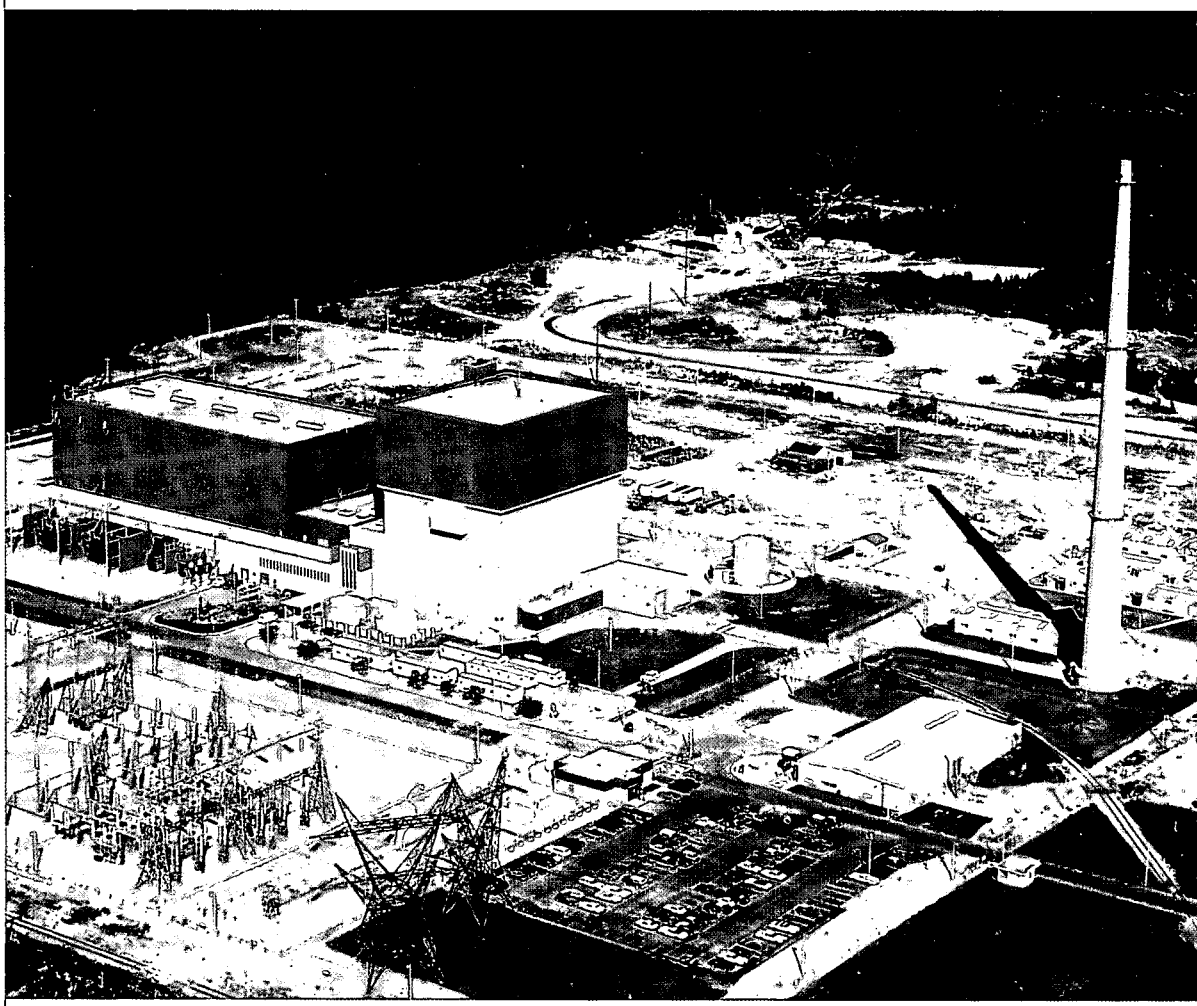
When the need for electricity increases, the units are reversed to become turbine-generators, each with a rating of 20,000 kw. The water released from the reservoir through the turbines produces electricity, then joins the upper river flow from the conduits.

The water flows to the main plant where the energy in its fall is converted to electricity by the turbine-generators. The water then returns to the lower Niagara River.

The two plants have a nameplate rating of 2,190,000 kw but have a firm capability of 2,400,000 kw.

While near-record production levels were maintained in 1979, a major improvement program was begun, involving replacement of turbine runners and armature windings at the pump plant. The program is designed to improve the project's nearly-two-decade record of reliability and efficiency.

James A. FitzPatrick Nuclear Power Plant



The FitzPatrick Plant produced 2.9 billion kwh in 1979, increasing its total output since the start of commercial operation in 1975 to about 17 billion kwh.

The 800,000-kw plant was not in service for almost six months while a reanalysis of potential earthquake forces on certain piping systems was conducted. The plant was one of five in the country on which the U.S. Nuclear Regulatory Commission (NRC) ordered the reanalysis using a different mathematical technique than that employed in the original design.

The reanalysis showed that potential seismic stresses on pipes, nozzles and wall penetrations in each of the 96 systems reviewed were within NRC standards. Less than 70 of about 1,000 pipe supports involved in this reanalysis required modification.

In the aftermath of the Three Mile Island accident, other safety-related modifications have been undertaken at the plant, some operating procedures have been refined and additional staff has been provided. Improved plans that would be used in the event of an emergency are being developed in concert with federal, state and local government officials.

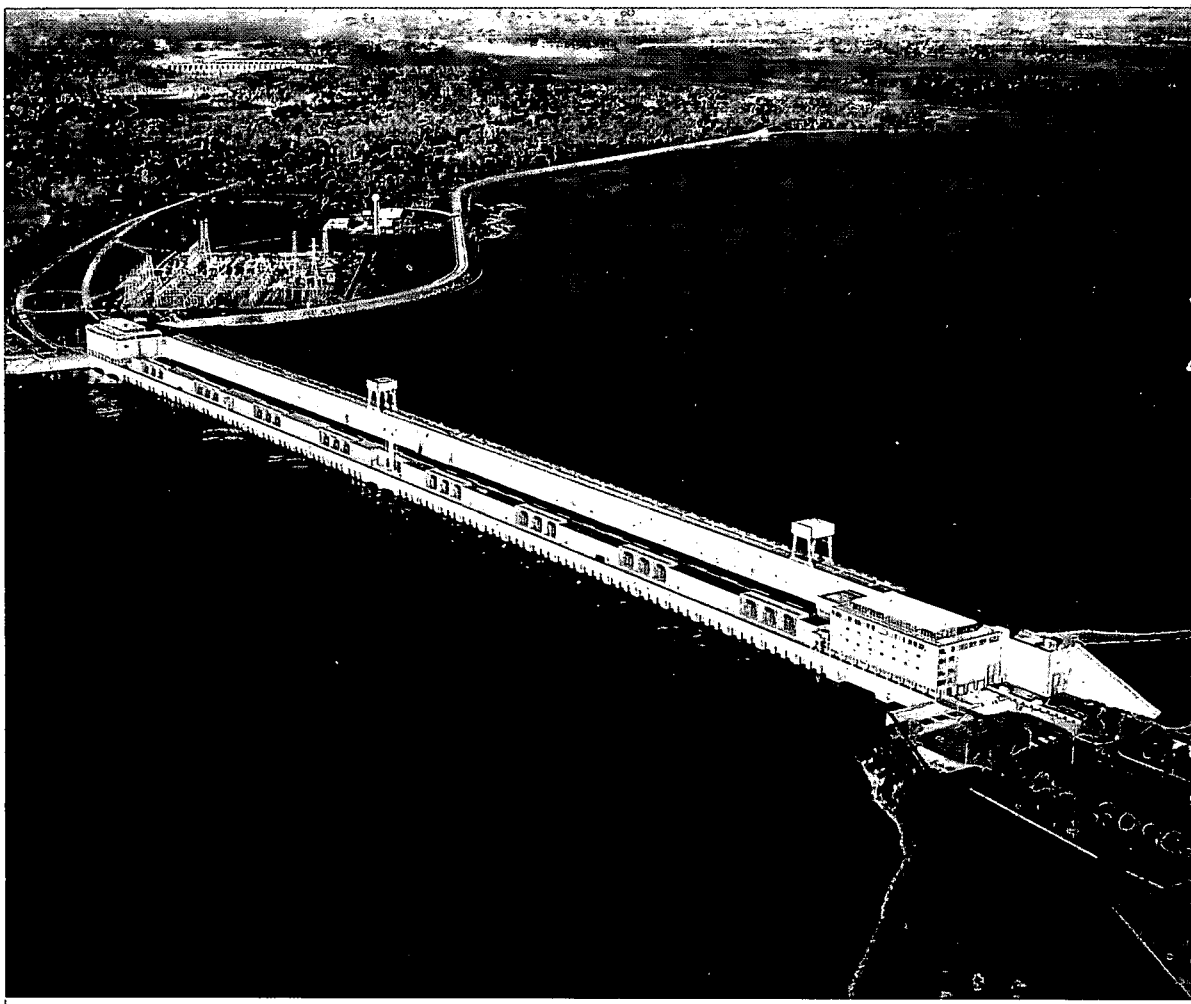
Implementation of the modifications ordered by the NRC or undertaken voluntarily by the Authority is directed toward fulfillment of the Authority's continuing commitment to make its nuclear plants among the safest in the world.

The FitzPatrick Plant is located on the shore of Lake Ontario in the Town of Scriba near Oswego. It uses a General Electric boiling water reactor and turbine-generator to convert the energy contained in its uranium fuel to electricity.

Power from the plant is carried to the Authority's main cross-state transmission system near Utica over a 68-mile 345-kv line. A tieline also connects the plant with the adjacent Nine Mile Point switchyard of Niagara Mohawk Power Corporation, which in turn is linked to the cross-state network near Syracuse by two 345-kv lines.

The 1979 electrical production at the FitzPatrick Plant would have required the burning of almost five million barrels of oil or 1¼ million tons of coal if the power had been produced in a fossil-fueled facility. Since operations began, the plant has saved more than 28 million barrels of oil.

St. Lawrence Power Project



The St. Lawrence Power Project was the first undertaken by the Authority. Since 1958 it has generated more than 136 billion kwh of electricity in the New York State units, including 7.1 billion kwh in 1979. The output in 1979 was equivalent to the amount of electricity that could be produced by burning 11.8 million barrels of oil or almost 3 million tons of coal in a fossil-fueled plant, increasing the fossil-fuel savings since start of project operation to more than 226 million barrels of oil or 56 million tons of coal.

The project was built jointly by the Authority and Canada's Ontario Hydro. It consists of the Robert Moses-Robert H. Saunders Power Dam, two additional dams and 16 miles of dikes. Construction also involved excavation of more than 40 miles of channels in the St. Lawrence River and creation of the 60-square-mile Lake St. Lawrence thus permitting simultaneous construction of the St. Lawrence Seaway, which opened the Great Lakes to ocean vessels.

Electricity is produced at the power dam, extending 3,300 feet from Barnhart Island near Massena, New York to Cornwall, Ontario. The dam is bisected by the international boundary. Sixteen turbine-generators with a total firm capacity of 800,000 kw are located in each country.

