NIAGARA

1	5	1	4	2	7	0	0	0

KWH

ST. LAWRENCE

1	4	1	2	2	8	7	7	0	0	0

KWH

D

ANNUAL REPORT

POWER AUTHORITY OF THE STATE OF NEW YORK

FEBRUARY 27, 1961

POWER GENERATION

Niagara

ONE HUNDRED FIFTY ONE MILLION, FOUR HUNDRED TWENTY SEVEN THOUSAND KILOWATT-HOURS

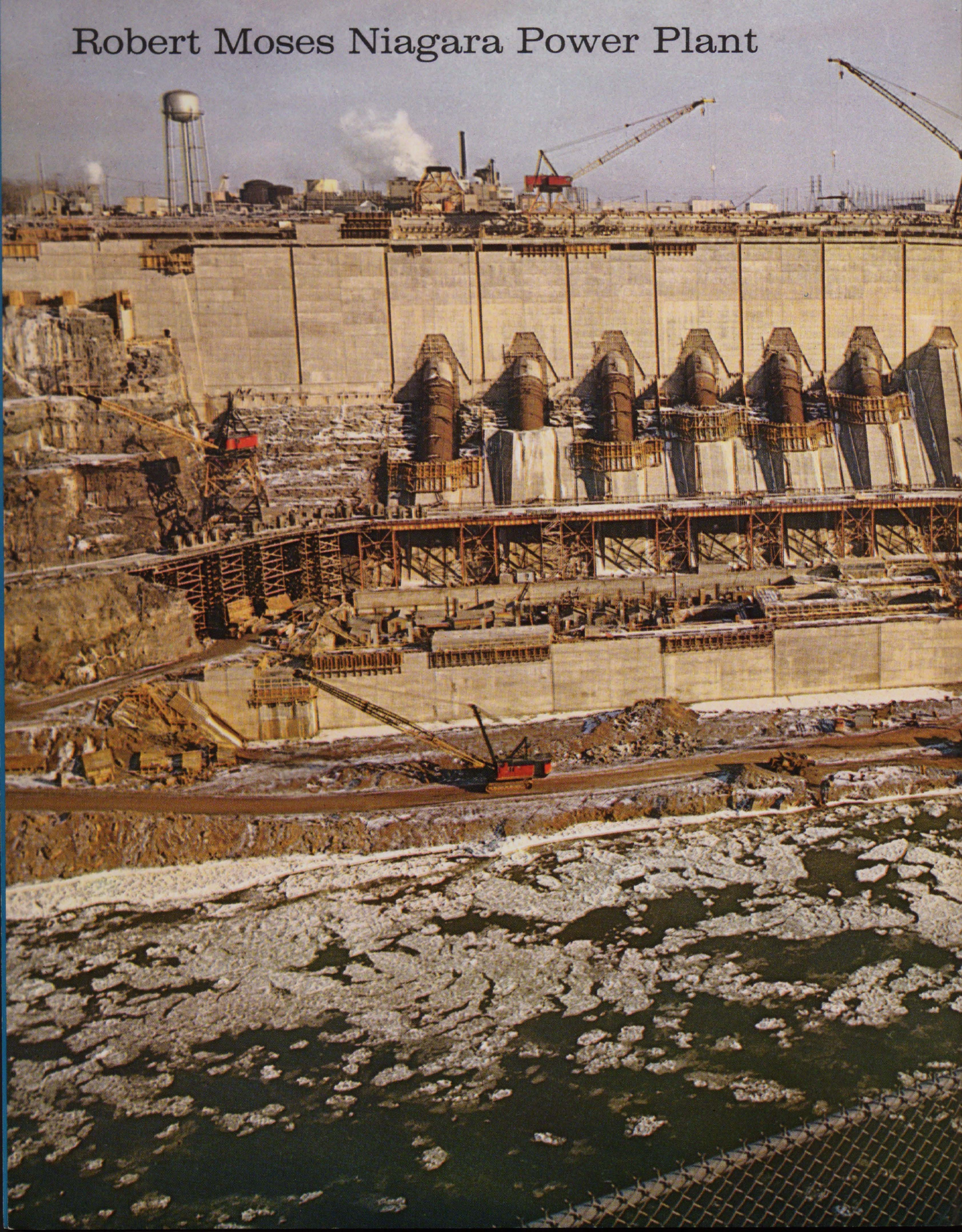
THE COVER INDICATES TOTAL ENERGY GENERATED TO DATE AT

THE AUTHORITY'S NIAGARA AND ST. LAWRENCE POWER PROJECTS

St. Lawrence

FOURTEEN BILLION, ONE HUNDRED TWENTY TWO MILLION, EIGHT HUNDRED SEVENTY SEVEN THOUSAND KILOWATT-HOURS

Robert Moses Niagara Power Plant



ANNUAL REPORT

February 27, 1961

To the Governor and Legislature
of the State of New York

Power Authority of the State of New York herewith submits its Thirtieth Annual Report covering operations and transactions since June 1954.

Respectfully,
ROBERT MOSES, *Chairman*

POWER AUTHORITY OF THE STATE OF NEW YORK

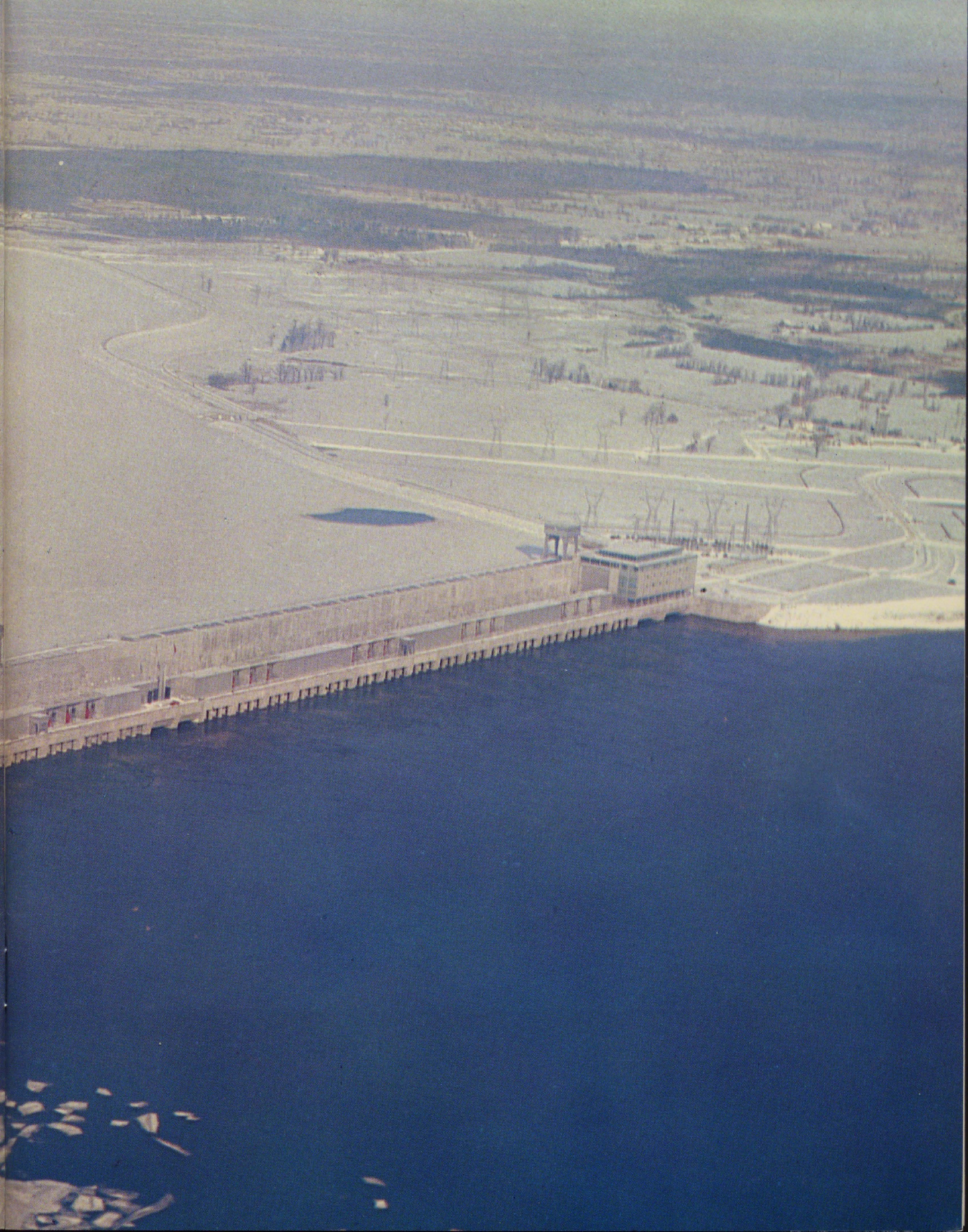
ROBERT MOSES, *Chairman*
WILLIAM WILSON, *Vice-Chairman*
A. THORNE HILLS
FINLA G. CRAWFORD
THEODORE HILL, JR.

WILLIAM S. CHAPIN, *General Manager and Chief Engineer*
THOMAS F. MOORE, JR., *General Counsel*
ASA GEORGE, *Assistant Chief Engineer*
E. V. STALCUP, *Director of Power Utilization*
HUGH V. FREEMAN, *Controller*
JOHN C. BRUEL, *Secretary*
WILLIAM H. LATHAM, *Resident Engineer, Niagara Project*
LUTHER E. CLIFFE, *Resident Engineer, St. Lawrence Project*

UHL, HALL & RICH, *General Engineering Consultants*

CLARKE & RAPUANO, *Landscape Architects*
JOHN B. PETERKIN, *Consulting Architect*
SLATER & CHAIT, *Architects*
GEORGE E. SPARGO, *Financial Consultant*
ROSENMAN, COLIN, KAYE, PETSCHEK & FREUND, *Legal Consultants*
HAWKINS, DELAFIELD & WOOD, *Bond Counsel*
JACOB I. GOODSTEIN, *Legal Consultant*
EDWARD C. MAGUIRE, *Labor Relations Consultant*
PRAEGER-KAVANAGH, *Engineering Consultants*
MAIN AND COMPANY, *Accountants*
WILLIAM J. DONOGHUE ASSOCIATES, Inc., *Public Relations*
THORNE APPRAISAL SERVICE, Inc., *Real Estate Consultant*
LESLIE N. McCLELLAN, *Consultant on Power Utilization*
THOMAS F. FARRELL, *Special Consultant*

Robert Moses - Robert H. Saunders Power Dam



GENERAL PROGRESS

The year 1960 was the most important in the history of the Power Authority.

Power receipts from St. Lawrence in its first full season of operation were fully adequate to pay for maintenance and operation and to meet the requirements of the bond indenture.

During the year construction of the St. Lawrence project was certified as complete.

Construction on all phases of the Niagara project, including land acquisition, in the amount of $285 million made secure our promise three years ago to deliver first power on February 10, 1961.

Power contracts were approved by Governor Rockefeller for the sale of substantially all of the output of the Niagara project, thus guaranteeing the financial success of the project.

The schedules for the acquisition of rights of way and construction of the transmission tie-line between the Niagara and the St. Lawrence were maintained. This will make possible the distribution of all power generated at Niagara and not used on the Frontier or distributed over existing lines.

The first section of Niagara Parkway, including recreation, parking and other facilities in the Niagara Reservation was opened to traffic and much of the remaining work on the parkway between the Grand Island Bridge and the new international bridge was put under contract.

The new international Lewiston-Queenston Bridge was placed under contract by the Niagara Falls Bridge Commission.

Under the State Department of Public Works work on Niagara Expressway was started, the first phase of the railroad grade crossing elimination program was completed and the second phase put under contract.

Work was started on the new bridge paralleling the existing South Grand Island Bridge by the New York State Thruway Authority.

On the same day, February 10, 1961, that first commercial power at Niagara was celebrated, the State Council of Parks and the Niagara Frontier State Park Commission opened to the public the new observation tower in Prospect Park.

FINANCING

During 1960 the Authority sold to the investing public two bond issues of $100 million each at favorable terms. The sale of these issues brought the total sale of Niagara bonds to $620 million. In addition, the Authority arranged temporary financing by borrowing $60 million from commercial banks for a six-month's period at an annual interest rate of two per cent. The Authority is now completing the financing of the $720 million project.

NIAGARA CONSTRUCTION

Work on the main power plant, the reservoir power plant, forebay canal, covered conduits, intake, switchyard and other facilities proceeded on a tight schedule throughout the entire year. The conduits and forebay were flooded as the old year ebbed and the first unit at the power plant received water and was activated for testing purposes on January 12th. Tests commenced on the second unit on February 3rd and succeeding units will be ready at five-week intervals. By the end of 1961 sufficient units will be operating to make the use of the pump-generating plant economical. Construction of the plant and the storage reservoir will proceed during 1961 and these facilities will be ready for service as soon as needed.

On March 7, 1960 the Supreme Court of the United States sustained the Authority's right to condemn Tuscarora Indian land. The Authority, having previously raised the height of the dikes and the reservoir power plant, was thus assured of a reservoir of 60,000 acre-foot capacity even though the Authority determined to acquire a lesser area than originally planned.

The power conduits have now been completed and covered and in 1961 the areas over the conduits will be graded and landscaped. Hyde Park improvements, including the new golf course and club house, will be completed and the other areas will be made available for residential and industrial use as planned. The detours, haul roads, and temporary bridges are now rapidly disappearing and the entire conduit area is being restored.

Although work on the power project will gradually decline and will be substantially completed by the end of 1961, work on the new international Lewiston-Queenston Bridge, the Niagara Expressway and the railroad grade crossing program will accelerate. In addition, expansion plans of industry using Niagara expansion power will be put in motion thus creating additional jobs.

ST. LAWRENCE OPERATIONS

Power generation at St. Lawrence totalled 6,311 million kwh, some 700 million kwh more than in 1959. River flow available for power generation was average for the first part of the year, below normal toward the end of the year, and for the year as a whole somewhat below average. The project nevertheless maintained a satisfactory record in meeting its firm power commitments, and power revenues were fully adequate to meet all financial requirements.

A program of test and experimentation in the economic use of St. Lawrence water for power generation has been a major feature of 1960 operations of the Authority and Ontario Hydro who share equally in water released into the St. Lawrence from Lake Ontario. These releases, under the control of the International Joint Commission and the St. Lawrence River Joint Board of Control, are regulated to maintain navigation, contain fluctuations within prescribed limits in Lake Ontario and St. Lawrence River water levels, achieve other purposes and facilitate power production.

Various peaking tests have been instituted whereby the hourly flow is fluctuated under strict conditions of control to meet the power requirements. Tests to date indicate that fluctuations of up to 30,000 cubic feet per second above and below the daily average release are generally feasible without adverse effects. Tests have recently been authorized to save water over weekends, when power is less needed, for use on weekdays when power is in greater demand. Increased flexibility in the use of water for power generation will materially enhance the value of the power produced although it will not add appreciably to the total energy generated. A major reason for the Authority's excellent financial showing in an adverse water year was the successful program of peaking resulting in the efficient use of the flow of the St. Lawrence.

Maintenance of project facilities was kept on a high

standard. The hydraulic turbines which traditionally require continuing maintenance have been put through their first major overhauls. The World War II woodpole circuits on the transmission line from Massena to Adirondack have also required considerable maintenance and replacement of hardware. Since nearly all the project's other facilities are still quite new, no major maintenance has been encountered.

The power produced at St. Lawrence in 1960 was marketed in accordance with contract terms to three industrial consumers, two private power companies, twelve municipalities, three cooperatives, one federal establishment and the State of Vermont. No new sales contracts for St. Lawrence power were made during the year, nor were any amended or terminated. The two power companies during the year passed on to rural and domestic consumers savings of $1,497,000 resulting from the purchase of St. Lawrence power. Municipalities and cooperatives, by rate reductions made in 1958 and 1959, were passing savings on to their customers at the beginning of 1960 at a rate which amounted to $391,000 per year. During the year, three municipalities further reduced their rates to add an additional $62,000 per year to the savings being passed on to consumers. Vermont utilities distributing St. Lawrence power were providing savings of over $1,300,000 per year to their consumers.

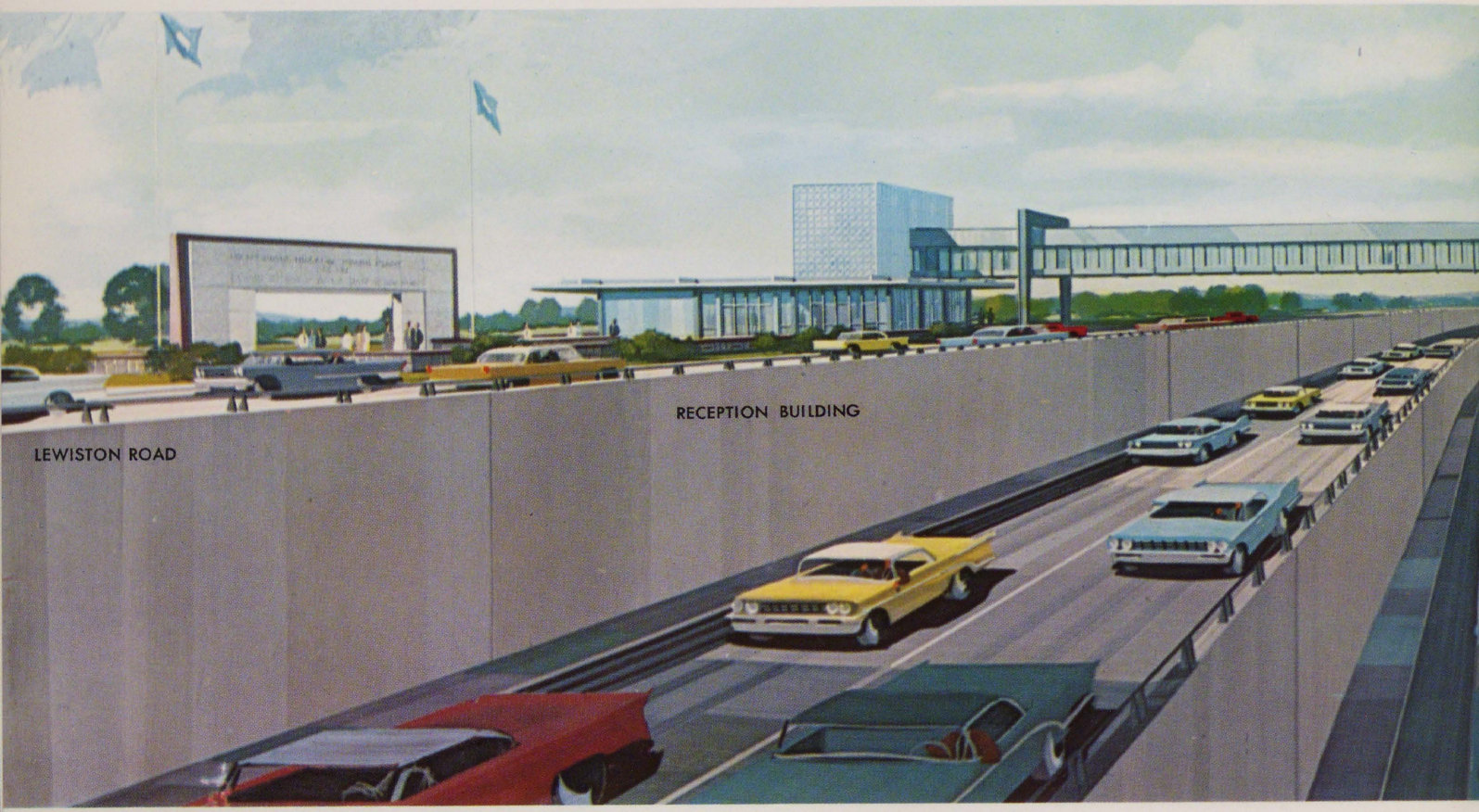
CHICAGO DIVERSION CASE

During the past year, the Authority has cooperated with the Attorney General of the State of New York and other Great Lake states in litigation pertaining to the diversion of water from Lake Michigan by the Metropolitan Sanitary District of Greater Chicago and efforts to do so by Illinois municipalities outside the Lake basin.

In this litigation, which is being heard by a Special Master appointed by the United States Supreme Court, we are suing to compel the Sanitary District to reduce the amount of water diverted from the Great Lakes for sanitary purposes, and to return treated sewer effluent to Lake Michigan. Concurrently, New York and other Great Lake states are opposing the application by three communities in Illinois to divert additional water from the Great Lakes to the Mississippi watershed.

During the year, the Special Master made a finding of vital interest to the Authority in denying the application of the three Illinois communities to make diversion on a temporary basis pending a final decision in the case.

Hearings have been held at various locations in many of the states affected by diversions of water from the Great Lakes. Various experts on power, navigation, sanitation and other matters have been employed



to represent the interests of the State and of the Authority. These hearings are continuing during the current year.

NUCLEAR POWER

During 1960 members of the staff continued to study the State's need for atomic power and the feasibility of early construction of a large nuclear plant in New York State. General Thomas F. Farrell, the Authority's consultant on atomic energy, continued to keep the Authority abreast of developments in the nuclear energy field. The Authority continued to urge amendment of the Power Authority Act to give the Authority the right to accept and utilize federal assistance in the development of nuclear power. We believe that without it New York State will fall behind other sections of the country in atomic power development.

Considerable federal aid will be needed for any organization to build an atomic plant before 1970 which can compete with conventional plants. The Authority, which is the only public agency in the State capable of financing and building a large nuclear plant, could do so with substantially less aid than any private company, or with the same aid could sell power at considerably lower rates. Federal law has heretofore given certain preferences in providing assistance for atomic power development to public bodies and it is therefore axiomatic that New York State should have all necessary machinery ready to accept and use such assistance whenever it is made available. We do not ask exclusive rights. We believe, however, that this vitally important new atomic field should not be preempted by private utilities, although they too should be in the picture.

Let there be no mistake about it. The control of atomic energy will, before long, be the greatest domestic policy question before the American people, because those who control fission and fusion will be the masters of population growth and location, industry, trade, commerce and life itself. This is too great a control to be exercised otherwise than on the theory that it is affected with a major public purpose not to be left exclusively to private profit enterprise.

The temporary excess of power in New York State will not continue for long unless the entire history of power consumption is reversed. It is essential to the continued prosperity and expansion of industry in New York that new unlimited sources of low cost power be developed in the near future. The Authority can make a unique contribution toward that goal if so authorized by the State.

ROBERT MOSES
Chairman

NIAGARA PARKWAY

ROBERT MOSES NIAGARA POWER PLANT

Niagara Power Project

An average of 203,000 cubic feet of water per second flows over the Falls of Niagara. The treaty between the United States and Canada, made in 1950, emphasized the "primary obligation to preserve and enhance the scenic beauty of the Niagara Falls and River and, consistent with that obligation, the most beneficial use of the water of that River" and accordingly provided that 100,000 c.f.s. must flow over the Falls in the daylight hours during the tourist season from April through October. At other times, when scenic considerations are less important, the flow may be reduced to 50,000 c.f.s. The remainder of the water may be diverted for power purposes to be shared equally by the two nations.

The Niagara Power Project, now under construction by the Authority, was designed to develop the full potential of the United States' share of the waters available for power, and is comprised of the following principal features:

INTAKE STRUCTURES AND WATERWAYS

The difference in water level along the Niagara River between Lake Erie and Lake Ontario is 326 feet. At Niagara Falls, however, the drop is only 165 feet with most of the remainder occurring in the rapids above and below the Falls. Consequently, to make possible the greatest use of the maximum drop two intake structures are being built on the upper Niagara River at the foot of Hyde Park Boulevard about two and one-half miles above the Falls. When completed, the only visible parts will be a concrete bulkhead one-third of a mile long and two gate structures each about 25 feet by 55 feet and nearly 100 feet high. These house the 400 ton gates which can stop the flow of water into either of the two conduits to permit inspection or repair in the dry. The twin conduits, each 46 feet by 66 feet, which will be completely covered and the ground above landscaped, carry the water some four miles to the reservoir site where it flows into an open canal.

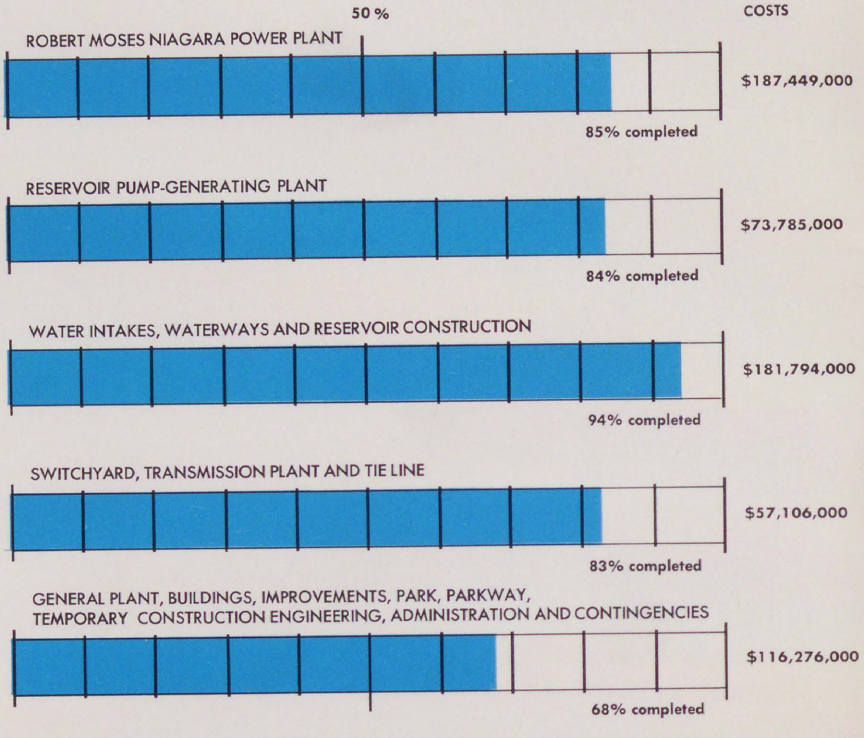
RESERVOIR AND PUMP-GENERATING PLANT

Both at night, when the 1950 Treaty permits the additional power diversion during the tourist season, and over weekends, when power demands are reduced, water from the conduits will be pumped into the Reservoir which will cover approximately 1,880 acres of land and have a capacity of 60,000 acre feet. At such times, surplus power from the Robert Moses Niagara Power Plant is used by units at the Reservoir Pump-Generating Plant to pump the water into the Reservoir. During the day, when power demands are increased, the 12 pump-motor units are reversed to function as turbine-generators with an installed capacity of 240,000 kw. The new Niagara Expressway, from North Grand Island Bridge to the new international Lewiston-Queenston Bridge will cross the forebay at the plant intake.