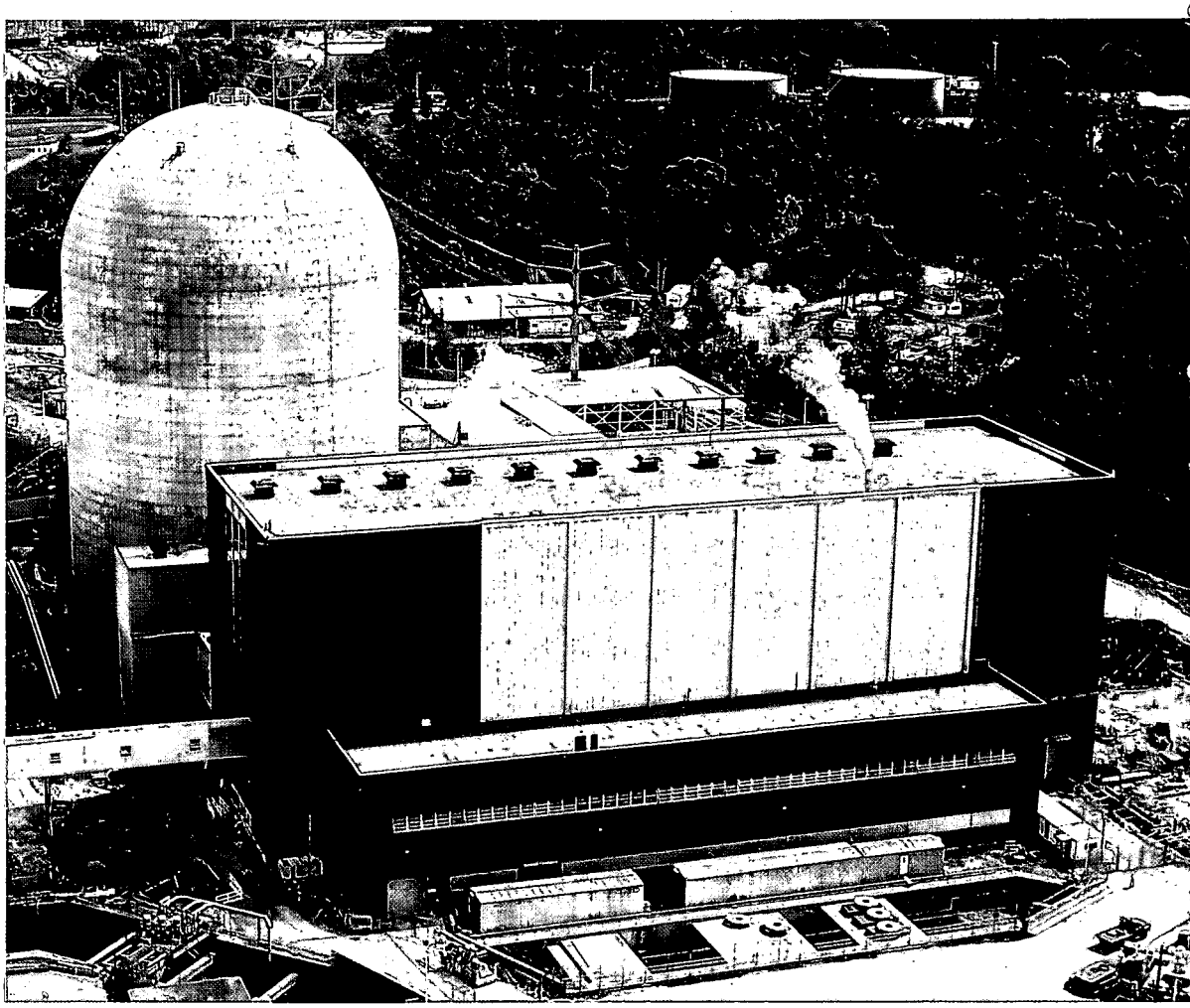
Long Sault Dam, 3½ miles upstream on the United States side of the river, directs the full river flow to the power dam and has 30 spillway gates that can be opened to pass portions of the flow on the rare occasions when it exceeds the capacity of the generating units.

Iroquois Dam, situated at the western end of Lake St. Lawrence about 28½ miles upstream from the power dam, regulates the flow from Lake Ontario. Adjacent to the Canadian end of the dam is Iroquois Lock, the most westerly of seven Seaway locks on the St. Lawrence River. The Eisenhower and Snell navigation locks, the two on the United States side of the river, are located near the power dam.

In addition to providing adequate channels for navigation in the Seaway system, the extensive excavation upstream from Long Sault Dam has contributed to ice control measures. These procedures, along with the installation of ice booms each winter, have reduced the threat of ice jams that could disrupt power production and damage shore properties.

The Massena Intake control structure, flanked by a series of dikes at the upper end of the Massena Canal, provides the water supply to both the Village of Massena and the Massena plant of Alcoa.

Indian Point 3 Nuclear Power Plant



Production of 4.8 billion kwh, start of its second refueling and implementation of additional safety features were among highlights of 1979 activities at the Indian Point 3 plant.

The year's output increased the amount of electricity generated at the plant to about 19 billion kwh since operation began in 1976. The 1979 production would have required burning of 7.8 million barrels of oil or almost 2 million tons of coal in a fossil-fired plant, increasing to about 31 million barrels the amount of oil saved since the plant began operation.

Continuous operation of 119 days at Indian Point 3 from April 10 to August 8, 1979 established a record for the site.

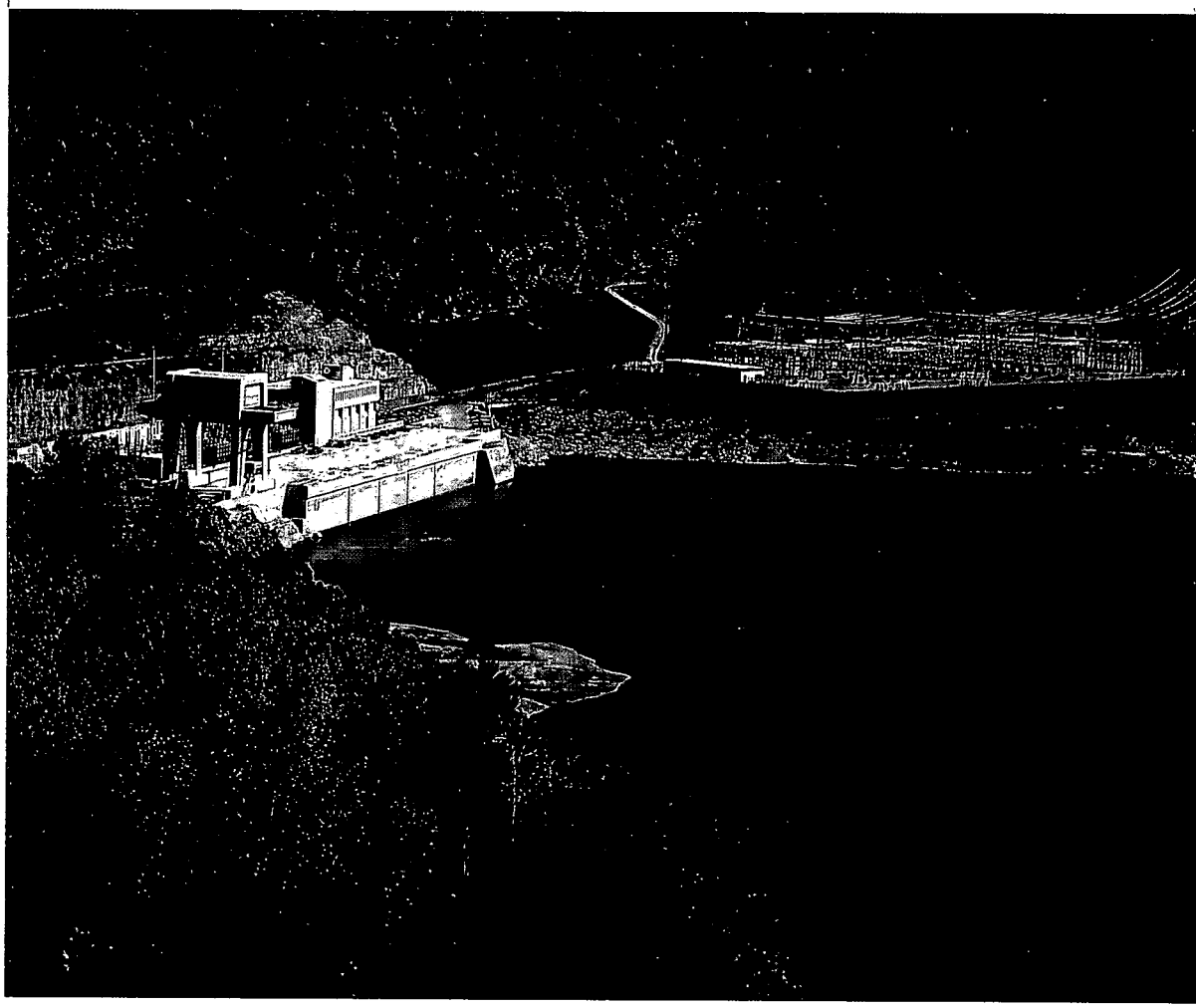
While the plant was out of service for refueling, maintenance and repairs, recommendations made by the Authority staff, by consultants and by the NRC were implemented. These included equipment modifications and procedural adjustments designed to reduce further the already remote chance of a serious accident and to further demonstrate the Authority's commitment to nuclear safety.

The plant is located at Buchanan in northern Westchester County. Its design gave recognition to its proximity to population centers, and additional safety features were incorporated into its construction. The Authority and Consolidated Edison Company, operator of the adjacent Indian Point 2 plant, have added staff and equipment, and in 1980 are undertaking further improvements to the already conservative design.

Also scheduled for completion in 1980 are an upgraded emergency plan and an emergency evacuation plan being developed in conjunction with state and local government agencies, many of which use electricity produced at the plant for public services.

The plant, which uses a Westinghouse pressurized water reactor, has a 965,000-kw capacity. A 345-kv transmission line links it with the Con Edison system at the nearby Buchanan switchyard.

Blenheim-Gilboa Pumped Storage Power Project



The Blenheim-Gilboa Pumped Storage Power Project last year generated 1.2 billion kwh to help meet peak electrical demands at the lowest possible cost.

Since producing first power in July 1973, Blenheim-Gilboa has consistently generated seven times the annual energy anticipated when it was planned in the 1960's. Cumulative generation reached 7.6 billion kwh by the end of 1979.

Named for the two Schoharie County towns in which it is located, the 1,000,000-kw Blenheim-Gilboa project generates electricity by recycling water between an upper and lower reservoir connected by underground tunnels passing through a four-unit powerhouse. Three 345-kv lines transmit energy from and to the project.

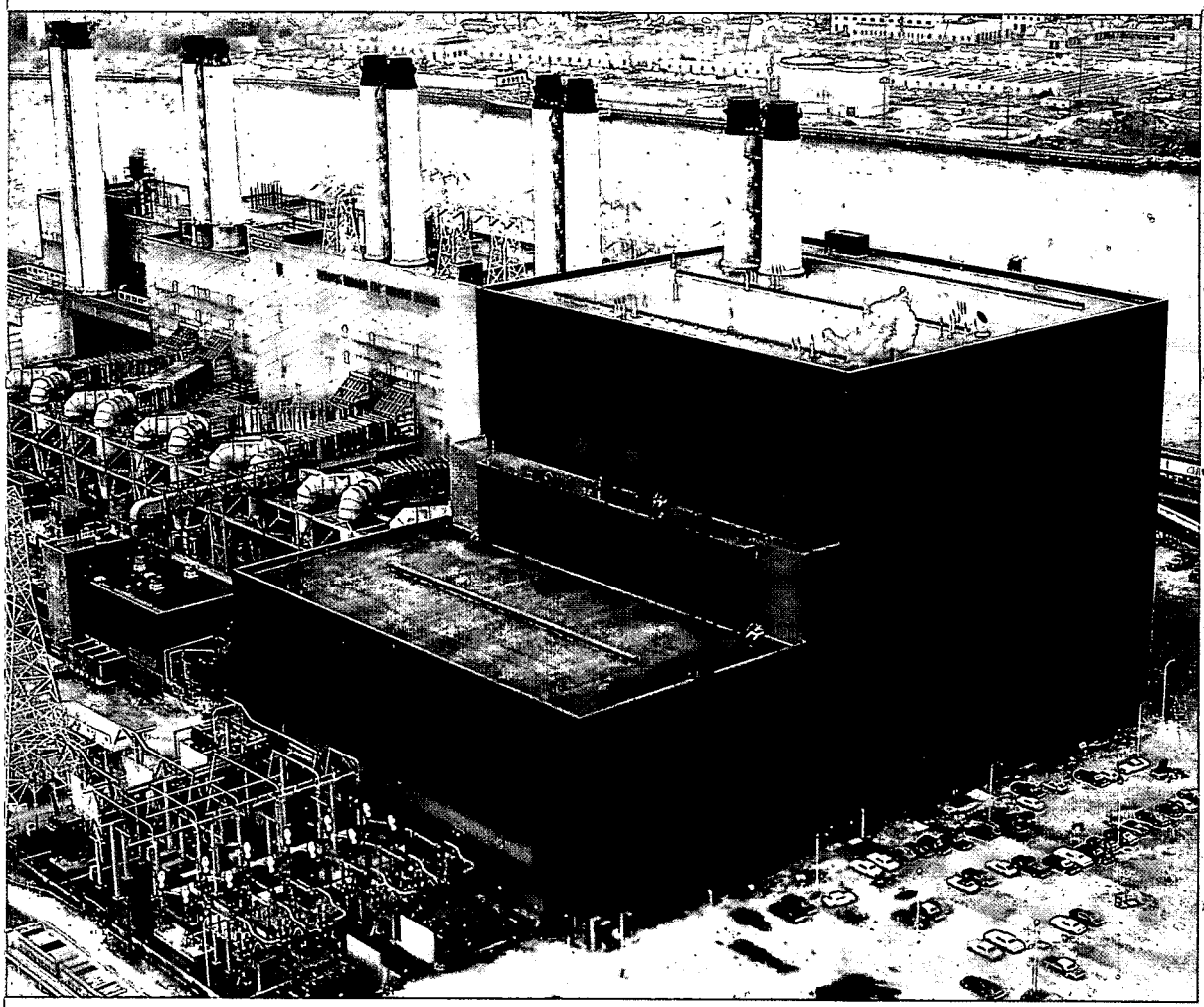
During periods of low electrical demand, the lines carry to the project energy that is used to pump water from the lower to the upper reservoir. When electrical needs increase, the powerhouse pumps are reversed, and water is released from the upper reservoir to spin the four turbine-generators. Each unit is capable of producing 250,000 kw. The reinforced concrete semi-outdoor-type powerhouse is 526 feet long and 130 feet high, although only the top few feet are visible above the level of the lower reservoir.

The 360-acre upper reservoir on Brown Mountain has a capacity of about five billion gallons of water, with the potential when full to produce 12 million kwh.

The 430-acre lower reservoir, located 1,100 feet below its mountain-top counterpart, can also hold five billion gallons behind an 1,800-foot-long earth and rock dam situated downstream from the powerhouse. A gated spillway and a low-level outlet provide releases through the dam.

Operation of the Blenheim-Gilboa Project permits storage of energy—in the form of water —at times of slack demand by pumping with the lowest-cost energy available. Project production during periods of peak consumer use eliminates the need to operate less-efficient units. This results both in reduced costs and decreased consumption of oil.

Astoria 6 Generating Plant



The Authority's only oil-fired power plant, Astoria 6, has been modified so that it can burn natural gas as well. Six of the 36 fuel burners were converted and tested in 1979, and the rest early in 1980, providing the unit with a dual fuel capability.

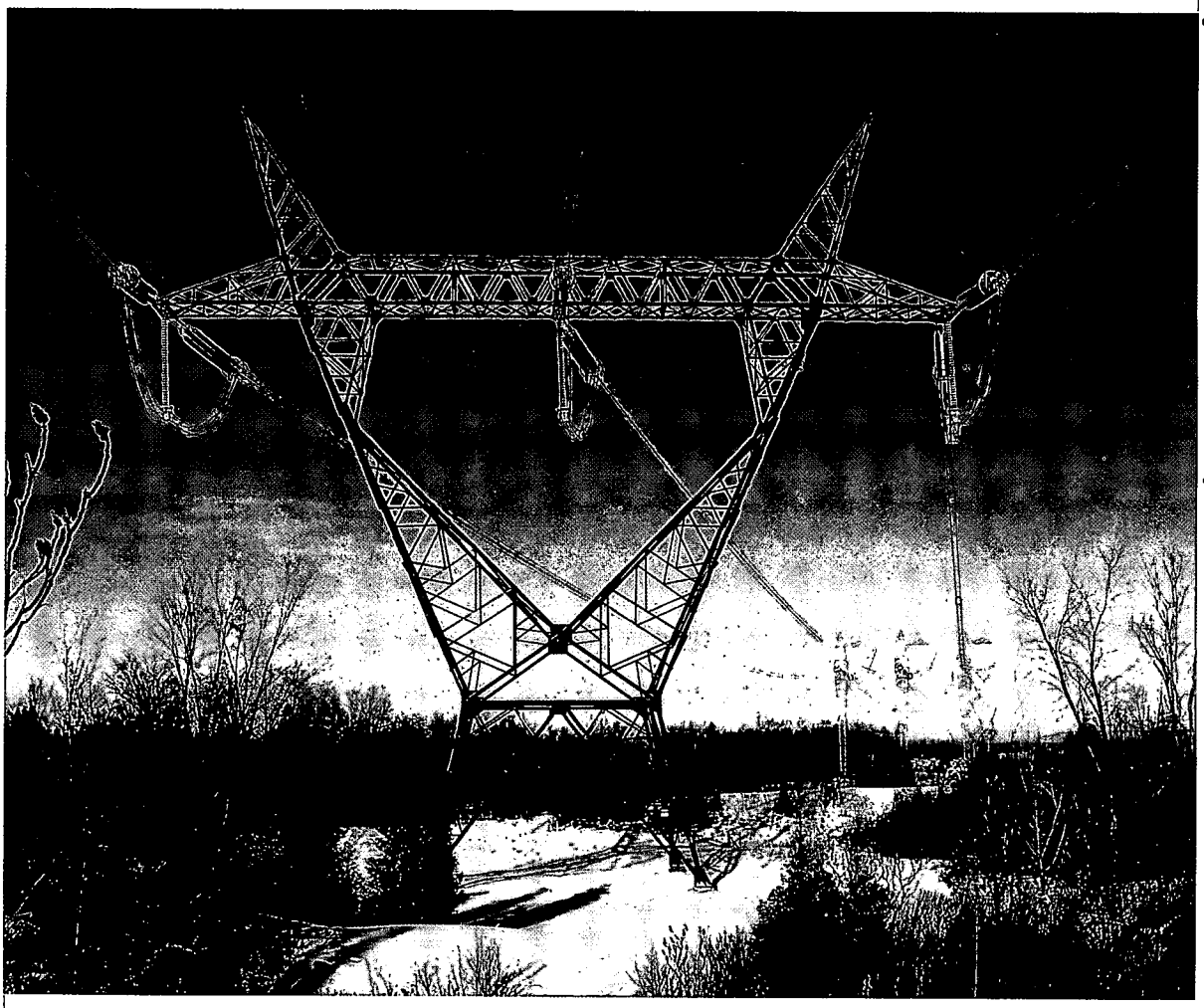
The conversion will enable the Authority to burn natural gas, rather than oil, as a fuel whenever supplies of gas are available. The use of gas will provide lower-cost electricity for metropolitan New York customers.

Astoria 6 produced 2.4 billion kwh of electricity during the year, increasing its total generation to 5.8 billion kwh since operation began in 1977. The 775,000-kw plant is located on the East River in the New York City Borough of Queens.

A 36-million-gallon oil storage tank farm was completed in 1979. The Authority has constructed facilities to assure operation independent of adjacent Con Edison plants.

Astoria 6 uses an 18-story-high boiler, suspended from the main building roof, to produce 6.6 million pounds of steam each hour. The steam powers a turbine-generator to produce electricity which flows, via two underground 345-kv cable circuits, 7½ miles to a Con Edison substation in Manhattan for distribution to Authority customers, including New York City and Westchester government buildings, subways, commuter railroads, schools, public housing and other public services.

Transmission



The Authority's new 765-kv transmission system, connecting with Hydro Quebec at the Canadian border and with the Authority's main cross-state 345-kv lines near Utica, carried 7.3 billion kwh of hydroelectric power from Quebec during 1979, its first full year of operation.

The purchases from Canada saved New York consumers approximately $50 million by replacing about 12 million barrels of oil that would have been burned to produce an equivalent amount of electricity.

Contracts with Hydro Quebec provide for purchase by the Authority of 800,000 kw of firm power from April through October, the period of peak use in New York. Throughout the year, interruptible energy is obtained when it is available.

The firm power allocations include 780,000 kw sold by the Authority to Con Edison and 20,000 kw sold to Rochester Gas and Electric Corporation (RG&E). Consumers of electricity throughout the state benefit from the imports of interruptible energy.

The Authority in 1979 completed its second, 71-mile 230-kv line from the St. Lawrence Project to Plattsburgh to meet the increased North Country energy requirements.

The 155-mile, 765-kv line runs between two new Authority substations, Massena and Marcy, with a connection to Quebec at Fort Covington. There also is an eight-mile, double-circuit 230-kv link between the Massena Substation and the St. Lawrence Project.