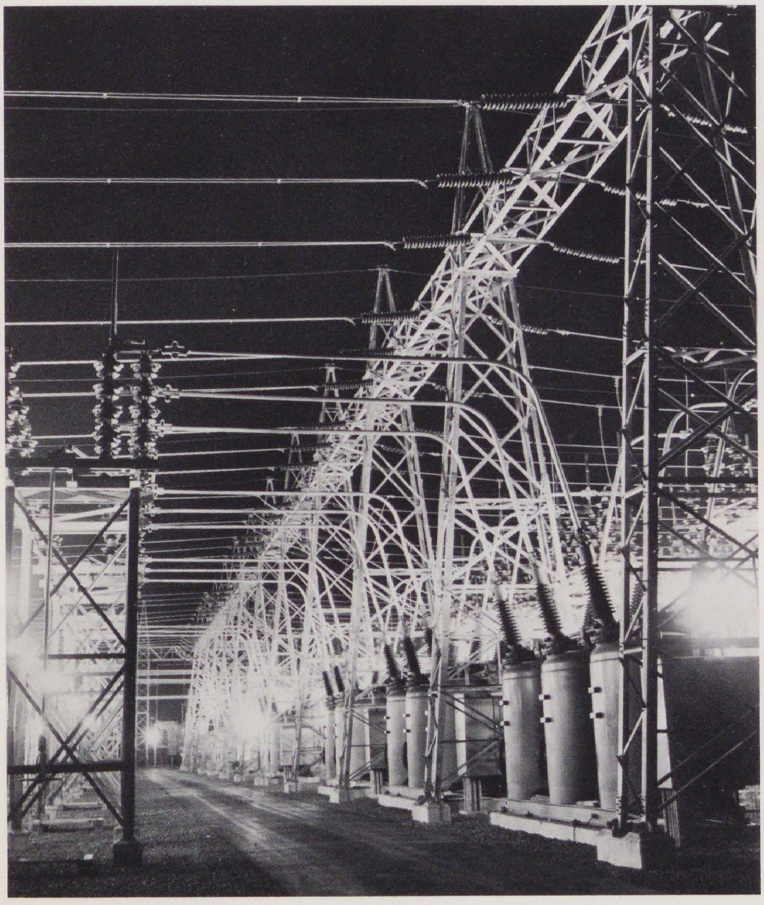
ROBERT MOSES NIAGARA POWER PLANT

The water that flows out of the conduits at the site of the Reservoir Pump-Generating Plant then flows into the open forebay of the Niagara Power Plant, located along the gorge about one mile west of the Reservoir and some three and one-half miles below the Falls. At this site, its thirteen generators, the largest ever constructed, with a total installed capacity of 1,950,000 kw, are able to take advantage of the maximum drop of the River. Lewiston Road and the new Niagara Parkway and the relocated New York Central railroad tracks will cross the top of the structure. At the south end, a public observation building will overlook the River and the plant.

PROGRESS CHART • NIAGARA POWER PROJECT



First Power February 10, 1961

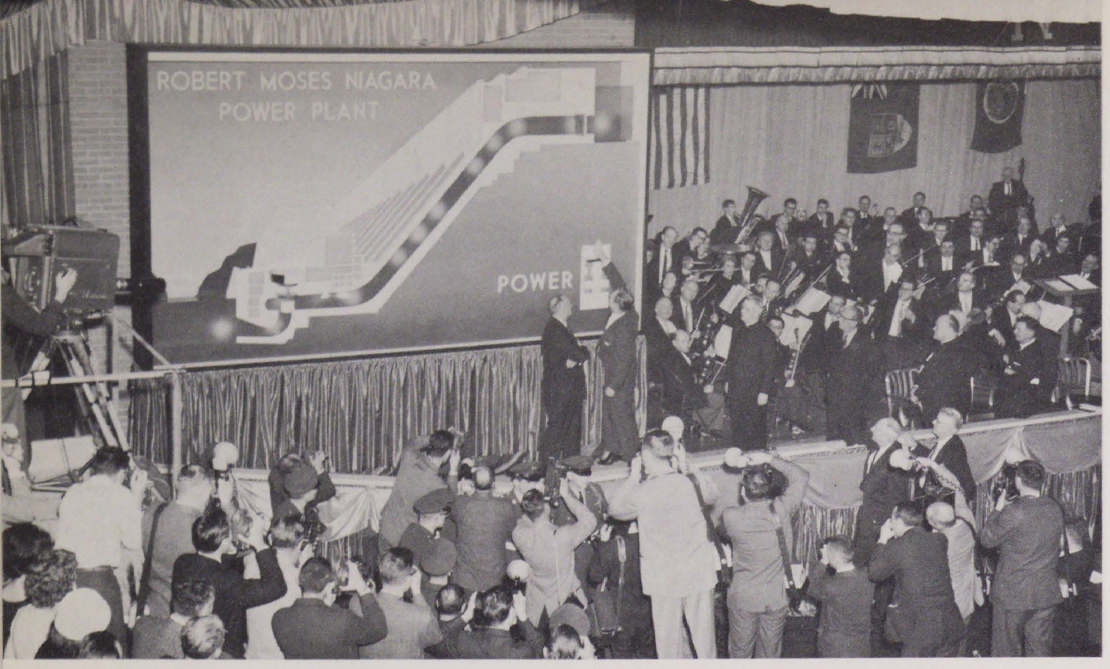


First power at Niagara. The audience hears the premiere of Ferde Grofé's Niagara Falls Suite, commissioned and dedicated to the Niagara Power Project. The four movements—Thunder of Waters; Devil's Hole Massacre; Honeymooners; and Power of Niagara—1961 were performed by the Buffalo Philharmonic Orchestra.

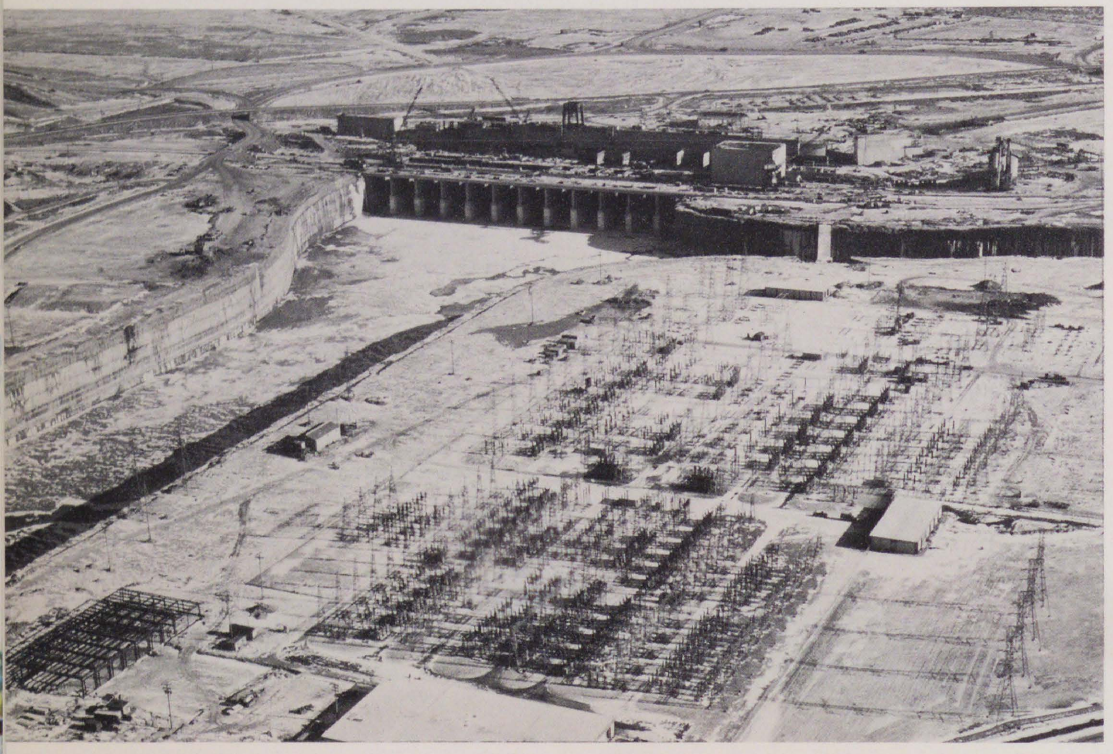
The display meter to the right shows that 42,000 kilowatt hours of energy have been generated in the seventeen minutes since the switch on the panel to the left was thrown.

The ceremony was held in the gymnasium of Niagara University, for the past three years in the very center of construction activity.

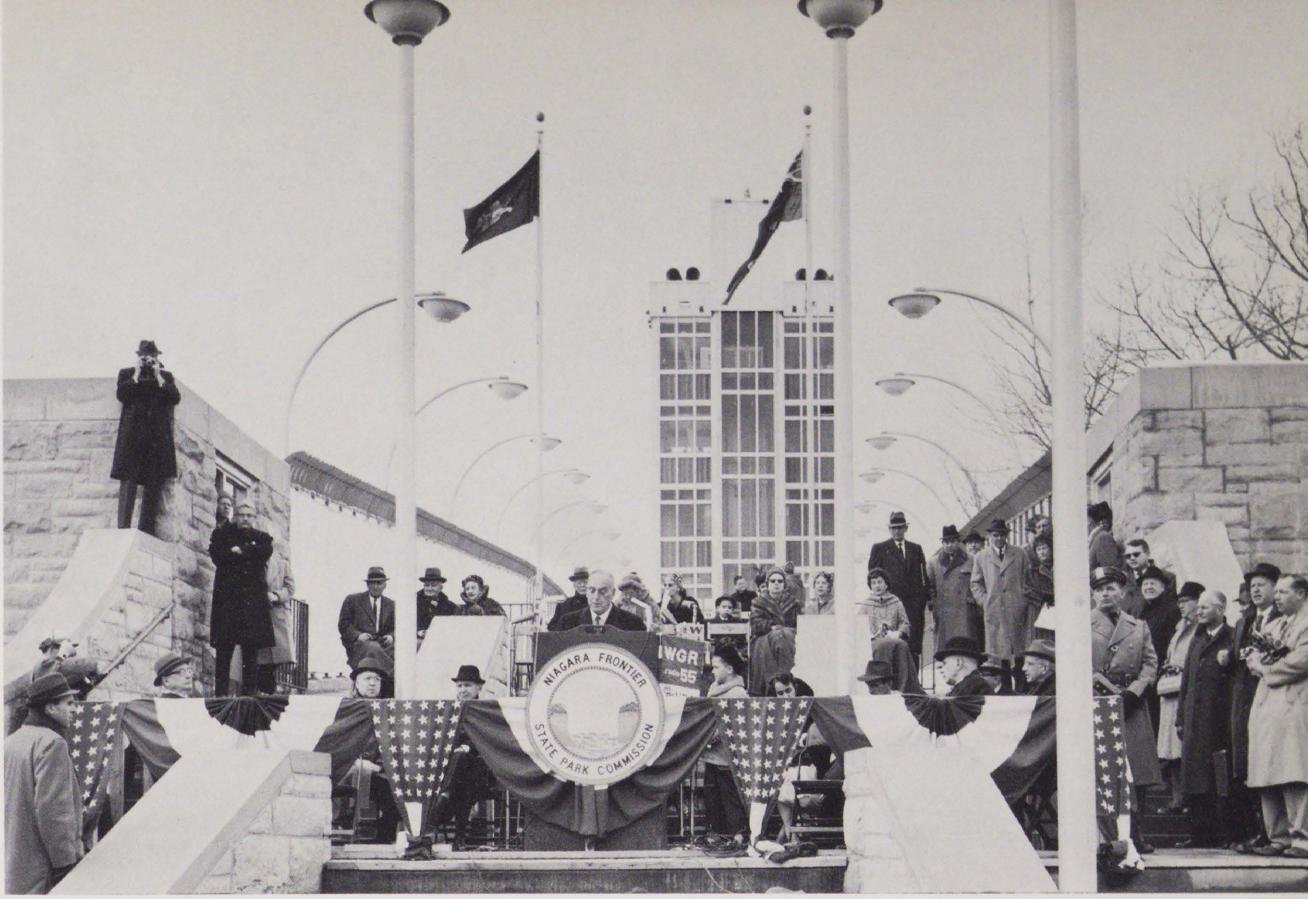
Robert Moses, Chairman of the Authority presided and Nelson A. Rockefeller, Governor of the State of New York, delivered the principal address. Recorded messages were delivered from President John F. Kennedy and former Presidents Dwight D. Eisenhower, Harry S. Truman and Herbert Hoover.



Governor Rockefeller throws the switch to start generation of first power. The model above was animated with lighting and a spinning turbine generator. At the Niagara Power Plant a 150,000 KW turbine generator was producing first commercial power as registered on the meter at the other end of the platform.