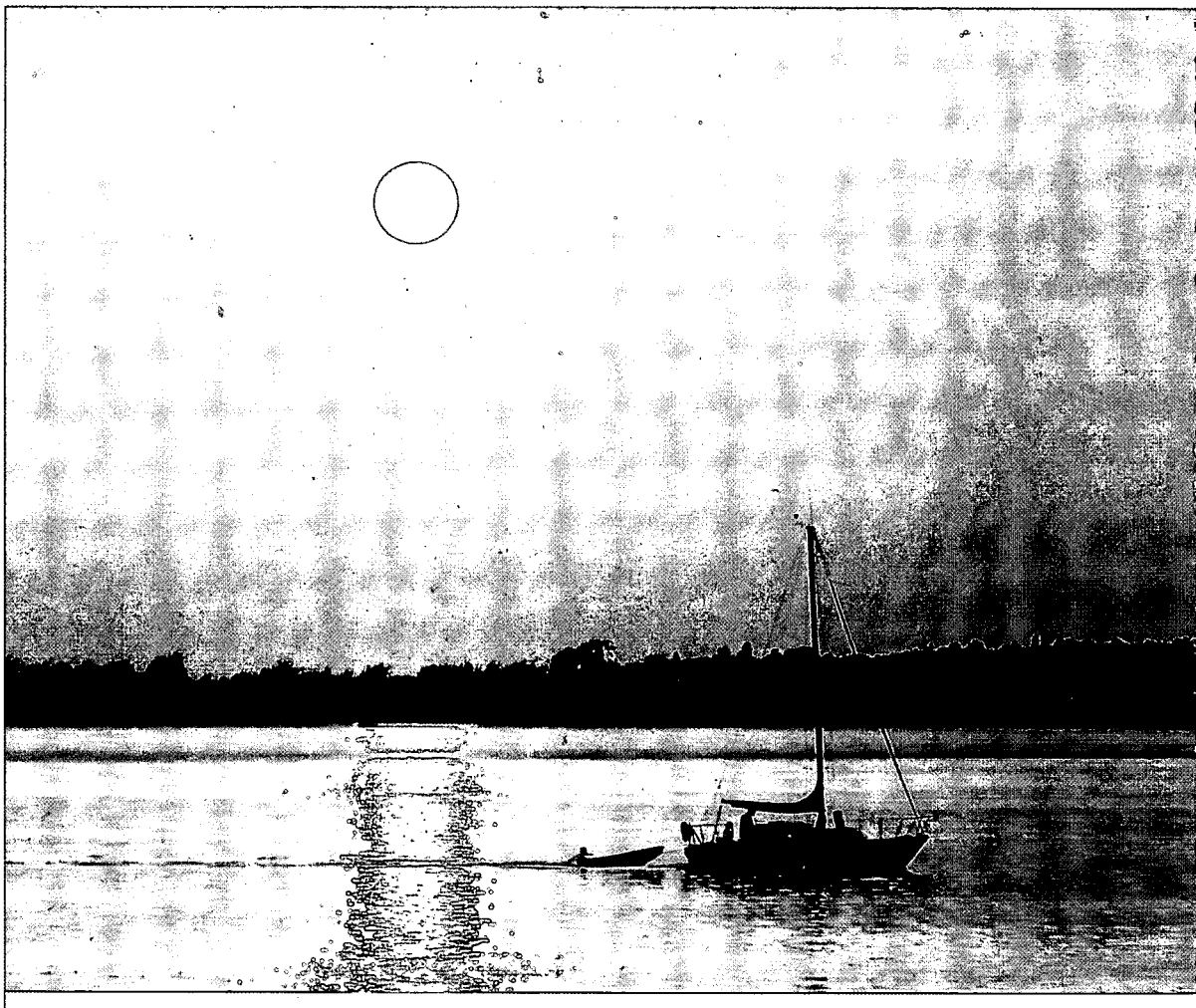
Marcy, located near Utica, is connected to Niagara Mohawk's nearby Edic Substation, which is the terminal of the Authority's 199-mile, twin-circuit 345-kv lines from Niagara and 68-mile 345-kv line from the FitzPatrick Plant.

Other Authority lines connect with those of RG&E, New York State Electric and Gas Corporation, Con Edison, Ontario Hydro and Vermont, as well as Niagara Mohawk, as part of the regional grid which is designed to insure reliable service to the people and businesses of New York.

Construction continued during the year at Marcy on new facilities for training the Authority's transmission line crews from throughout the state. The center also will serve as headquarters for transmission line maintenance in Central New York. Completion of the Marcy center is scheduled for 1980. At that time, the Authority's Energy Control Center, which directs dispatch of power from all Authority facilities, will be relocated from Niagara to Marcy.

The Authority's Energy Control Center is linked to that of the New York Power Pool, which coordinates operations of the state's seven private utilities and the Authority.

Community Improvements and the Environment



The Authority traditionally has undertaken programs to protect the environment and provide community improvements. These programs have been varied, reflecting particular area needs ranging in scope from recreational to cultural.

The Authority's efforts at St. Lawrence have served as a model for other hydroelectric projects. Focal point is the 2,300-acre Robert Moses State Park where beach, picnicking, camping, fishing and boating facilities have attracted millions of persons. Its marina and launching area on Barnhart Island are among several constructed by the Authority to provide access to Lake St. Lawrence, shown in the photograph on the facing page.

At Niagara, the Authority expanded the state park at the internationally famous falls and built the American Rapids Bridge, improving access to Goat Island, situated between the American and Horseshoe Falls.

A riverfront parkway provides a scenic approach to the falls and extends downriver toward Lake Ontario. Reservoir State Park, adjacent to the project reservoir, is available for sledding, skiing, shoreline fishing and other seasonal recreation throughout the year.

Hyde Park, a municipal facility within Niagara Falls, was enlarged, its golf course expanded and a clubhouse provided. Land provided by the Authority was used by the state parks system to build Artpark, a major performing arts center, and a geological museum.

For outdoor recreation development at its Blenheim-Gilboa project the Authority received the U.S. Department of the Interior's highest award. Mine Kill State Park features a three-pool swimming complex, picnic areas, hiking trails and a launching ramp that permits boating and fishing on the lower reservoir. The upper reservoir and other facilities near the project also attract sport fishermen.

Near Mine Kill Park is the Lansing Manor complex, location of the project visitors' center and an historic manor house, restored by the Authority and furnished in the style of the 1819 to 1860 period. The Atmospheric Sciences Research Center of the State University maintains a field station in the complex.

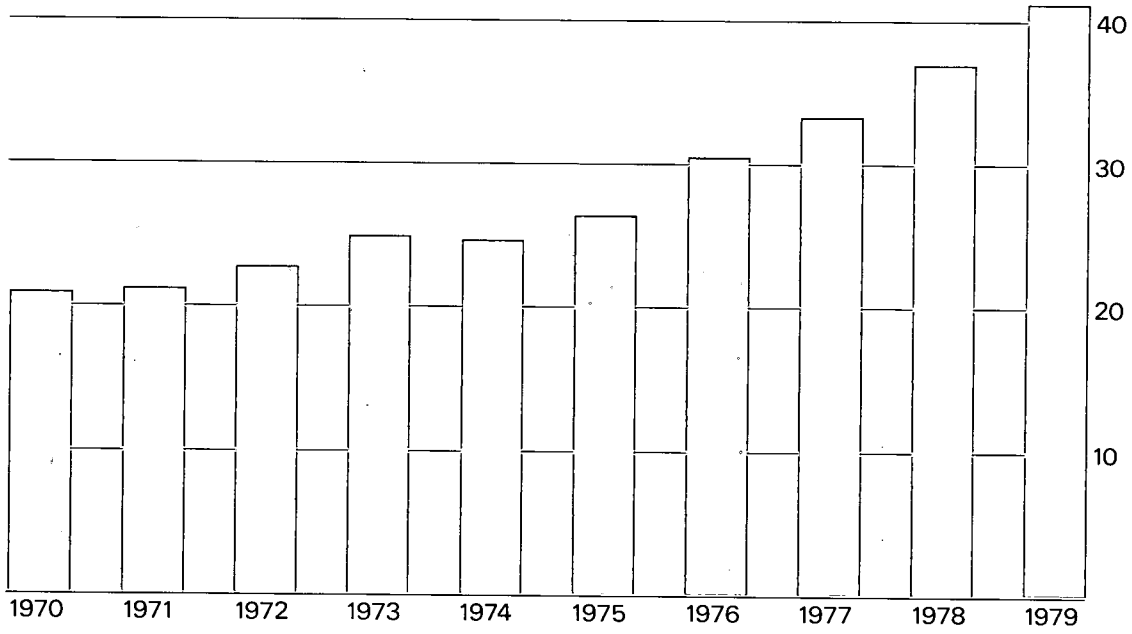
While providing facilities for the public and areas for wildlife, the Authority designed and operates its projects with particular attention to environmental protection. For example, design of the underwater fountain that returns heated water from the FitzPatrick Plant condenser system to Lake Ontario has been incorporated by other utilities into their thermal generating plants.

In cooperation with other agencies, research and development activities also are directed toward making use of power plant by-products —in one instance, transforming coal ash and sulfur scrubber sludge into fish-sheltering ocean reefs; in another, using waste heat from thermal power plants to support commercial greenhouses.

The hydro expansion program will insure multiple use of existing resources, capturing the energy now lost in flows from water supply reservoirs and transportation facilities without disrupting primary use of the facilities.

These efforts, along with conservation, ultra-modern pollution control devices on future power plants, resource recovery and development of alternate energy sources, will contribute to preserving and improving the natural environment and the quality of life for the people of New York State.

Electric Energy Sales



Billion Kwh

Customer List

Customers Served Directly with Power from Hydroelectric Projects

Village of Akron
Village of Andover
Village of Angelica
Village of Arcade
Village of Bath
Village of Bergen
Village of Boonville
Village of Brocton
Village of Castile
Village of Churchville
Village of Endicott
Village of Fairport
Village of Frankfort
Village of Freeport
Village of Greene
Village of Green Island
Village of Greenport
Village of Groton
Village of Hamilton
Village of Holley
Village of Ilion
City of Jamestown
Lake Placid Village, Inc.
Village of Little Valley
Village of Marathon
Village of Mayville
Village of Mohawk
Village of Penn Yan
Village of Philadelphia
City of Plattsburgh
Village of Richmondville
Village of Rockville Centre
Village of Rouses Point
City of Salamanca
Village of Sherburne
City of Sherrill
Village of Silver Springs
Village of Skaneateles
Village of Solvay
Village of Spencerport
Village of Springville
Village of Theresa
Village of Tupper Lake
Village of Watkins Glen
Village of Wellsville
Village of Westfield
Allegheny Electric Cooperative, Inc.
Delaware County Electric Cooperative, Inc.
Oneida-Madison Electric Cooperative, Inc.
Otsego Electric Cooperative, Inc.
Steuben Rural Electric Cooperative, Inc.
Aluminum Company of America
General Motors Corporation
Reynolds Metals Company
United States Air Force
Public Service Board of the State of Vermont
New York State Electric & Gas Corporation
Niagara Mohawk Power Corporation
Rochester Gas and Electric Corporation

Blenheim-Gilboa Pumped Storage Project

Central Hudson Gas and Electric Corporation
New York State Electric & Gas Corporation
Niagara Mohawk Power Corporation
Rochester Gas and Electric Corporation

Industry Served Indirectly with Niagara Project Power

Replacement Power:
The Power Authority is required by Federal law to supply 445,000 kilowatts of its low cost firm power to the Niagara Mohawk Power Corporation to replace low cost power previously obtained from the Company's Adams and Schoellkopf Plants at Niagara Falls. This power is largely resold to designated industries at the Power Authority's wholesale firm power rate plus a transmission charge and such state and local revenue taxes as are applicable. The following industries were supplied during the year with this low cost power. The amount contracted for was 333,750 kw.

Airco Speer Carbon-Graphite Division, Airco, Inc.
Allied Chemical Corporation
Anaconda-Brass Division, Anaconda Company
Atlas Steel Casting Company
Bethlehem Steel Corporation
Buffalo Forge Company
The Carborundum Company
Donner-Hanna Coke Corporation
Dresser Transportation Equipment Division, Dresser Industries, Inc.
Dunlop Tire & Rubber Corporation
E.I. duPont de Nemours & Company, Inc.
FMC Corporation Industrial Chemical Division
General Abrasive Company, Inc.
General Mills, Inc.

Great Lakes Carbon Corporation
Hooker Chemicals & Plastics Corporation
International Multi-Foods Corporation
International Paper Company
Nabisco, Inc.
Niacet Corporation
Niagara Falls Water Treatment Plant
Nitec Paper Corporation
Olin Corporation
The Pillsbury Company
The Prestolite Company Division, Eltra Corporation
Republic Steel Corporation
SKW Alloys
Spaulding Fibre Company, Inc.
Stauffer Chemical Company
TAM Ceramics, NL Industries
Union Carbide Corporation

Expansion Power:
The Power Authority has allocated all of the 250,000 kilowatts of Niagara Project firm power reserved for sale to industries within thirty miles of the Niagara Project. This power is sold to local utility companies and by them to industries which require low cost power to enable them to expand operations or to establish new industries in the Niagara Frontier area. Allocations of expansion power were provided during the year to the industries listed below:
Airco Industrial Gases Division, Airco, Inc.
Airco Speer Carbon-Graphite Division, Airco, Inc.
Arcata Graphics Corporation
Bethlehem Steel Corporation
The Carborundum Company
Donner-Hanna Coke Corporation
E.I. duPont de Nemours & Company, Inc.
General Mills, Inc.
General Motors Corporation-Harrison Radiator Division
Graphite Products Division, The Carborundum Company
Great Lakes Carbon Corporation
Hooker Chemicals & Plastics Corporation
International Multi-Foods Corporation
Moog, Inc.
Nitec Paper Corporation
Olin Corporation
The Pillsbury Company
Pyron Corporation, A Pacific Tin Company
Republic Steel Corporation
SKW Alloys
Spaulding Fibre Company, Inc.
TAM Ceramics, NL Industries
Union Carbide Corporation

Customers Served with Power from James A. FitzPatrick Nuclear Power Plant
Aluminum Company of America
Hooker Chemicals & Plastics Corporation
Air Products & Chemicals, Inc.
Reynolds Metals Company
Airco Industrial Gases Division, Airco, Inc.
Airco Speer Carbon-Graphite Division, Airco, Inc.
Burdox, Inc.
E. I. duPont de Nemours & Company, Inc.
Dresser Transportation Equipment Division, Dresser Industries, Inc.
Olin Corporation
SKW Alloys
Central Hudson Gas and Electric Corporation
Consolidated Edison Company of New York, Inc.
Long Island Lighting Company
New York State Electric & Gas Corporation
Niagara Mohawk Power Corporation
Orange and Rockland Utilities, Inc.
Rochester Gas and Electric Corporation

Customers Served with Power from the Indian Point 3 Nuclear Power Plant and Astoria 6 Generating Plant
Village of Ardsley
Bedford Central School District
Village of Briarcliff Manor
Briarcliff Manor Union Free School District
Village of Bronxville
Village of Buchanan
Byram Hills Central School District
Chappaqua Central School District
Town of Cortlandt
Croton Harmon Union Free School District
Village of Croton-on-Hudson
Village of Dobbs Ferry
Town of Eastchester
Eastchester Union Free School District
Village of Elmsford
Town of Greenburgh
Greenburgh Housing Authority
Town of Harrison
Village of Hastings-on-Hudson
Hendrick Hudson School District
Village of Irvington
Lakeland Central School District
Village of Larchmont
Town of Mamaroneck
Village of Mamaroneck
Mamaroneck Union Free School District
Metropolitan Transportation Authority
Montrose Improvement District
Village of Mount Kisco
Town of Mount Pleasant
Mount Pleasant Central School District
City of Mount Vernon
Mount Vernon City School District
Town of New Castle
City of New Rochelle
New Rochelle Municipal Housing Authority
City of New York
New York City Housing Authority
Office of General Services, New York State
Town of North Castle
Village of North Tarrytown
North Tarrytown Housing Authority
Town of Ossining
Village of Ossining
Ossining Union Free School District
City of Peekskill
Village of Pelham
Village of Pelham Manor
Pelham Union Free School District
Village of Pleasantville
Pleasantville Union Free School District
Port Authority of New York and New Jersey
Village of Port Chester
Port Chester Housing Authority
Port Chester-Rye Union Free School District
City of Rye
Town of Rye
Rye Neck Union Free School District
Village of Scarsdale
Scarsdale Union Free School District
Village of Tarrytown
Union Free School of the Tarrytowns
Thornwood Water District
Village of Tuckahoe
Tuckahoe Housing Authority
Tuckahoe Union Free School District
Valhalla Union Free School District
Westchester County
Westchester Joint Water Works
Westchester, Southern Board of Cooperative Educational Services
City of White Plains
White Plains City School District
White Plains Housing Authority
City of Yonkers
Yonkers Housing Authority
Town of Yorktown
Consolidated Edison Company of New York, Inc.

In addition, the Power Authority supplies other members of the New York Power Pool with firm and nonfirm energy imported from Hydro Quebec.

Finances

On October 18, 1979, the Authority sold $150,000,000 General Purpose Bonds to continue financing the costs of acquisition and completion of the Astoria 6 and Indian Point 3 Plants, the completion of construction of the Massena-Marcy 765-kv Transmission Line, and for final expenses for the Greene County Nuclear Plant.

The issue, consisting of $124,000,000 of 8 percent term bonds maturing in 2009 and $26,000,000 serial bonds maturing from 1987 to 1999 at rates from 6.80 percent to 7.75 percent,brings to $1,760,000,000 the bonds sold to finance projects under the General Purpose Bond Resolution adopted in 1974. A portion of the proceeds of the bond issue was designated for the repayment of $30,000,000 promissory notes due November 9, 1979 and $40,000,000 promissory notes sold on April 2, 1979 and due April 2, 1980. The notes were paid when scheduled.

On April 11, 1979, a promissory note in the amount of $10,000,000 was issued to pay for nuclear fuel required at the Indian Point 3 Plant. On December 27, 1979, a $30,000,000 promissory note was issued for the payment of fuel purchases.

All the above notes bore interest at a specified fraction of the prime rate in effect from time to time and are subject to prepayment without penalty.

The Niagara and St. Lawrence Projects, financed under the General Revenue Bond Resolution of 1954, produced revenues of $126,349,000 during 1979, of which $43,840,000 were applied to the Operating Fund and $38,040,000 to the General Reserve Account.

Interest of $9,686,000 was paid on the 1954 bonds and $38,685,000 bonds were retired at a cost of $37,948,000. On January 1, 1980, a total of $227,783,000 of these bonds remained outstanding. The Authority continues to meet the requirements of the 1954 resolution and to maintain a favorable position with respect to the schedule of 1954 bond retirements required under the Revenue Bond Resolution adopted in 1970.

The FitzPatrick Nuclear Plant and the Blenheim-Gilboa Pumped Storage Project, constructed under the Revenue Bond Resolution of 1970, produced revenues of $102,648,000 in 1979. Deductions of $63,952,000 were made for expenses including nuclear fuel. Of the remaining revenues, $34,317,000 was deposited in the Bond Service Account and $4,379,000 in the Bond Reserve Account. Due to the shutdown of the FitzPatrick Plant by the Nuclear Regulatory Commission, from March 15 to September 7, 1979, a transfer of $9,466,000 from the Bond Reserve Account to the Bond Service Account was required to meet the interest payments of $43,783,000.

An increase in the FitzPatrick Plant's rates, approved by the Authority on January 24, 1980, became effective April 1, 1980 and is designed to produce an average annual increase in revenues of approximately $38,800,000 through 1982.

The Astoria 6 and Indian Point 3 Plants, together with the 765-kv transmission line, are financed under the General Purpose Fund Resolution of 1974. Revenues of the two plants and of the transmission line after its May 31, 1979 completion date, totaled $487,241,000. Of this, $232,967,000 was allocated for operating expenses and $127,988,000 for fuel.

Interest of $108,105,000 was paid from Bond Service and $16,484,000 was deposited in the Bond Reserve Account to meet requirements of the 1974 Resolution.

On January 24, 1980, the Authority approved increases in rates for the Astoria 6 and Indian Point 3 Plants. The revised rates, effective during February, 1980, are expected to provide revenue increases of approximately $51,800,000 on an annual basis. In addition, an energy adjustment factor is applied each month to reflect variations in the actual cost of fuel and purchased power.

Revised Massena-Marcy 765-kv transmission charges which became effective April 1, 1980, are designed to increase transmission revenues by approximately $5.5 million on an annual basis.

Power Authority of the State of New York

Financial Statements

December 31, 1979

Financial Statements

Statement of Condition—December 31, 1979 (in thousands)

Assets	1954 Project	1970 Project	General Purpose	Total
Electric Plant (Note B)				
In service	$1,137,126	$573,095	$1,150,622	$2,860,843
Construction work in progress	24,725	1,866	31,481	58,072
Nuclear fuel (net of amortization)		45,575	105,252	150,827
Total Electric Plant	1,161,851	620,536	1,287,355	3,069,742
Cash (includes time deposits)	31,451	3,484	73,718	108,653
Investment in U. S. Government securities, at cost (Note B-9)	162,729	63,578	244,848	471,155
U. S. Government securities purchased under agreements to resell, at cost	9,130	6,610	53,995	69,735
Interest receivable on investments and time deposits	5,923	4,008	8,852	18,783
Receivables—customers	17,906	15,756	12,854	46,516
Unbilled revenues (Note B-12)			8,337	8,337
Materials and supplies (at average cost):				
Plant and general	4,868	2,076	2,887	9,831
Fuel oil			10,274	10,274
Prepayments and other assets	3,542	202	15,975	19,719
Preliminary investigations			53,690	53,690
Deferred debits—Greene County Project (Note G)			186,131	186,131
Intra Authority balances	7,680	(2,366)	(5,314)	
	$1,405,080	$713,884	$1,953,602	$4,072,566
Liabilities and Other Credits				
Bonds outstanding (Note F)	$ 227,783	$734,000	$1,760,000	$2,721,783
Promissory notes payable—Short-term (Note E)			40,000	40,000
Fuel financing payable (Note E):				
Short-term			15,116	15,116
Long-term			41,750	41,750
Accounts payable and accrued liabilities	12,079	9,659	75,076	96,814
Retained on contracts	1,272	213	4,426	5,911
Deferred credits—advance estimated billings, net			12,653	12,653
	241,134	743,872	1,949,021	2,934,027
Bonds Retired From:				
Bond service	304,474			304,474
Bond reserve	307,878			307,878
General reserve	261,915			261,915
	874,267			874,267
Revenues Allocated To:				
Bond service	8,528	3,648	12,085	24,261
Bond reserve	26,681	10,946	46,119	83,746
General reserve	116,627			116,627
Insurance and improvement fund	27,640			27,640
Additions to electric plant	71,644	7,000	2,938	81,582
Fuel reserve		34,617	20,216	54,833
Working capital	38,559	13,148		51,707
	289,679	69,359	81,358	440,396
Bond proceeds used to provide interest and fuel		(99,347)	(76,777)	(176,124)
	289,679	(29,988)	4,581	264,272
	$1,405,080	$713,884	$1,953,602	$4,072,566

The accompanying notes are an integral part of these financial statements.