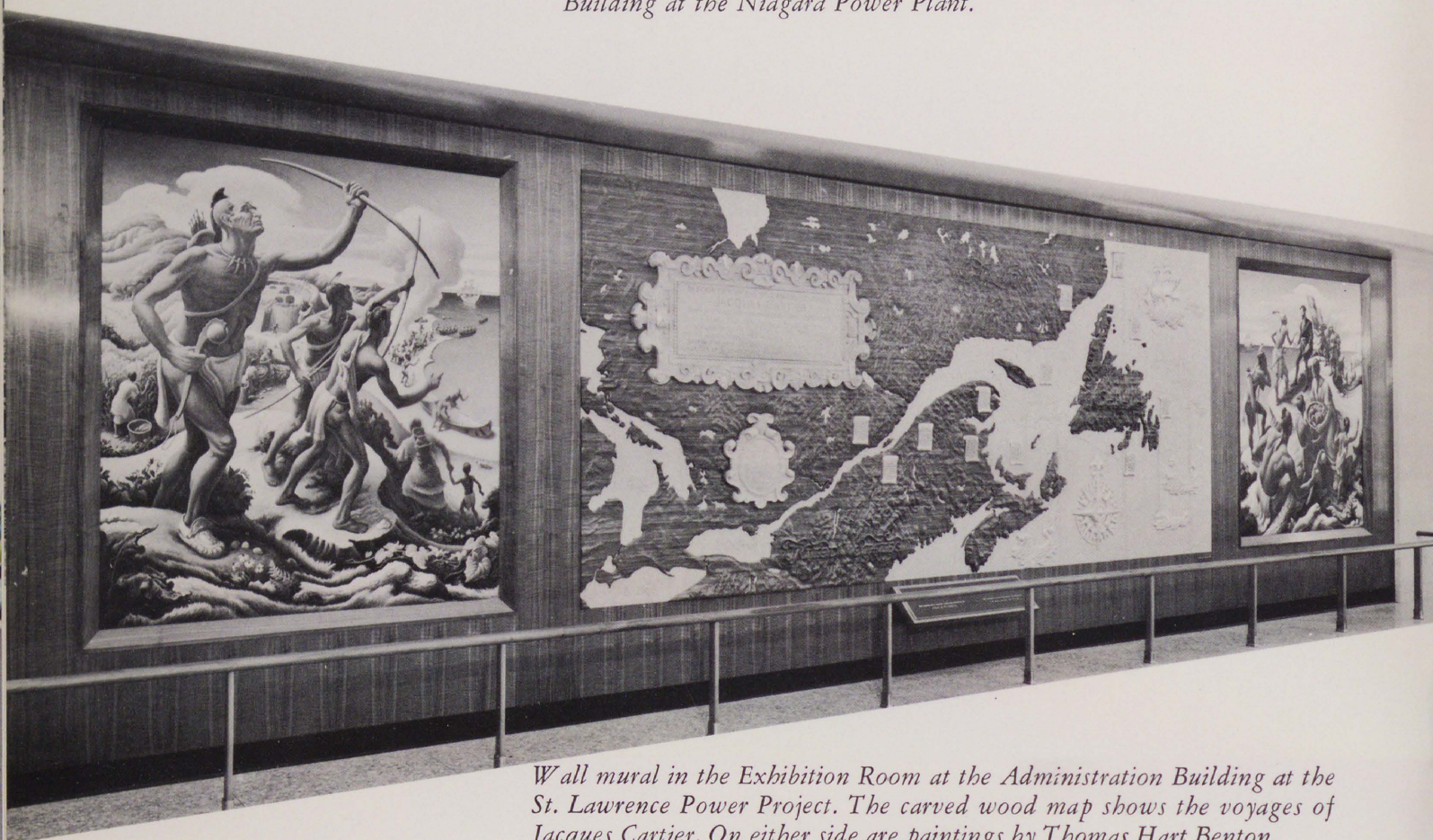
Niagara first power flows into the project switchyard.



Dedication of the new Niagara Falls Observation Tower, built by the Niagara Frontier State Park Commission.

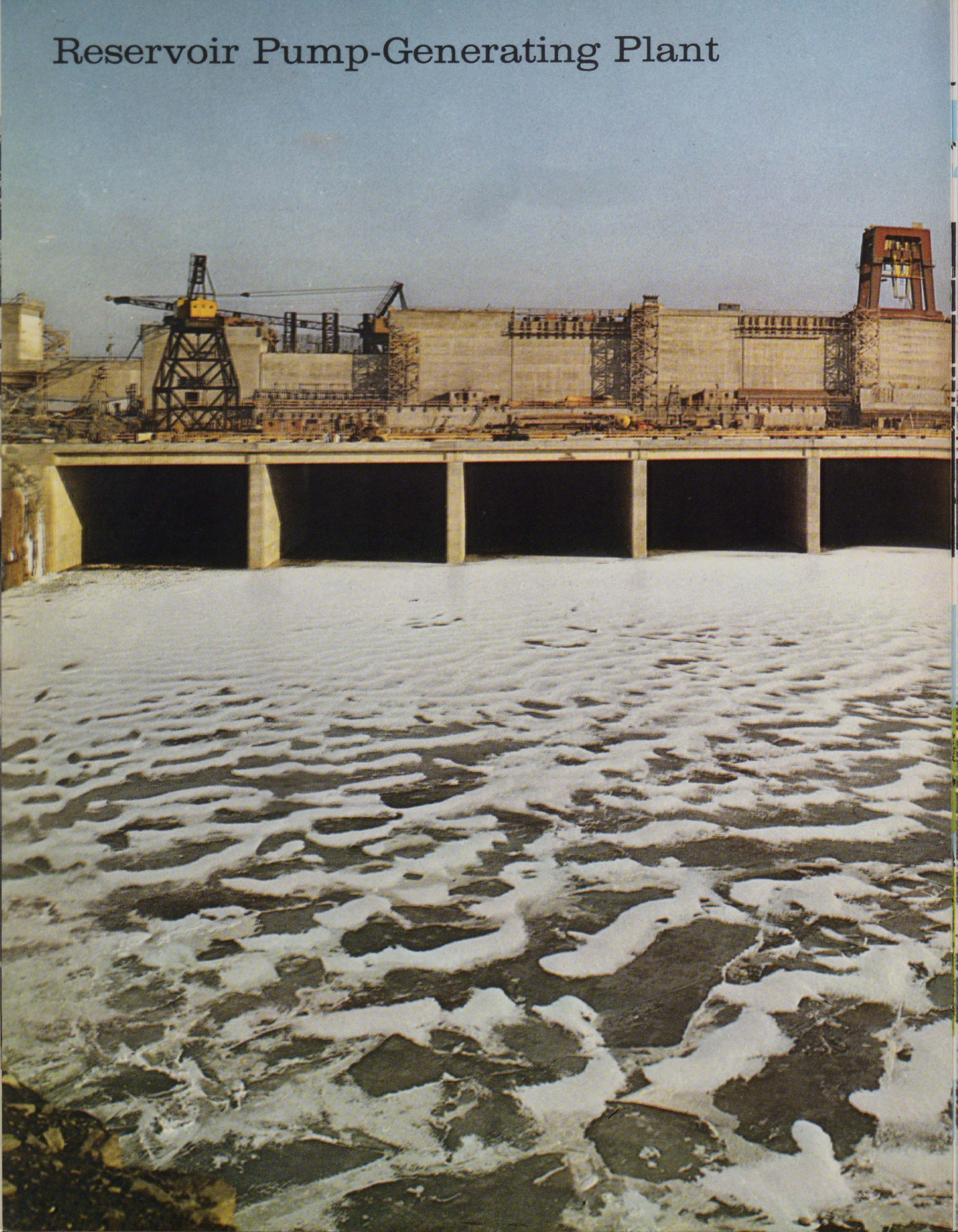
Trustees of the Power Authority after signing contracts with customers for Niagara Power.

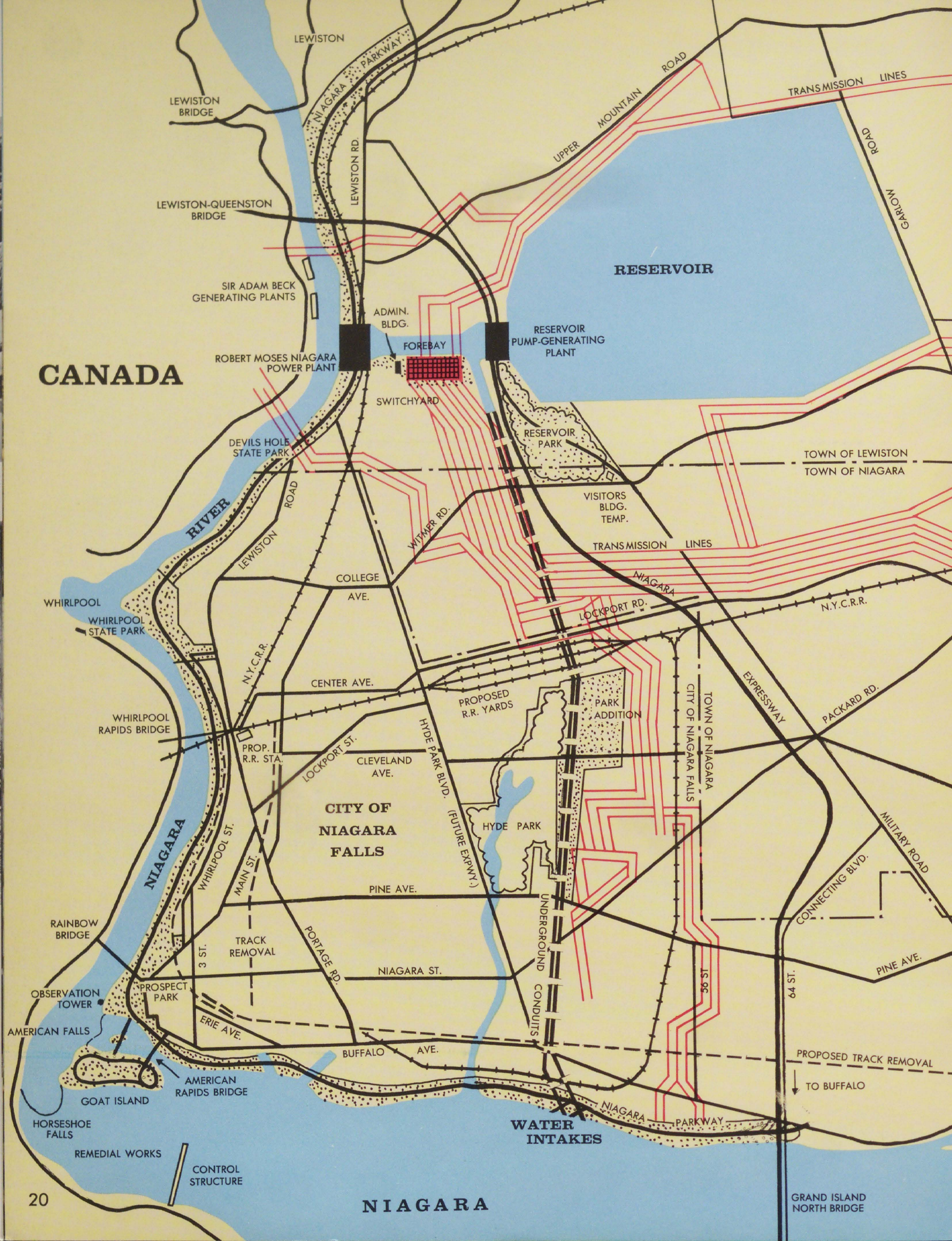
Mural of Father Hennepin at Niagara Falls—1678, by Thomas Hart Benton. To be installed in the Observation Building at the Niagara Power Plant.

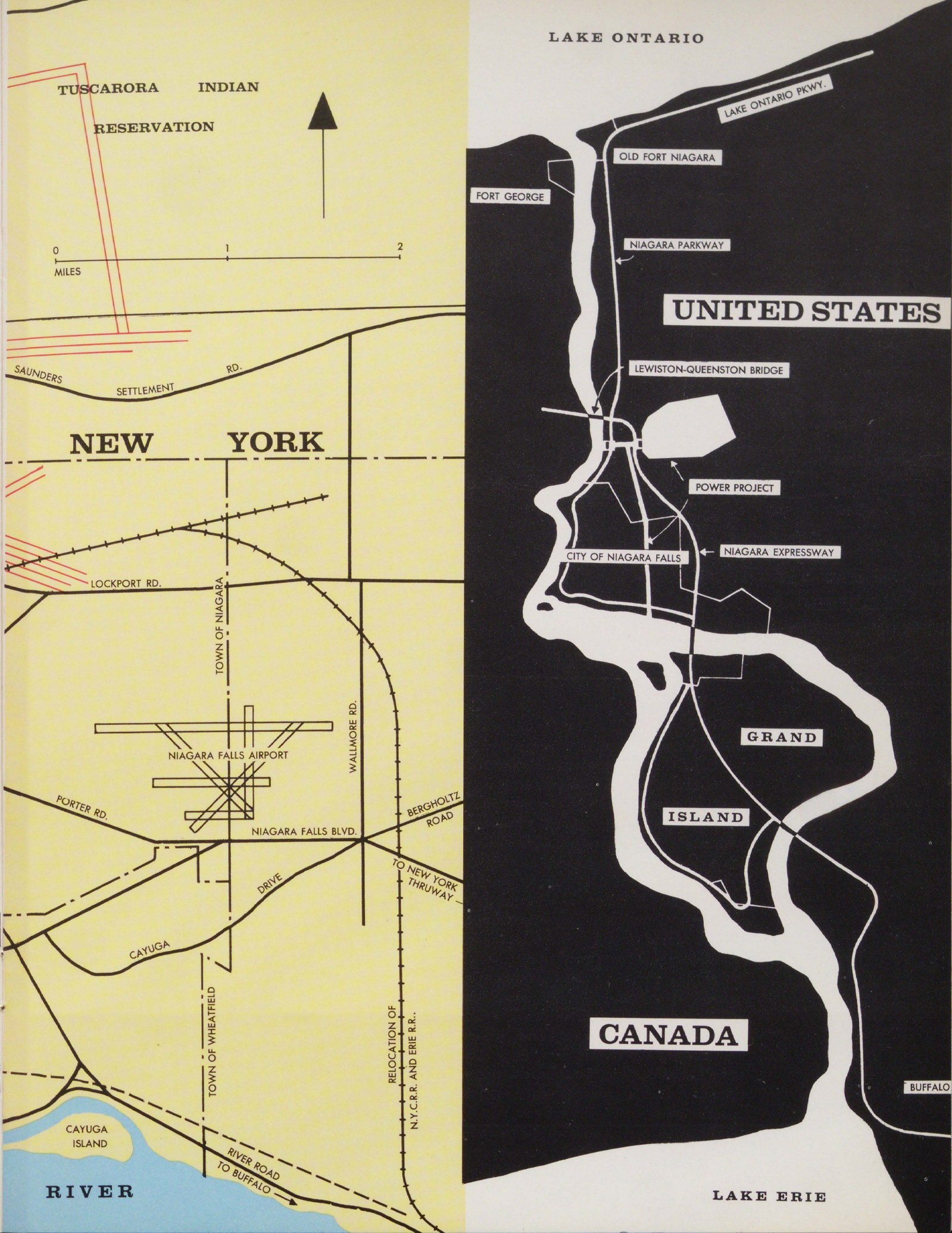


Wall mural in the Exhibition Room at the Administration Building at the St. Lawrence Power Project. The carved wood map shows the voyages of Jacques Cartier. On either side are paintings by Thomas Hart Benton.