1954 Project
Summary of Funds
Year Ended December 31, 1979
(in thousands)

				General*			
	Revenue	Operating	General Construction	Bond Service	Bond Reserve	General Reserve	Insurance & Improvement
Available Funds January 1, 1979	$ —0—	$26,794	$304	$ 2,783	$34,654	$82,000	$27,331
Cash Receipts:							
Sale of power, transmission, wheeling, and other charges	110,310						
Earnings on investments and time deposits	15,965		23				
Other, net (principally lease of property)	74						
Administrative expenses reimbursed from other funds		14,402					
Total Receipts	126,349	14,402	23				
Total Available	126,349	41,196	327	2,783	34,654	82,000	27,331
Transfer of funds—Revenue	(126,349)	43,840		31,736	12,733	38,040	
—Other						(1,058)	1,058
	$ —0—	85,036	327	34,519	47,387	118,982	28,389
Cash Disbursements:							
Interest on bonds				9,686			
Retirement of bonds:							
Term ($36,324 principal amount)				19,746	12,335	3,511	
Serial ($2,361 principal amount)				2,307	46	3	
Operations and maintenance including replacements		22,467					
Purchased power		1,581					
Wheeling charges		5,632					
Construction costs including additions to electric plant in service		16,589	4				245
Administrative expenses chargeable to other funds		17,093					
Total Disbursements		63,362	4	31,739	12,381	3,514	245
Available Funds December 31, 1979		$21,674	$323	$ 2,780	$35,006	$115,468	$28,144
Distributed as follows:							
Demand deposits		$ 962	$ 23	$ 10	$ 12	$ 8	$ 21
Time deposits		12,400				15,715	2,300
Investment in U. S. Government securities		8,312	300		33,664	99,660	20,793
U. S. Government securities purchased under agreements to resell				2,770	1,330		5,030
Accrued interest purchased						85	
Totals		$21,674	$323	$ 2,780	$35,006	$115,468	$28,144

* In the hands of the Bond Trustee.

The accompanying notes are an integral part of these financial statements.

1970 Project
Summary of Funds
Year Ended December 31, 1979
(in thousands)

	Revenue	Operating	Nuclear Fuel Reserve	Construction	General* Bond Service	General* Bond Reserve
Available Funds January 1, 1979	$ —0—	$ 4,185	$ —0—	$329	$ —0—	$68,942
Cash Receipts:						
Sale of power, transmission and wheeling charges	95,206					
Earnings on investments and time deposits	7,442			19		
Other				14		
Total Receipts	102,648			33		
Total Available	102,648	4,185		362		68,942
Transfer of Funds—Revenue	(102,648)	52,444	11,508		34,317	4,379
—Other					9,466	(9,466)
	$ —0—	56,629	11,508	362	43,783	63,855
Cash Disbursements:						
Interest on bonds					43,783	
Operations and maintenance including replacements		27,968				
Administrative expenses transferred from 1954 Project		2,749				
Purchased power—Hydro Quebec		3,194				
—Others		9,516				
Wheeling charges		928				
Construction costs including additions to electric plant in service		2,731		95		
Nuclear fuel			11,501			
Total Disbursements		47,086	11,501	95	43,783	
Available Funds December 31, 1979		$ 9,543	$ 7	$267	$ —0—	$63,855
Distributed as follows:						
Demand deposits		$ 502	$ 7			$ 5
Time deposits						2,970
Investment in U. S. Government securities		3,041		$267		60,270
U. S. Government securities purchased under agreements to resell		6,000				610
Totals		$ 9,543	$ 7	$267		$63,855

* In the hands of the Bond Trustee.

The accompanying notes are an integral part of these financial statements.

General Purpose
Summary of Funds
Year Ended December 31, 1979
(in thousands)

				Construction	
	Revenue	Operating	Fuel Reserve	Astoria 6	Indian Point 3
Available Funds January 1, 1979	$ —0—	$ 27,902	$ —0—	$14,431	$30,875
Cash Receipts:					
Sale of power, transmission, wheeling and other charges	468,312				
Earnings on investments and time deposits	18,929			2,770	2,011
Sale of General Purpose Bonds—Series H (principal amount $150,000) (Note E)				23,765	47,872
Accrued interest on bonds sold					
Sale of promissory notes (Note E):					
Due April 2, 1980 Fuel financing			40,000		
Total Receipts	487,241		40,000	26,535	49,883
Total Available	487,241	27,902	40,000	40,966	80,758
Transfer of funds—Revenue	(487,241)	232,967	127,988		
—Other		1,710			7,320
	$ —0—	262,579	167,988	40,966	88,078
Cash Disbursements:					
Interest on bonds and notes		1,486			
Payment of fuel financing obligations			18,638		
Payment of promissory notes					20,000
Construction costs including additions to electric plant in service		737		9,603	23,384
Nuclear fuel			48,266		
Fuel oil			84,411		
Operations and maintenance		43,034			
Administrative expenses transferred from 1954 Project		3,955		1,062	1,221
Purchased power—Hydro Quebec		51,338			
—Others		26,662			
Wheeling and cycle conversion charges		125,546			
Financing costs				532	1,032
Preliminary investigations					
Total Disbursements		252,758	151,315	11,197	45,637
Available Funds December 31, 1979		$ 9,821	$ 16,673	$29,769	$42,441
Distributed as follows:					
Demand deposits		$ 721	$ 23	$ 118	$ 11
Time deposits				6,200	14,000
Investment in U. S. Government securities				20,751	19,880
U. S. Government securities purchased under agreements to resell		9,100	16,650	2,700	8,550
Accrued interest purchased					
Totals		$ 9,821	$ 16,673	$29,769	$42,441

* In the hands of the Bond Trustee.

The accompanying notes are an integral part of these financial statements.

Construction			General*			
Greene County	Massena-Marcy Line	Projects' Study	Temporary Interest	Bond Service	Bond Reserve	Note Proceeds Accounts
$ 6,478	$ 1,656	$10,030	$35,950	$ —0—	$156,030	$16,032
2,888	1,319	750				2,758
16,109	45,320		5,105		11,829	
146				806		
						40,000
19,143	46,639	750	5,105	806	11,829	42,758
25,621	48,295	10,780	41,055	806	167,859	58,790
				109,802	16,484	
14,295	35,449					(58,774)
39,916	83,744	10,780	41,055	110,608	184,343	16
482	1,142		20,103	108,105		
5,675	24,325					
14,334	13,233					
2,205	1,680	1,284				
483	1,003					
		2,350				
23,179	41,383	3,634	20,103	108,105		
$16,737	$42,361	$ 7,146	$20,952	$ 2,503	$184,343	$ 16
$ 7	$ 37	$ 65	$ 17	$ 8		$ 16
9,000	20,250	1,870		2,495	$ 18,880	
	17,074	946	20,935		165,262	
7,730	5,000	4,265				
					201	
$16,737	$42,361	$ 7,146	$20,952	$ 2,503	$184,343	$ 16

Revenues and Disposition of Revenues—Year Ended December 31, 1979
(in thousands)

	1954 Project		1970 Project		General Purpose
Revenues					
Power sales:					
Demand charges	$ 35,591		$ 66,322		$131,085
Energy charges	65,080		31,733		197,487
Other	903				58
	101,574		98,055		328,630
Transmission charges	5,055		805		23,171
Wheeling and cycle conversion charges	6,449		923		125,497
Earnings on investments and time deposits	17,281		7,395		19,383
Lease of property	57				
	$130,416		$107,178		$496,681
Disposition of Revenues					
Operating expenses:					
Operations	$ 18,041		$ 16,515		$ 38,522
Nuclear fuel consumed		$ 6,831		$15,485	
Less: Provided from initial fuel supplies (Note B-5)		(4,760)	2,071	(15,485)	—0—
Fuel oil consumed					86,614
Maintenance	5,468		19,490		13,410
Purchased power—Hydro Quebec			3,220		56,935
—Others	1,581		9,241		37,044
Wheeling and cycle conversion charges	6,449		923		125,497
Replacement of electric plant	147		198		9
Interest on long-term debt	9,407	43,783			
Less: Provided from bond reserve		(9,466)	34,317		115,188
Retirement of bonds	66,378				
Additions to:					
Bond reserve			4,378		17,120
Electric plant	15,085		2,768		1,056
Fuel reserve			9,436		17,032
Accumulated working capital	7,860		4,621		(11,746)
	$130,416		$107,178		$496,681

The accompanying notes are an integral part of these financial statements.

Statement of Receipts and Disbursements—Year Ended December 31, 1979
(in thousands)

Cash Balance January 1, 1979	$113,960
Cash Receipts:	
Sale of power, transmission, wheeling and other charges	673,828
Earnings on investments and time deposits	54,874
Sale of General Purpose Bonds—Series H	150,000
Sale of promissory notes:	
Due April 2, 1980	40,000
Fuel financing	40,000
Accrued interest on bonds sold	952
Interest purchased, net	130
Other, net (principally lease of property)	88
Total Receipts	959,872
Total Cash Available	1,073,832
Cash Disbursements:	
Interest on bonds and notes	184,787
Retirement of 1954 Project bonds:	
Term ($36,324 principal amount)	35,592
Serial ($2,361 principal amount)	2,356
Payment of fuel financing obligations	18,638
Payment of promissory notes	50,000
Construction costs including additions to electric plant	88,407
Nuclear fuel	59,767
Fuel oil	84,411
Operations and maintenance	102,864
Purchased power—Hydro Quebec	54,532
—Others	37,759
Wheeling and cycle conversion charges	132,106
Financing costs	3,050
Preliminary investigations	2,350
Purchase of U. S. Government securities purchased under agreements to resell, net	32,772
Purchase of investments, net	75,788
Total Disbursements	965,179
Cash Balance December 31, 1979	$108,653

The accompanying notes are an integral part of these financial statements.

NOTES TO FINANCIAL STATEMENTS

Note A—General

Power Authority of the State of New York is a body corporate and politic, a political subdivision and a corporate municipal instrumentality of the State of New York created by the Legislature of the State by Chapter 772 of the Laws of 1931, approved April 27, 1931, and last amended by Chapter 55 of the Laws of 1979.

Properties and income of the Authority are exempt from taxation. However, the Authority is authorized by Chapter 908 of the Laws of 1972 to enter into agreements to make payments in lieu of taxes with respect to property acquired for any project where such payments are based solely on the value of real property without regard to any improvement thereof by the Authority and where no bonds to pay any costs of such project were issued prior to January 1, 1972.

Note B—Accounting Policies

(1) Accounts of the Authority are maintained in accordance with the Uniform System of Accounts as prescribed by the Federal Energy Regulatory Commission, adapted to provisions of the Authority's bond resolutions.

(2) Electric plant in service and construction work in progress consist primarily of amounts expended to license, construct, acquire, complete and place in operation the projects of the Authority. Such expenditures include, in accordance with the bond resolutions, bond discount and financing costs incurred in the issuance of bonds and notes, interest on bonds and notes (net of interest income on unexpended funds), and revenues received for power produced (net of expenditures incurred in operating the projects) prior to the date of completion. Electric plant in service and construction work in progress are stated at initial cost and include the cost of additions financed from operating revenues. The sources of funds used to finance such project expenditures to December 31, 1979 were as follows:

1954 Project	
General Revenue Bonds	$1,090,207,000
Operating Revenues	71,644,000
	$1,161,851,000
1970 Project	
Revenue Bonds	$ 567,961,000
Operating Revenues	7,000,000
	$ 574,961,000
General Purpose Projects	
General Purpose Bonds and Notes	$1,179,165,000
Operating Revenues	2,938,000
	$1,182,103,000

(3) Costs incurred by the Projects' Study Fund for preliminary investigations of a project are transferred to construction work in progress upon the identification of a project and the issuance of the initial series of bonds for the project under the General Purpose Bond Resolution.

(4) The amortization of nuclear fuel is provided on a unit of production basis. Amortization rates are determined and periodically revised to amortize the cost of nuclear fuel over its estimated useful life. Due to the uncertain future of the nuclear fuel reprocessing industry and the absence of government approvals for reprocessing and recycling, the Authority has estimated no value for residual credits or costs for nuclear fuel reprocessing or disposal. However, the Authority has expanded on-site spent fuel storage facilities, the costs of which are included in Electric Plant. The Authority anticipates that future costs of decommissioning its nuclear plant facilities and reprocessing or disposal of spent nuclear fuel will be met from rates (see Note D) designed to provide for such costs and from funds expected to be available in accounts established under the 1970 and General Purpose bond resolutions by the end of the useful lives of its nuclear plants. Cumulative amortization of nuclear fuel at December 31, 1979 totalled $37,991,000 for the 1970 Project and $56,173,000 for the General Purpose Projects.

(5) Operating expenses are charged with the amount of fuel consumed after use of the initial fuel supplies provided from bond proceeds which include, in the case of nuclear fuel, the first reload.

(6) The Authority's bond resolutions provide that operating expenses shall not include any provision for depreciation, amortization or similar charges. Effective recovery of investment in plant facilities is accomplished through allocation of available revenues to funds for the retirement of bonds at cost. Any excess of principal amount over the cost of bonds retired is used for additional bond retirements. The cost of ordinary replacements of electric plant is treated as an operating expense.

(7) In accordance with the Authority's bond resolutions all revenues, as defined, are required to be paid into the revenue fund established under each resolution upon completion or the latest estimated date of completion of each project, whichever is earlier.

(8) Funds required for all bond service payments due and payable on July 1 and January 1 are accounted for as paid on the immediately preceding June 30 and December 31, by which dates such amounts are made available to the Bond Trustees under the resolutions and segregated for that purpose. Accordingly, at December 31, 1979, no liability is reflected in the accompanying financial statements for such interest ($90,509,000) and principal ($2,307,000) payments.

(9) At December 31, 1979, the aggregate market value of investments in U. S. Government securities (principal amount $483,200,000) based upon published bid prices amounted to $460,400,000.

(10) Employees of the Authority are members of the New York State Employees' Retirement System. For personnel who became members of the System prior to July 1, 1976, the Authority contributes the entire amount determined by the System to be payable. From July 1, 1976, personnel who become members of the System deposit three percent of gross salary, and the Authority contributes the bal-

ance payable to the System for these employees. Pension costs for the year ended December 31, 1979 of $4,621,000 are based on billings received from the System. The Authority's employees are also covered by the Federal Insurance Contributions Act. (Social Security)

(11) Sales and purchases of power between generating facilities financed under the same bond resolution have been eliminated in the presentation of revenues and operating expenses.

(12) Customers' meters are read and bills are rendered on a monthly cycle basis. Unbilled revenues for services provided including amounts to be billed for the sale of energy from the Astoria 6 and Indian Point 3 plants under a fuel adjustment clause have been accrued.

Note C—Bond Resolutions

The Authority has adopted the following bond resolutions:

1954 Project

The Authority adopted on December 21, 1954, the General Revenue Bond Resolution (the 1954 Resolution) to finance the St. Lawrence and Niagara Power Plants and related transmission lines (the 1954 Project). The Resolution provides that all revenues from the 1954 Project in excess of operating and maintenance expenses and working capital requirements be applied to the bond service, bond reserve and general reserve accounts for the payment of interest and principal on the bonds or to insurance and improvement funds. A total of $1,102,050,000 principal amount of bonds was issued under the 1954 Resolution of which $227,783,000 remains outstanding at December 31, 1979. No additional bonds may be issued under the 1954 Resolution.

1970 Project

A Revenue Bond Resolution was adopted as of June 15, 1970 (the 1970 Resolution) to finance the Blenheim-Gilboa Pumped Storage Project which includes three transmission lines, the FitzPatrick Nuclear Plant and the Fitz-Patrick-Edic Transmission Line (the 1970 Project). The Resolution provides that all revenues from the 1970 Project in excess of operating and maintenance expenses and working capital requirements be applied to the bond service and bond reserve accounts for the payment of interest and principal on the bonds. Upon retirement of all 1954 Project bonds not later than January 1, 1985 (the date established in a schedule set forth in the 1970 Resolution) revenues of the 1954 Project after providing for its operating expenses and working capital requirements will be applied to the extent necessary to meet any deficiency in the 1970 bond service or bond reserve accounts. The 1970 Resolution also provides that amounts in the bond reserve account will be applied by the Bond Trustee monthly to meet any deficiency in the bond service account or may be paid to the Authority for emergency repairs or replacements. From May, 1976 (issuance of Series H bonds) through December 31, 1979, an aggregate of $34,657,000 was transferred from the bond reserve account to the bond service account by the Bond Trustee for the payment of interest. During this period, revenues of $10,946,000 were set aside in the bond reserve account. A total of $734,000,000 principal amount of bonds has been issued under the 1970 Resolution all of which remains outstanding at December 31, 1979. The Authority has the right to issue additional bonds (i) to complete the 1970 Project, (ii) to refund one or more series of bonds outstanding under the 1970 Resolution or all of the 1954 Project bonds now outstanding, and (iii) to finance major repairs, replacements, improvements, betterments or additions to the 1970 Project.

General Purpose Projects

A General Purpose Bond Resolution adopted on November 26, 1974 (the General Purpose Resolution) provides for the financing of projects other than those projects financed under the 1954 and 1970 resolutions of the Authority. Projects are defined in the resolution as any project of the Authority directly or indirectly related to power generation or transmission, whether owned jointly or singly by the Authority, including any output in which the Authority has an interest, heretofore or hereafter authorized by the Power Authority Act and hereafter specified in the supplemental resolution adopted at the time a series of bonds is issued. Any new project must meet a prescribed earnings test certified to by an independent engineer. Projects financed through December 31, 1979 under the resolution are the Astoria 6, Indian Point 3, Massena-Marcy Line and the Greene County Project (see Note G). The General Purpose Resolution also established a Projects' Study Fund to finance preliminary efforts of the Authority to determine appropriate methods to fulfill its purposes under the Power Authority Act.

The Authority covenants that at all times rates and charges will be sufficient, together with other moneys available therefor, to meet the financial requirements of the General Purpose Resolution. All revenues not pledged under the 1954 or 1970 resolutions from any project of the Authority after its completion (after deductions for operating expenses and necessary working capital reserves and for Projects' Study) are applied first to the payment of bond service (interest only to December 31, 1985, thereafter interest and principal installments due on outstanding bonds); then a sum equal to fifteen percent of each year's bond service is set aside in a bond reserve account; any remaining revenues are deposited in a general reserve account to be paid to the Authority for any lawful corporate purpose. Amounts in the Bond Reserve account will be applied by the Bond Trustee monthly to meet any deficiency in the bond service account and may be paid to the Authority for emergency repairs or replacements. Amounts in such account above the bond reserve requirement may be used to retire bonds. Upon retirement of all bonds issued for the 1954 Project, that portion of the revenues of such project (after providing for operating expenses and reasonable and necessary working capital reserves) in excess of any amount required under the 1970 resolution, will be deposited in the General Purpose revenue fund.

A total of $1,760,000,000 principal amount of bonds has been issued under the General Purpose resolution, all of which remains outstanding at December 31, 1979.

Note D—Rate Increases

1970 Project

An increase in the FitzPatrick plant's rates was approved by the Authority on January 24, 1980. The revised rates, which become effective on April 1, 1980, are designed to produce an average annual increase in revenues of approximately $38.8 million through 1982. The rate increase was necessitated by increased costs of operation, maintenance, nuclear fuel and the costs of modifications to the FitzPatrick plant, as well as to initiate provision for costs of disposal of spent nuclear fuel and of nuclear plant decommissioning.

General Purpose Projects

The Authority approved on January 24, 1980 increases in rates for the Astoria 6 and Indian Point 3 plants. The revised rates, which become effective during the month of February, 1980, are expected to provide additional revenues of approximately $51.8 million on an annual basis. In addition, an energy adjustment factor is applied each month to reflect variations in the actual cost of fuel and purchased power. These rate increases are due to increased costs of oil and nuclear fuels, operation and maintenance expenses, as well as to initiate provision for Indian Point 3 costs of disposal of spent nuclear fuel and of nuclear plant decommissioning.

Due to increased construction costs and operation and maintenance expenses the Authority authorized publication on December 20, 1979 of notice to increase the Massena-Marcy Line transmission charge for the sale of diversity power. The proposed revised rate is expected to become effective April 1, 1980 and is designed to increase transmission revenues by approximately $5.5 million on an annual basis.

Note E—Financing

Bonds

On October 18, 1979, pursuant to the General Purpose Bond Resolution and the Eighth Supplemental General Purpose Bond Resolution adopted on that day the Authority sold $150,000,000 principal amount of General Purpose Bonds, Series H. Proceeds of the bonds, after deposit of $11,829,100 to the bond reserve account and $5,105,027 to the temporary interest fund, are being used to pay a portion of the licensing, engineering, design and other construction costs of the Astoria 6, Indian Point 3, Massena-Marcy Line, and Greene County projects.

Promissory Notes

On April 2, 1979, pursuant to a Note Resolution adopted on March 23, 1979, the Authority sold $40,000,000 principal amount of Promissory Notes to pay a portion of the cost of construction of any project specified in a supplemental resolution to the General Purpose Bond Resolution. The notes bear interest at a specified fraction of the prime rate in effect from time to time and are payable as to principal and interest on April 2, 1980.

Fuel Financing

In 1977, the Authority entered into an arrangement under which two banks agreed to make available to the Authority funds for the purchase of natural uranium concentrates required for future operation of its nuclear plants. The cost of the uranium is payable in three semi-annual installments commencing eighteen months after each delivery of uranium. Interest is computed at a specified fraction of the prime rate in effect from time to time and is payable one year prior to the first principal installment date of each delivery and semi-annually thereafter. As of December 31, 1979, the Authority had purchased uranium at a cost of $26,704,000 under this arrangement of which $10,416,000 remains outstanding at December 31, 1979.