Reservoir Pump-Generating Plant




LEWISTON
NIAGARA PARKWAY
LEWISTON BRIDGE
LEWISTON RD.
UPPER MOUNTAIN ROAD
TRANSMISSION LINES
GARLOW ROAD
LEWISTON-QUEENSTON BRIDGE
RESERVOIR
SIR ADAM BECK GENERATING PLANTS
ADMIN. BLDG.
FOREBAY
RESERVOIR PUMP-GENERATING PLANT
CANADA
ROBERT MOSES NIAGARA POWER PLANT
SWITCHYARD
RESERVOIR PARK
DEVILS HOLE STATE PARK
TOWN OF LEWISTON
TOWN OF NIAGARA
VISITORS BLDG. TEMP.
RIVER
LEWISTON ROAD
WITMER RD.
TRANSMISSION LINES
COLLEGE AVE.
NIAGARA
WHIRLPOOL
WHIRLPOOL STATE PARK
LOCKPORT RD.
N.Y.C.R.R.
N.Y.C.R.R.
CENTER AVE.
PROPOSED R.R. YARDS
PARK ADDITION
EXPRESSWAY
PACKARD RD.
WHIRLPOOL RAPIDS BRIDGE
PROP. R.R. STA.
LOCKPORT ST.
CLEVELAND AVE.
HYDE PARK BLVD. (FUTURE EXPWY.)
TOWN OF NIAGARA
CITY OF NIAGARA FALLS
CITY OF NIAGARA FALLS
HYDE PARK
NIAGARA
WHIRLPOOL ST.
MAIN ST.
PINE AVE.
MILITARY ROAD
CONNECTING BLVD.
RAINBOW BRIDGE
3 ST.
TRACK REMOVAL
PORTAGE RD.
UNDERGROUND CONDUITS
NIAGARA ST.
36 ST.
64 ST.
PINE AVE.
OBSERVATION TOWER
PROSPECT PARK
ERIE AVE.
AMERICAN FALLS
BUFFALO AVE.
PROPOSED TRACK REMOVAL
TO BUFFALO
AMERICAN RAPIDS BRIDGE
GOAT ISLAND
NIAGARA PARKWAY
WATER INTAKES
HORSESHOE FALLS
REMEDIAL WORKS
CONTROL STRUCTURE
NIAGARA
GRAND ISLAND NORTH BRIDGE


LAKE ONTARIO
TUSCARORA INDIAN RESERVATION
0
1
2
MILES
LAKE ONTARIO PKWY.
OLD FORT NIAGARA
FORT GEORGE
NIAGARA PARKWAY
UNITED STATES
LEWISTON-QUEENSTON BRIDGE
SAUNDERS SETTLEMENT RD.
NEW YORK
POWER PROJECT
CITY OF NIAGARA FALLS
NIAGARA EXPRESSWAY
LOCKPORT RD.
TOWN OF NIAGARA
WALLMORE RD.
GRAND
ISLAND
NIAGARA FALLS AIRPORT
PORTER RD.
BERGHOLTZ ROAD
NIAGARA FALLS BLVD.
TO NEW YORK THRUWAY
DRIVE
CAYUGA
CANADA
TOWN OF WHEATFIELD
RELOCATION OF N.Y.C.R.R. AND ERIE R.R.
BUFFALO
CAYUGA ISLAND
RIVER ROAD TO BUFFALO
RIVER
LAKE ERIE

Niagara Frontier Program

The dramatic rebuilding of the Niagara Frontier now under way is a balanced improvement involving highways, parkways, parks, grade crossing elimination, a new international bridge and arterial highway extensions.

The Power Authority is building a sizable portion of the Niagara Parkway as a part of the Power Project. North of the new international Lewiston-Queenston Bridge, it will be continued as a State parkway to Fort Niagara and connect with Lake Ontario Parkway to be built along the Lake to connect with the ten mile completed section in the vicinity of Rochester.

NIAGARA EXPRESSWAY FROM NORTH GRAND ISLAND BRIDGE TO NEW LEWISTON - QUEENSTON BRIDGE (New York State Department of Public Works)

a) Field survey work completed. Right-of-way mapping 86 percent complete.

b) Contract work within the Expressway - New Lewiston - Queenston Bridge Interchange area including construction of two bridge structures over new Lewiston Road and portions of the Niagara Expressway and new Lewiston Road 24 percent complete.

c) Design plans nearing completion. All major construction contracts scheduled for letting in March, 1961.

d) Expressway scheduled ready for traffic for May 30, 1962.

NEW LEWISTON - QUEENSTON BRIDGE CONNECTING LEWISTON, N. Y. AND QUEENSTON, ONTARIO (Niagara Falls Bridge Commission)

a) Field construction underway. Bridge substructure in Canada 35 percent complete, and substructure in U. S. 9 percent complete.

b) Bridge scheduled ready for traffic for May 30, 1962.

POWER FACILITIES ALONG NIAGARA RIVER INCLUDING NIAGARA PARKWAY

a) Grand Island Bridge to Treadway Inn

1) Construction of Incidental Power Facilities including finished concrete pavement 6 percent complete.

b) Treadway Inn to Rainbow Bridge including incidental park work

1) Construction of American Rapids Bridge, Parkway and Park Improvements completed.

2) Construction of Prospect Point Observation Tower by Niagara Frontier State Parks Commission completed.

c) Rainbow Bridge to Devil's Hole State Park

1) Design plans for Parkway between Rainbow Bridge and Whirlpool Bridge Viaduct 94 percent complete.

2) New Whirlpool Street opened for traffic. Landscaping work 88 percent complete.

3) Construction of Whirlpool Bridge Viaduct 73 percent complete.

4) Construction of Parkway between north end of Viaduct and Devil's Hole State Park 46 percent complete.

d) Devil's Hole to Lewiston - Queenston Bridge

1) Construction of south approaches to Robert Moses Niagara Power Plant from Devil's Hole State Park to Power Plant 60 percent complete.

2) Design plans for north approaches to Robert Moses Niagara Power Plant from Lewiston - Queenston Bridge area to Power Plant 90 percent complete.

e) Lewiston - Queenston Bridge to Lake Ontario

1) Design plans 41 percent complete.

2) Right-of-way mapping well underway with land acquisition program to be completed in 1961.

3) Construction work for Section 1 of the Parkway from Route 104 in the Village of Lewiston to the Youngstown - Lockport Road to begin in Spring of 1962.

4) Construction of two end sections from the Lewiston-Queenston Bridge Area to Route 104 in the Village of Lewiston and from the Youngstown - Lockport Road to Lake Ontario to begin in Spring of 1963.

NIAGARA FALLS HIGHWAY - RAILROAD GRADE CROSSING ELIMINATION PROGRAM

a) Phase I

1) General contract work for construction of railroad bypass east of Niagara Falls completed.

b) Phase II

1) Department of Public Works contract for general construction work awarded to low bidder. Survey and layout work now underway by general contractor.

c) Phase III

1) Bids for general contract work to be received by Department of Public Works early in 1961.

NEW YORK THRUWAY (New York State Thruway Authority)

a) Construction work on second span of South Grand Island Bridge 8 percent complete. Construction completion scheduled for September 1962. Plans for a second span at North Grand Island Bridge being held in abeyance by the Thruway Authority.

NIAGARA FALLS BRIDGE COMMISSION

UNITED STATES MEMBERS
WALTER S. JOHNSON, *Chairman*
SAMUEL M. JOHNSON
JOHN J. BINGENHEIMER
CHARLES P. STEVENSON

CANADIAN MEMBERS
CHARLES DALEY, M.P.P., *Vice Chairman*
STEWART S. MacINNES, Q.C.
JAMES N. ALLAN, M.P.P.
FREDERICK M. CASS, Q.C., M.P.P.

C. ELLISON KAUMEYER, *Sec.-Treas., General Manager*

STATE DEPARTMENT OF PUBLIC WORKS

J. BURCH McMORRAN, *Superintendent*
ELMER G. H. YOUNGMANN, *District Engineer, Buffalo*

NEW YORK STATE THRUWAY AUTHORITY

R. BURDELL BIXBY, *Chairman and Secretary-Treasurer*
L. JUDSON MORHOUSE, *Vice-Chairman*
HOLDEN A. EVANS, JR., *General Manager*
CONRAD H. LANG, *Chief Engineer*

STATE PUBLIC SERVICE COMMISSION

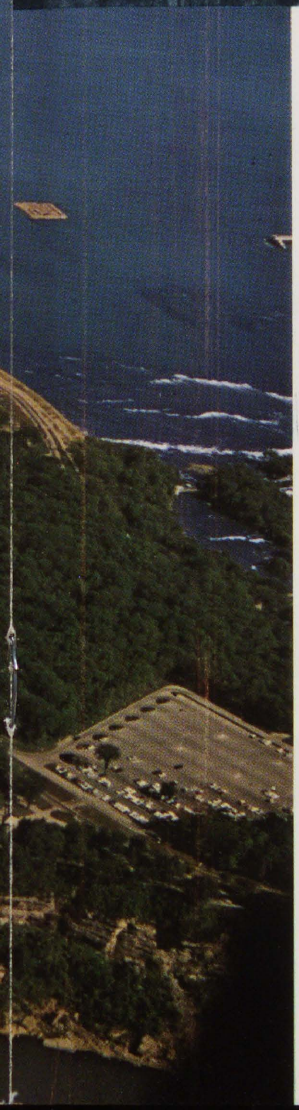
JAMES A. LUNDY, *Chairman*
FRANCIS T. MYLOTT, *Commissioner*
RALPH A. LEHR, *Commissioner*
FRANK J. McMULLEN, *Commissioner*

New international LEWISTON-QUEENSTON BRIDGE. To left is new Niagara Expressway, the United States approach to the bridge.

Niagara Falls

JOINT ST. LAWRENCE AND NIAGARA FRONTIER COMMITTEE ON IMPROVEMENTS INCIDENTAL TO THE POWER PROJECTS

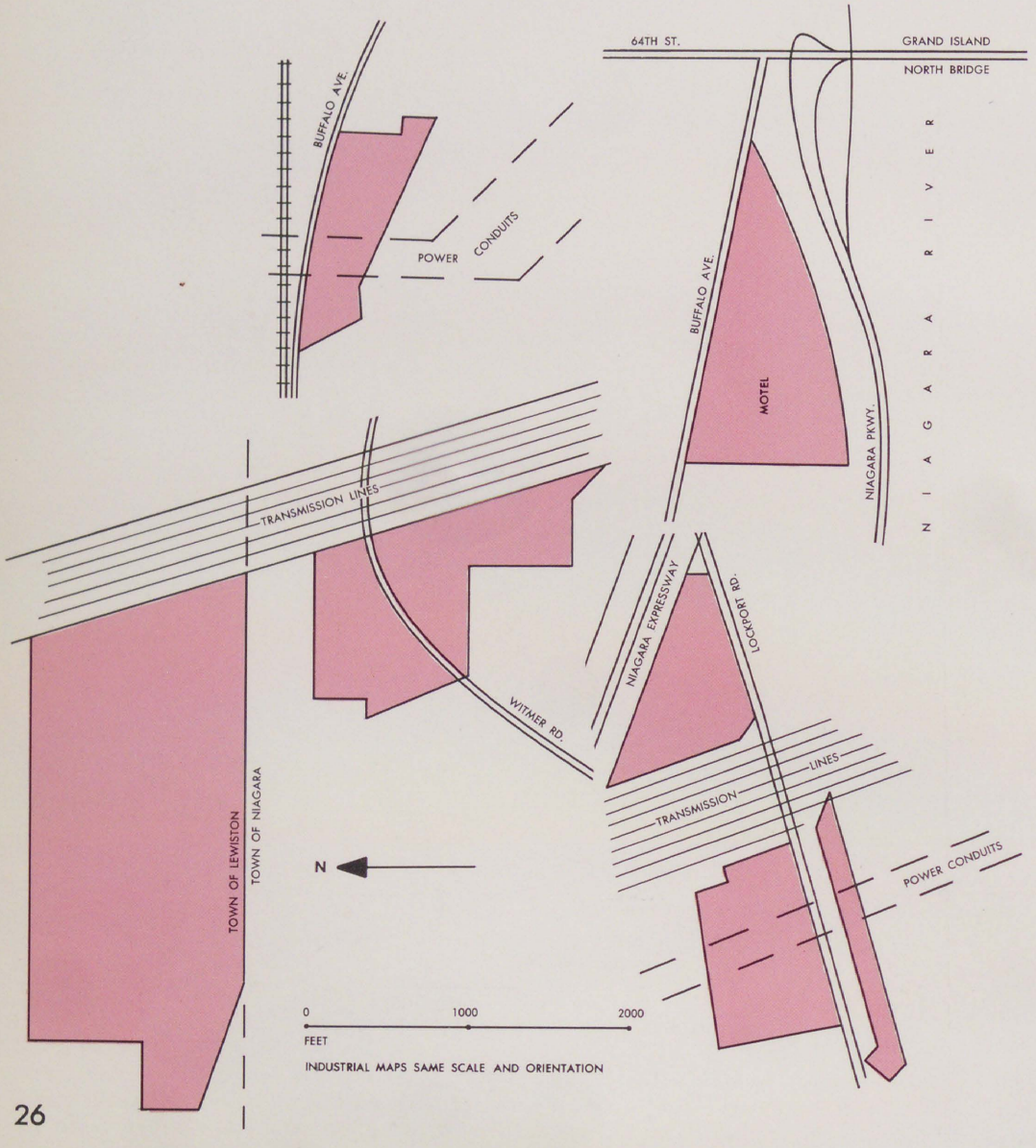
WILLIAM S. CHAPIN, *Chairman*
ASA GEORGE, *Secretary*
GILMORE D. CLARKE
LUTHER E. CLIFFE
STUART CONSTABLE
CARL CRANDALL
G. FRANK DOUGHERTY
JAMES F. EVANS
THOMAS F. FARRELL
GORDON W. HARVEY
LEONARD L. HUTTLESTON
WILLIAM H. LATHAM
A. KENNETH MORGAN
SIDNEY M. SHAPIRO
ARTHUR B. WILLIAMS
PAUL T. WINSLOW
RALPH D. WALLACE



Summer and Winter at Niagara Falls. To left, view east, Prospect Point, American Falls and Goat Island in foreground. Niagara Parkway follows the river bank. Above, view south, new Niagara Parkway and Niagara Observation Tower to left, Rainbow Bridge in foreground.