Of a Promissory Note in the amount of $8,800,000, issued pursuant to a Resolution adopted on July 17, 1978, to pay for natural uranium concentrates required for use at the Indian Point 3 plant, $7,700,000 remains outstanding at December 31, 1979, and is payable with interest in seven equal semi-annual installments from June 30, 1980. Interest is computed at a specified fraction of the prime rate in effect from time to time.

Of a Promissory Note in the amount of $10,000,000, issued on April 12, 1979 pursuant to a Resolution adopted on March 23, 1979, to pay for nuclear fuel required for use at the Indian Point 3 plant, $8,750,000 remains outstanding at December 31, 1979, and is payable with interest in seven equal semi-annual installments from June 30, 1980. Interest is computed at a specified fraction of the prime rate in effect from time to time.

On December 27, 1979, pursuant to a Resolution adopted on December 20, 1979, the Authority issued a $30,000,000 Promissory Note payable with interest in four equal semi-annual installments beginning January 1, 1981. Interest is computed at a specified fraction of the prime rate in effect from time to time. The proceeds of the note are for the payment of fuel purchases.

Note F—Bonds Outstanding

1954 Project

The General Revenue Bonds issued for the 1954 Project outstanding at December 31, 1979 bear interest payable semi-annually on January 1 and July 1, with maturities and interest rates per annum shown below:

	Amount	Maturity* January 1	Interest Rate
Series A—St. Lawrence Power Project			
Term Bonds	$ 46,811,000	1995	3.20%
Series B—Barnhart Platts-burgh Transmission Line Project			
Serial Bonds	848,000	1981 to 1985	2.75% and 2.80%
Series C—Supplemental Transmission Line Project			
Serial Bonds	280,000	1981 to 1985	3.75%
Series E—Niagara Power Project			
Term Bonds	42,275,000	2006	4.20%
Series F—Niagara Power Project			
Term Bonds	48,835,000	2006	4.20%
Series G—Niagara Power Project			
Term Bonds	31,106,000	2006	4.375%
Series H—Niagara Power Project			
Term Bonds	22,258,000	2006	4.125%
Series J—Niagara Power Project			
Term Bonds	24,320,000	2006	3.75%
Series K—Niagara Power Project			
Term Bonds	7,124,000	2006	3.625%
Series L—Second Circuit Transmission Line Project			
Term Bonds	2,586,000	2006	3.55%
Serial Bonds	1,340,000	1981 to 1984	3.25% and 3.30%
	$227,783,000		

* The Authority has covenanted in the 1970 and General Purpose bond resolutions to retire all 1954 Project bonds not later than January 1, 1985.

None of the Bonds of Series D or I has been or will be issued by the Authority.

The Bonds are subject to redemption prior to maturity in whole or in part in inverse order of the maturities beginning on January 1, 1981, or any date thereafter at various redemption prices according to the date of redemption, together with accrued interest to the redemption date. The Bonds mature in annual installments, including sinking fund requirements for the Term Bonds.

1970 Project

The Revenue Bonds issued for the 1970 Project outstanding at December 31, 1979 bear interest payable semi-annually on January 1 and July 1, with maturities and interest rates per annum shown below:

	Amount	Maturity January 1	Interest Rate
Series A—Term Bonds	$120,000,000	2010	6.875%
—Serial Bonds	20,000,000	1986 to 1993	6.50%
Series B—Term Bonds	85,500,000	2010	5.625%
—Serial Bonds	24,500,000	1986 to 1995	5.10% to 5.50%
Series D—Term Bonds	98,000,000	2010	5.875%
—Serial Bonds	22,000,000	1986 to 1995	5.10% to 5.60%
Series E—Term Bonds	39,000,000	2010	5.50%
—Serial Bonds	11,000,000	1986 to 1995	4.90% to 5.30%
Series F—Term Bonds	95,000,000	2010	5.50%
—Serial Bonds	29,000,000	1986 to 1995	4.75% to 5.30%
Series G—Term Bonds	85,000,000	2010	5.375%
—Serial Bonds	25,000,000	1986 to 1995	5.00% to 5.20%
Series H—Term Bonds	64,000,000	2010	7.50%
—Serial Bonds	16,000,000	1986 to 1995	6.00% to 7.10%
	$734,000,000		

None of the Bonds of Series C has been or will be issued by the Authority.

The Bonds will be subject to redemption prior to maturity in whole or in part in inverse order of maturities beginning on January 1, 1981 at various redemption prices according to the date of redemption and the amount redeemed, together with accrued interest to the redemption date.

General Purpose Project

The General Purpose Bonds issued for the Astoria 6 Project, Projects' Study, Indian Point 3 Project, Massena-Marcy Line Project and Greene County Project outstanding at December 31, 1979 bear interest payable semi-annually on January 1 and July 1, with maturities and interest rates per annum shown below:

General Purpose	Amount	Maturity January 1	Interest Rate	Earliest Redemption Date Prior to Maturity*
Series A—Astoria 6				11/1/85
Term Bonds	$ 125,000,000	2010	7.875%	
Serial Bonds	25,000,000	1987 to 1995	6.50% to 7.30%	
Series B—Astoria 6 and Project's Study				6/1/85
Term Bonds	110,000,000	2010	8.125%	
Serial Bonds	40,000,000	1987 to 1997	6.90% to 7.90%	
Series C—Astoria 6, Indian Point 3 and Massena-Marcy Line				1/1/86
Term Bonds	610,000,000	2001	9.50%	
Series E—Astoria 6, Indian Point 3, Massena-Marcy Line, Greene County and Projects' Study				10/1/86
Term Bonds	130,000,000	2010	7.25%	
Serial Bonds	20,000,000	1987 to 1994	6.00% to 6.90%	
Series F—Astoria 6, Indian Point 3, Massena-Marcy Line, and Greene County Project				2/1/87
Term Bonds	175,000,000	2010	6.625%	
Serial Bonds	25,000,000	1987 to 1993	5.40% to 6.10%	
Series G—Astoria 6, Indian Point 3, Massena-Marcy Line, and Greene County Project				1/1/88
Term Bonds	42,200,000	1999	6.40%	
Term Bonds	242,600,000	2012	6.75%	
Serial Bonds	65,200,000	1987 to 1995	5.50% to 6.20%	
Series H—Astoria 6, Indian Point 3, Massena-Marcy Line and Greene County Project				1/1/89
Term Bonds	124,000,000	2009	8.00%	
Serial Bonds	26,000,000	1987 to 1999	6.80% to 7.75%	
	$1,760,000,000			

None of the Bonds of Series D has been or will be issued by the Authority.

* The Bonds will be subject to redemption prior to maturity in whole or in part in inverse order of maturities beginning for each series of bonds on the date indicated at various redemption prices according to the date of redemption and the amount redeemed, together with accrued interest to the redemption date.

Note G—Greene County Project

On April 5, 1979, the Authority adopted a resolution to sell the assets of the Greene County Nuclear Power Project because of substantial escalation in capital costs, protracted delays in licensing proceedings, the uncertainty of obtaining required licenses and approvals and the possibility of complete blockage. On January 18, 1980 the Authority withdrew its application for a siting certificate for the plant.

Costs incurred including termination charges on all contracts for the Greene County Project totalled $186,131,000 as of December 31, 1979. Additional costs for storage and expenses in connection with sale of fabricated components owned by the Authority are anticipated. The unexpended proceeds from the Series H bonds deposited in the Greene County Project construction fund are expected to be sufficient to pay all such remaining costs. Net interest costs in respect of $227 million of bonds relating to the Greene County Project are payable from funds on deposit in the temporary interest fund held by the Trustee until May, 1981 and thereafter from the Authority's operating revenues. While the Authority is attempting to sell the project's assets, it cannot presently estimate the extent or amount of any recovery.

The Project was financed by the issuance of bonds under the Authority's General Purpose Bond Resolution. The resolution provides that the revenues from all Authority projects not pledged under the 1954 and 1970 bond resolutions are pledged to the payment of principal and interest on all General Purpose bonds. The Authority has covenanted with bondholders to raise rates, if necessary, to provide the required coverage on the bonds. It is anticipated that effective recovery of Greene County Project costs in excess of sales proceeds will be accomplished through the allocation of revenues for the payment of principal and interest on all General Purpose bonds.

Note H—Commitments and Claims

Estimated costs to be incurred on outstanding contracts in connection with the Authority's construction programs as well as commitments for the acquisition of uranium aggregated approximately $107,000,000 at December 31, 1979.

No provision has been made for land acquisition claims in excess of appraisal estimates deposited with the Comptroller of the State of New York. Such deposits are included in construction work in progress.

At December 31, 1979, the Authority was obligated for purchases aggregating $4,090,000 principal amount of General Revenue Bonds for delivery and settlement at a cost of $3,814,000 subsequent to December 31, 1979.

Note I—Contingencies

There are pending before Federal and State courts and Federal and State agencies actions and proceedings involving several of the Authority's projects or planned projects. While the ultimate outcome of these matters is not presently determinable, the Authority's General Counsel is of the opinion that the Authority has meritorious positions with respect to these matters. However, the effect of these matters has delayed and may impede the Authority's construction and operation of such projects or planned projects and require the Authority to incur substantial additional costs or postponement of revenues.

Under regulations established by the Nuclear Regulatory Commission each licensee of a nuclear plant must provide a guarantee that assures, following a nuclear incident in the United States, that it can pay retrospective premiums up to a maximum of $10,000,000 in each calendar year for each large power reactor it operates. The Authority has submitted to the Commission such guarantees for both its James A. FitzPatrick and Indian Point 3 nuclear plants. In connection with the FitzPatrick Plant guarantee, the Authority has a revolving credit/term loan arrangement with a bank.

COOPERS & LYBRAND

CERTIFIED PUBLIC ACCOUNTANTS

A MEMBER FIRM OF
COOPERS & LYBRAND (INTERNATIONAL)

Power Authority of the State of New York
New York, New York

We have examined the statement of condition of the Power Authority of the State of New York as of December 31, 1979, and the summary of funds and revenues and disposition of revenues of the 1954 Project, 1970 Project and General Purpose projects and the statement of receipts and disbursements for the year then ended. Our examination was made in accordance with generally accepted auditing standards and, accordingly, included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

The aforementioned financial statements of the Authority are prepared on the basis of the provisions of the respective bond resolutions. Such resolutions require allocation of available revenues for debt service and bond retirements and the treatment of the cost of facility replacement as an operating expense in lieu of provisions for depreciation, amortization or similar charges that would otherwise be applicable under generally accepted accounting principles for commercial enterprises. Effective recovery of investment in plant facilities is accomplished through allocation of available revenues to funds for the retirement of bonds at cost. Accordingly, the financial statements of the Authority are appropriately presented under accounting principles required by or appropriate to the provisions of the respective bond resolutions rather than in accordance with generally accepted accounting principles.

In our opinion, such financial statements present fairly the financial position of the Power Authority of the State of New York at December 31, 1979, and the cash and fund transactions, changes in fund balances, and revenues and disposition of revenues of the 1954 Project, 1970 Project and General Purpose projects and the receipts and disbursements for the year then ended, in conformity with accounting principles required by or appropriate to the provisions of the respective bond resolutions, applied on a basis consistent with that of the preceding year.

Coopers & Lybrand

New York, New York
January 31, 1980

Power Authority of the
State of New York
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