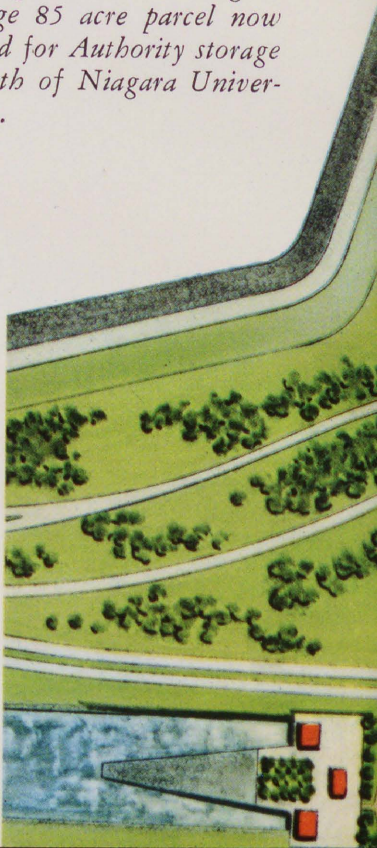
HYDE PARK

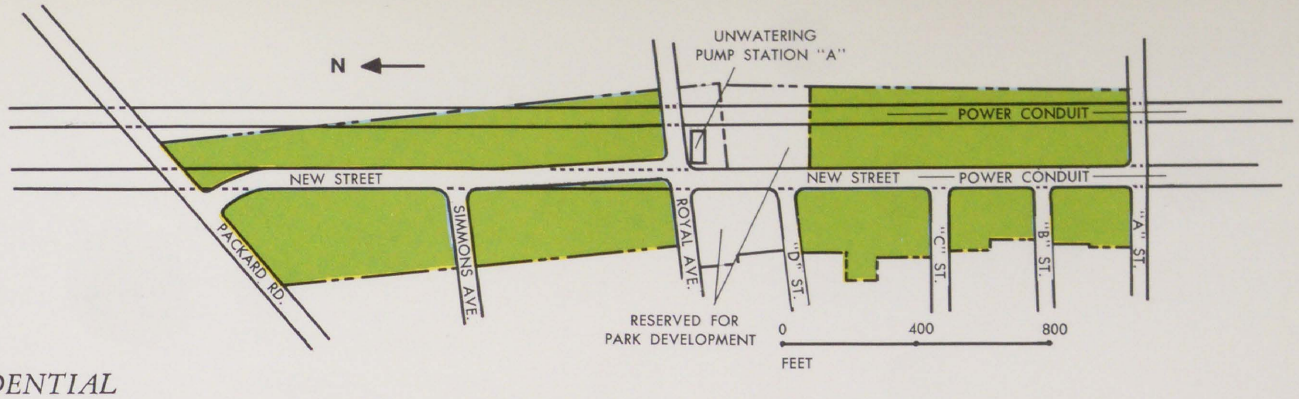
By agreement with the City of Niagara Falls, the Authority will expand Hyde Park north of Porter Road and will add nine additional holes to convert the present nine to an eighteen-hole golf course. South of Porter Road the existing eighteen-hole course will be rearranged and a new club house, parking field and related facilities will be provided. An underpass under Porter Road will connect the two eighteen-hole courses.



INDUSTRIAL

Several areas of surplus land will be available for industrial and business development including a large 85 acre parcel now used for Authority storage south of Niagara University.

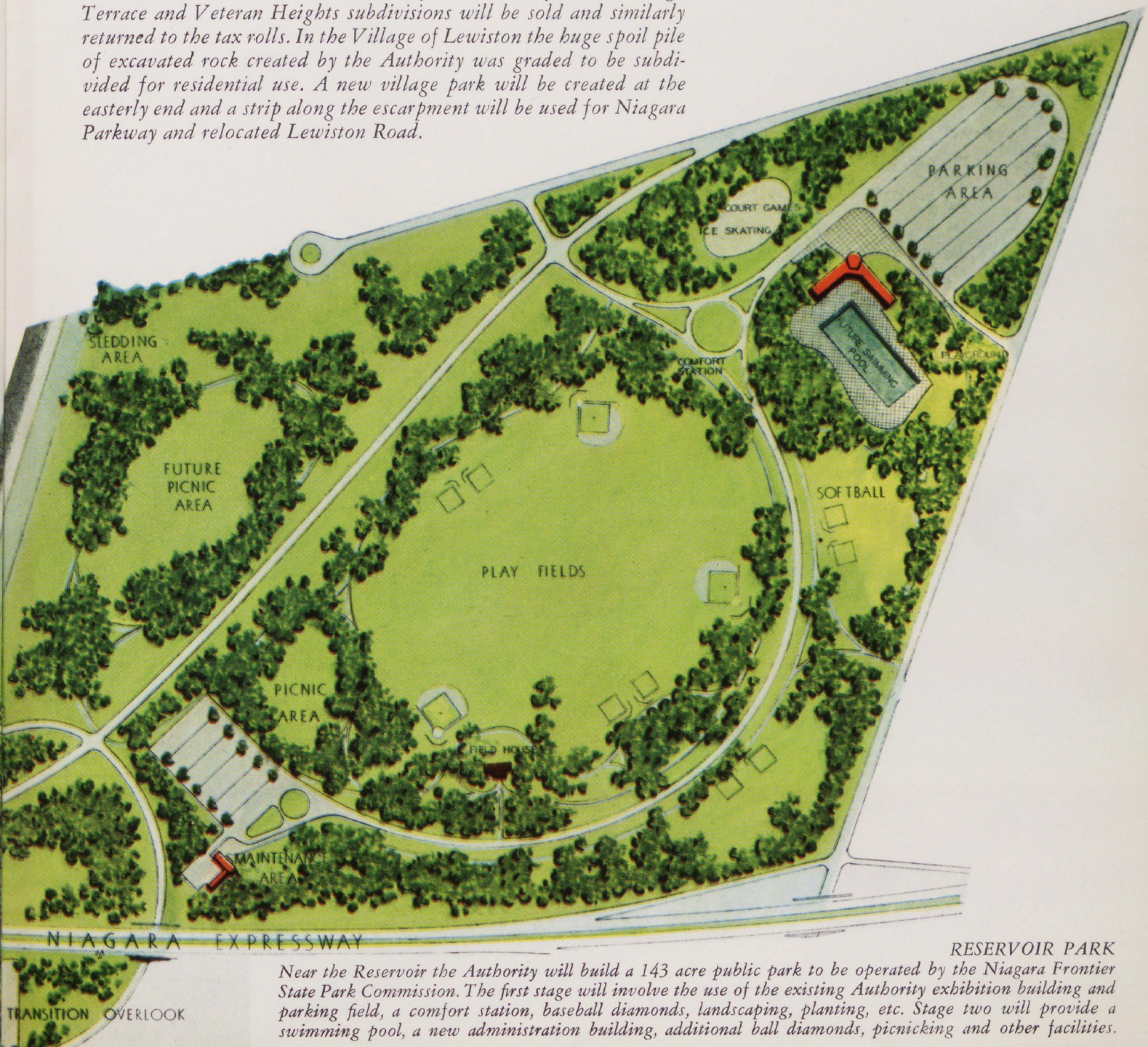




RESIDENTIAL

A residential development is planned in the 3,000 foot area over the conduits between Packard Road and A Street. An 80 foot street over one conduit and lots on either side of it having a generous frontage and an average depth of about 200 feet will be provided. This area when sold will be returned to the tax rolls.

Excess lots and houses still owned by the Authority at the College Terrace and Veteran Heights subdivisions will be sold and similarly returned to the tax rolls. In the Village of Lewiston the huge spoil pile of excavated rock created by the Authority was graded to be subdivided for residential use. A new village park will be created at the easterly end and a strip along the escarpment will be used for Niagara Parkway and relocated Lewiston Road.



RESERVOIR PARK

Near the Reservoir the Authority will build a 143 acre public park to be operated by the Niagara Frontier State Park Commission. The first stage will involve the use of the existing Authority exhibition building and parking field, a comfort station, baseball diamonds, landscaping, planting, etc. Stage two will provide a swimming pool, a new administration building, additional ball diamonds, picnicking and other facilities.

Niagara St. Lawrence Tie Line

SWITCHYARD . . . . TIE LINE

At Niagara, power produced at 13.8 kv, will be controlled from a switchyard composed of 115 kv, 230 kv and 345 kv sections. Miles of complex circuits and an intricate control system regulate deliveries of power over transmission lines. A high-voltage tie line is being built to connect the Niagara project with the Authority's St. Lawrence project. From Niagara, the line consists of two 345 kv circuits to a substation south of Rochester, with one 345 kv circuit continuing from Rochester to a substation above Syracuse, thence to the Edic substation north of Utica. There the line will connect to an existing 230 kv facility of Niagara Mohawk which in turn is interconnected with the Authority's Adirondack substation 70 miles south of the St. Lawrence project. From Adirondack, an existing 230 kv line owned by the Authority completes the interconnection to the St. Lawrence project at Massena.

The tie line is essential for the most flexible operation of the projects in the combined economic market area. Through this tie line the power capabilities of the two projects, which will vary from hour to hour, day to day and seasonally, will be utilized to the fullest.

St. Lawrence Power

ROBERT MOSES—ROBERT H. SAUNDERS POWER DAM

In July 1958, first power was produced at the Robert Moses—Robert H. Saunders Power Dam. Of the many necessary facilities of the overall project, the Power Dam is the production center. Dikes, control dams and channels direct flow into turbines to turn generators to produce power for home and farm, for community and industry.

LONG SAULT DAM . . . .

In the vicinity of the Long Sault Rapids the St. Lawrence River was divided into two channels; the north channel, closed by the Power Dam and the south channel, closed by Long Sault Dam. In order to build the Power Dam in the dry the entire river flow was diverted through the south channel. Long Sault Dam was then built in various stages, to permit handling of the river flow, and eventually to control the full flow through the Power Dam.

IROQUOIS DAM . . . .

The Power Pool extends 25 miles upstream from the Power Dam to Iroquois Dam, a factor in the control of the river. The St. Lawrence River, the outflow of the 298,000 square mile watershed of the five Great Lakes, has one of the most uniform flows of any of the great rivers of the world: a ratio of approximately two to one between high and low flows. Adjacent to the Iroquois Dam is the Canadian Lock of the St. Lawrence Seaway.

MASSENA INTAKE . . . .

The Massena Intake control structure, flanked by a system of dikes at the upper end of the Massena Canal, maintains water level in Lake St. Lawrence. The old Alcoa power plant formerly operating from the 40 foot difference in elevation between the St. Lawrence and Grasse Rivers has been closed down. Water supply for the Village of Massena and the Alcoa aluminum plant is provided through the Massena Intake.

DIKES . . . .

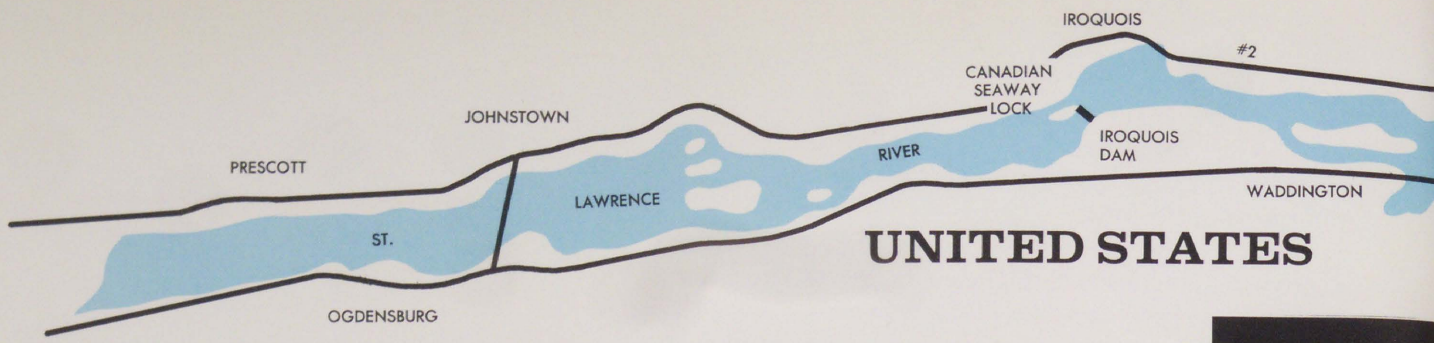
Between the Power Dam and Long Sault Dam and along many miles of the river earth embankments have been constructed to help form the huge reservoir now named Lake St. Lawrence. The embankments were built under carefully controlled construction conditions and have now been blended into the natural topography of the valley and their slopes landscaped to conform with adjacent areas.

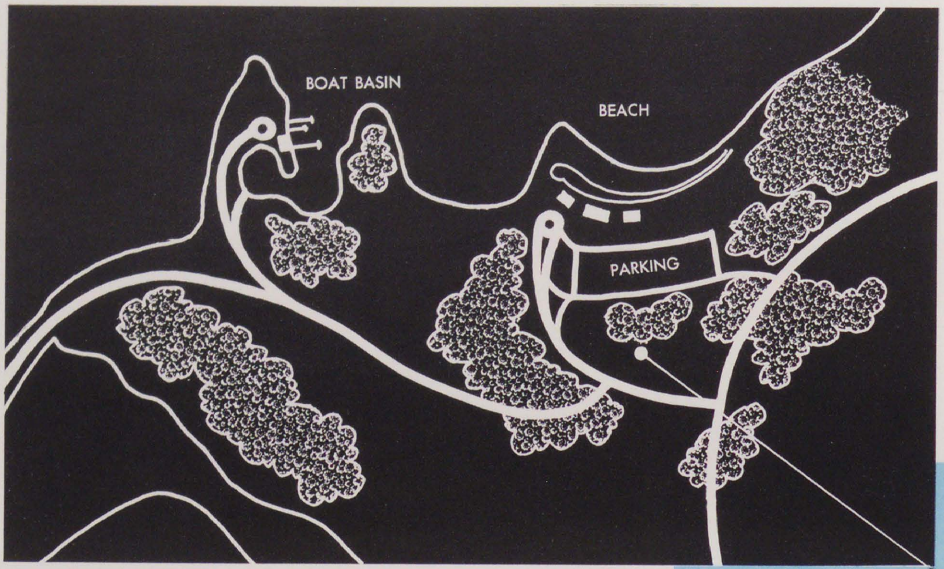
CHANNEL IMPROVEMENTS . . . .

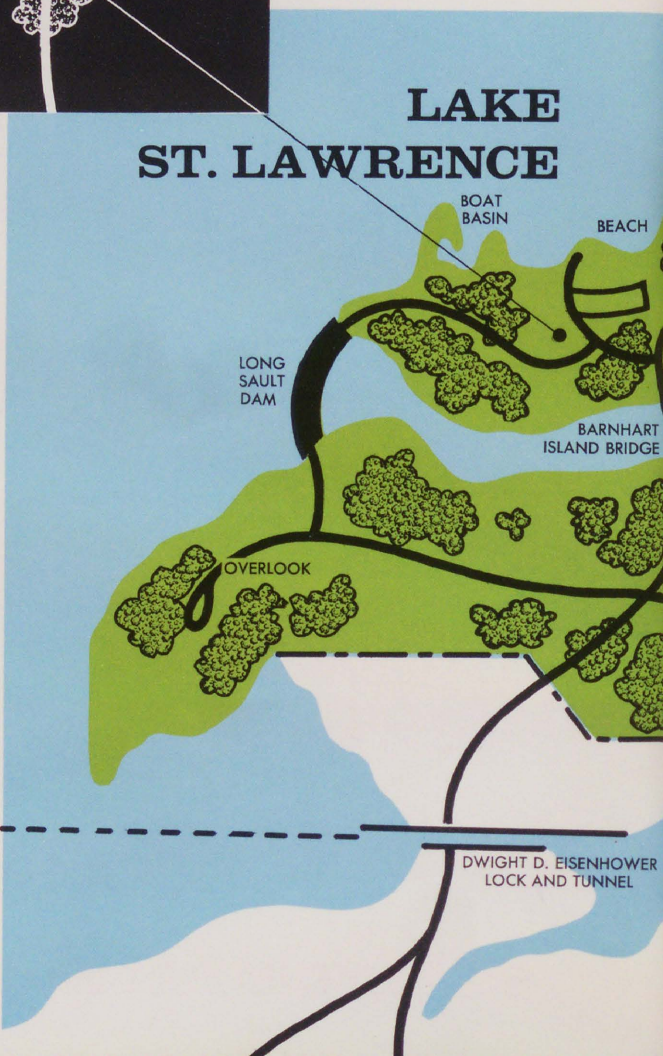
Upstream from the Power Dam many sections along the St. Lawrence River required extensive excavation to reduce water velocity, thus aiding navigation and improving power production during winter months.

RELATED IMPROVEMENTS . . . .

The St. Lawrence River has risen to its new banks and construction scars have long since disappeared. At Barnhart Island and on the mainland, a new State Park with bathing beach, boat basin, picnic area, parking facilities and overlooks is serving people of the north country and visitors to the beautiful St. Lawrence valley. Upstream are campsites, a marina and new Massena Town Beach.

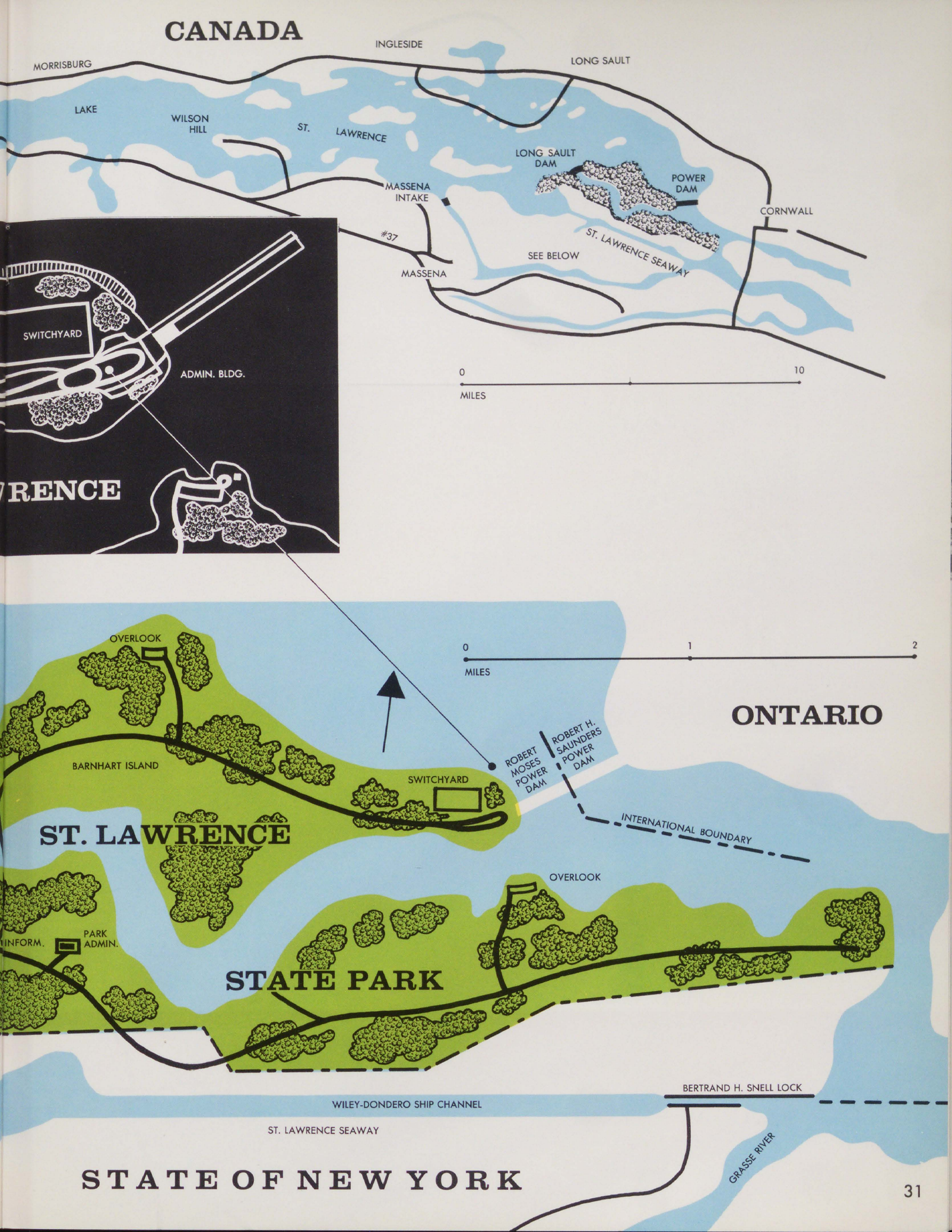




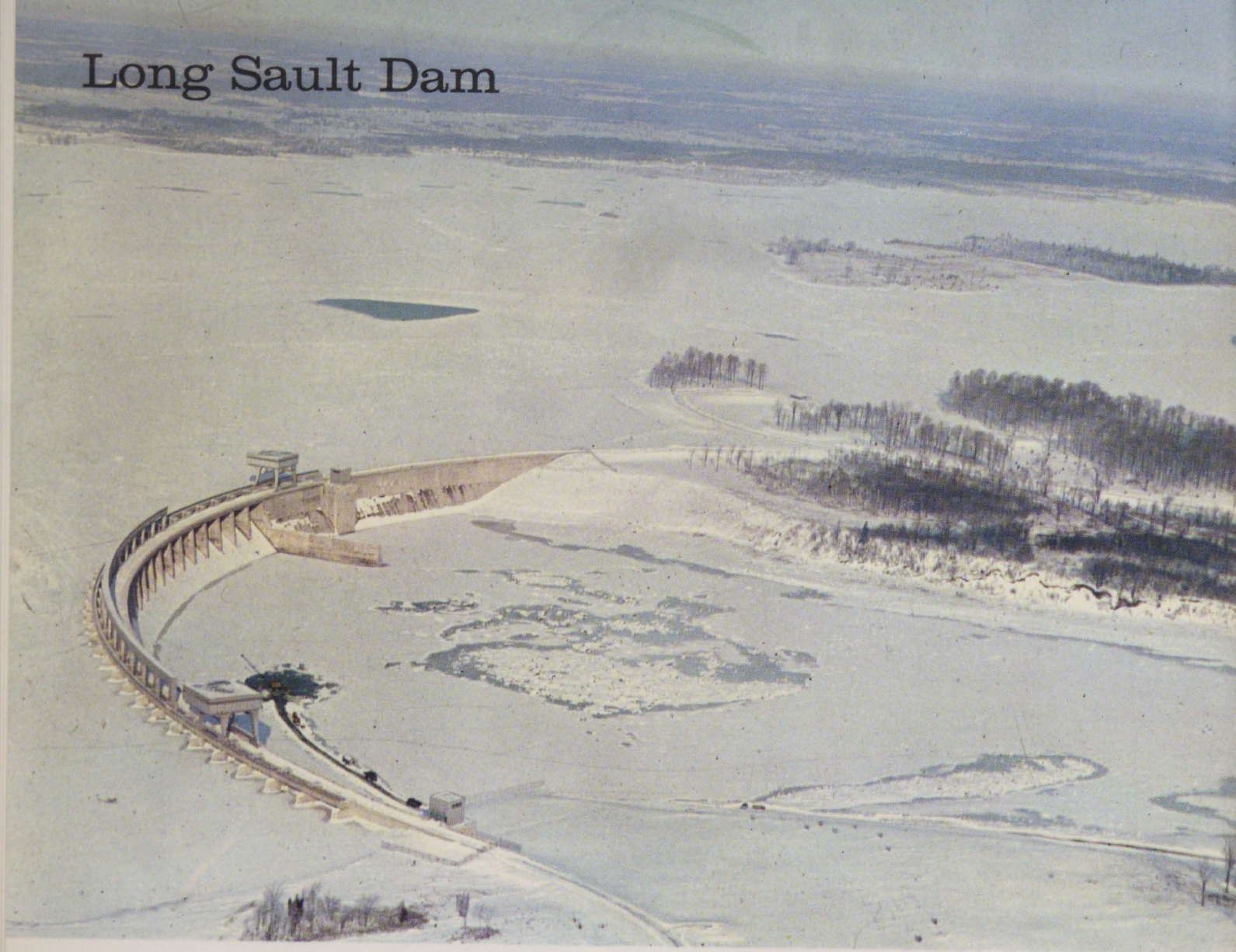


THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO

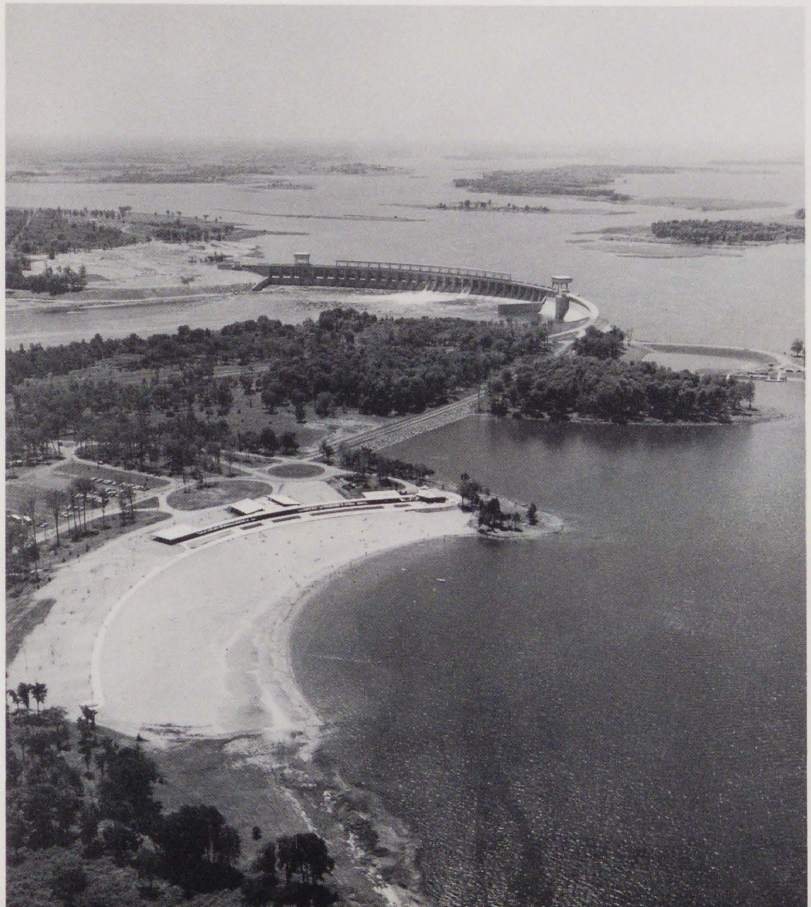
JAMES S. DUNCAN, C.M.G., LL.D., *Chairman*
W. ROSS STRIKE, Q.C., *First Vice-Chairman*
HON. ROBERT W. MACAULAY, Q.C., *Second Vice-Chairman*
LT.-COL. A. A. KENNEDY, D.S.O., E.D., *Commissioner*
DAVID P. CLIFF, *Commissioner*
ERNEST B. EASSON, B. COM., *Secretary*
J. M. HAMBLEY, B.SC., *General Manager*
OTTO HOLDEN, B.A.SC., C.E., D.ENG., *Chief Engineer (Retired)*
H. A. SMITH, B.SC., *Assistant General Manager – Engineering*


CANADA
INGLESIDE
MORRISBURG
LONG SAULT
LAKE
WILSON HILL
ST. LAWRENCE
LONG SAULT DAM
POWER DAM
MASSENA INTAKE
CORNWALL
#37
ST. LAWRENCE SEAWAY
SEE BELOW
MASSENA
SWITCHYARD
ADMIN. BLDG.
0
10
MILES
RENCE
OVERLOOK
0
1
2
MILES
ONTARIO
BARNHART ISLAND
SWITCHYARD
ROBERT MOSES POWER DAM
ROBERT H. SAUNDERS POWER DAM
INTERNATIONAL BOUNDARY
ST. LAWRENCE
OVERLOOK
INFORM.
PARK ADMIN.
STATE PARK
BERTRAND H. SNELL LOCK
WILEY-DONDERO SHIP CHANNEL
ST. LAWRENCE SEAWAY
GRASSE RIVER
STATE OF NEW YORK

Long Sault Dam

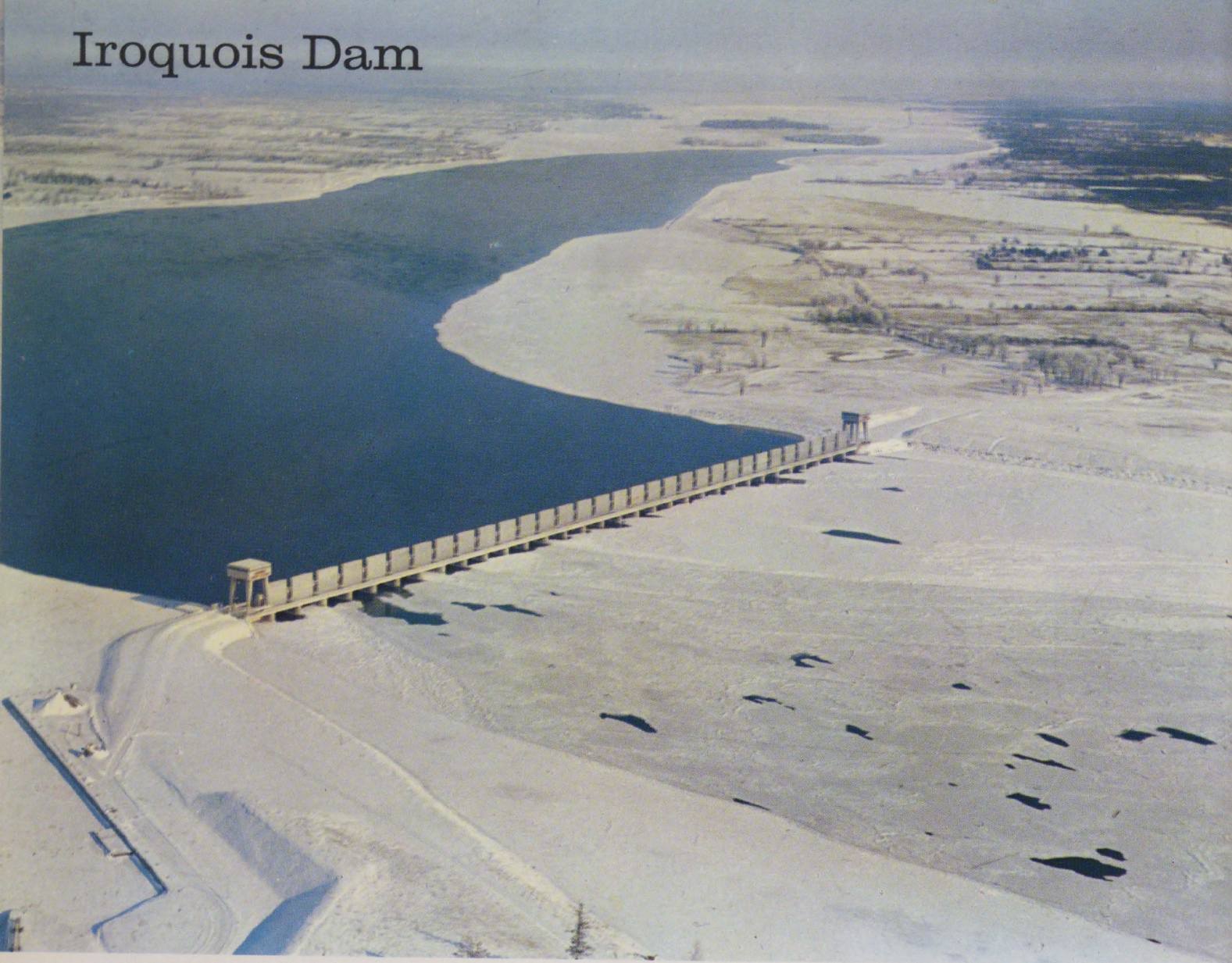


Long Sault Dam and St. Lawrence State Park. At center right are boat and beach developments. The Barnhart Island Bridge built for delivery of construction materials and access to the park, spans the south channel. At top is Lake St. Lawrence.



Closeup view of Barnhart Island Beach, Long Sault Dam and Lake St. Lawrence in background.

Iroquois Dam

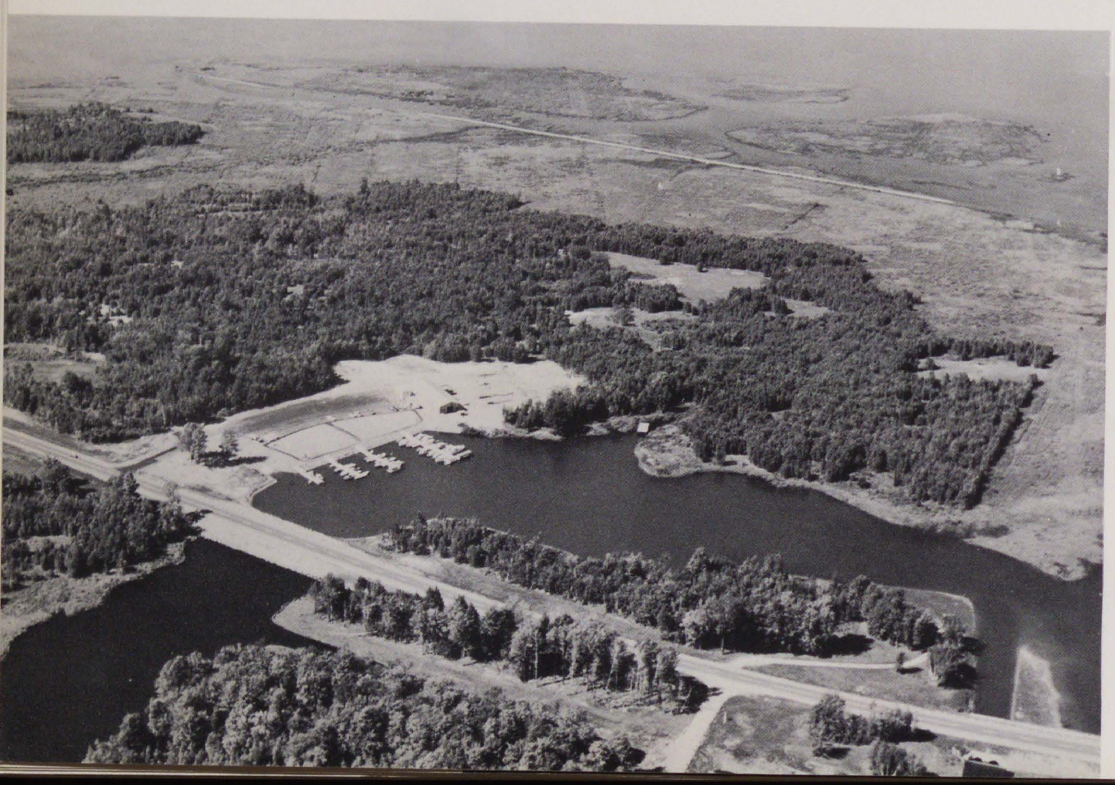


Iroquois Dam, 1,975 feet long and 72 feet high, spans the St. Lawrence River 25 miles above the Power Dam. To the left is the Canadian Seaway Lock.

Robert Moses—Robert H. Saunders Power Dam, 3216 feet long and 169 feet high, houses 32 turbine generators with an installed capacity of 1,824,000 kilowatts. 1,915,000 cubic yards of concrete and 74,410 tons of steel were required. The Power Authority Administration Building has public exhibition rooms and a penthouse overlook.

Massena Intake at the head of the Massena Canal. Lake St. Lawrence extends into the distance.

St. Lawrence State Park. At upper center is Eisenhower Lock of the St. Lawrence Seaway. Right center is Long Sault Dam, to its left along the shore, the boat basin, beach and picnic areas.



New marina ten miles downstream from Iroquois Dam.

ST. LAWRENCE

NIAGARA

General	St. Lawrence (U. S. & Canada)	Niagara	Units
Watershed Area	298,080	263,440	Square miles
Average Annual Historic Flow	241,000	203,000	Cubic Feet per second
Period of Record	1860–1954	1860–1954	
Main Plants			
Approximate Gross Head— Average River Flow	81	314	Feet
Number of Generating units	32	13	
Installed capacity of each unit	57,000	150,000	Kilowatts
Pump-Storage Plant			
Approximate gross head range for pumping	—	62–107	Feet
Approximate gross head range for generating power	—	60–100	Feet
Number of pump-generator units	—	12	
Installed generating capacity of each unit	—	20,000	Kilowatts
Plant Capacity and Output			
Total name-plate installed capacity	1,824,000	2,190,000	Kilowatts
Approximate dependable capacity	1,400,000	1,800,000	Kilowatts
Average dependable energy output (annual)	13	13	Billion Kilowatt Hours
Prime energy output—dry year	10.4	10.7	Billion Kilowatt Hours
Estimate of Cost	650	720	Million Dollars

	Length	Height	Cubic Yards of Concrete
Robert H. Saunders & Robert Moses Power Dam	3216′	169.5′	1,915,000
Long Sault Dam	2960′	132′	678,600
Iroquois Dam	1975′	72′	175,000
Robert Moses Niagara Power Plant	1530′	389′	1,280,000
Reservoir Pump Generating Plant	973′	160′	616,500

St. Lawrence Power Sales

POWER PRODUCTION AND SALES - 1960

Month	AVERAGE FLOW ST. LAWRENCE RIVER		GROSS GENERATION	SYSTEM USE AND LOSSES*	ENERGY SALES At Robert Moses Switchyard			
	Total Flow	Used by Authority for Power Generation			Total	Firm	Inter-ruptible	Secondary
	(thousands of c.f.s.)		(millions of kilowatt-hours)					
January	207	104	468	15	453	444		9
February	211	105	441	10	431	423		8
March	221	111	493	10	483	462		21
April	241	120	543	10	533	437	24	72
May	262	130	606	11	595	460	48	87
June	279	135	593	10	583	454	47	82
July	268	134	618	10	608	476	49	83
August	255	127	588	10	578	488	49	41
September	228	114	514	7	507	469	31	7
October	198	102	492	8	484	477	3	4
November	203	101	469	8	461	457		4
December	210	105	488	9	479	472		7
Annual Average	232	116						
Annual Total			6313	118	6195	5519	251	425

* Includes 4,282,800 kwh supplied to St. Lawrence Seaway Development Corp. without charge.

POWER SALES AND REVENUE BY YEAR

YEAR	TOTAL ENERGY SOLD K W H	TOTAL POWER SALES	FOR USE OF TRANSMISSION LINES	WHEELING CHARGES**	TOTAL
1958*	1,285,559,903	$ 4,345,696.14	$ 307,950.38	$ 17,900.47	$ 4,671,546.99
1959	5,547,342,917	20,495,739.31	1,937,529.12	290,611.40	22,723,879.83
1960	6,194,551,517	24,509,003.55	1,746,763.26	297,569.40	26,553,336.21
TOTAL	13,027,454,337	$49,350,439.00	$3,992,242.76	$606,081.27	$53,948.763.03

* From July 17, 1958.

** Wheeling Charges are collected by Power Authority from customers and are remitted by the Authority to utilities for use of their transmission facilities.

POWER SALES BY CUSTOMERS - 1960

	ENERGY PURCHASED at Robert Moses Switchyard (1000 kwh)	AUTHORITY REVENUE Including Transmission and Wheeling Charges
Aluminum Co. of America	1,442,290	$ 5,938,914
Public Service Commission, Vermont	745,667	3,961,457
City of Plattsburgh	85,088	493,177
Plattsburgh Air Force Base	34,239	198,427
Reynolds Metals Company	1,769,512	7,416,919
Niagara Mohawk Power Corp.	1,805,993	6,531,332
N. Y. State Electric & Gas Corp.	122,944	668,781
Village of Boonville	9,419	68,586
Village of Solvay	27,642	185,627
Village of Rouses Point	5,268	41,292
General Motors Corp.	50,969	248,735
Village of Theresa	2,185	14,973
Village of Philadelphia	2,468	17,224
Village of Ilion	23,282	160,363
Village of Mohawk	7,715	52,377
Village of Hamilton	12,046	88,983
Village of Skaneateles	9,046	61,413
Village of Frankfort	5,415	40,162
Delaware County Elec. Coop.	9,431	74,288
Oneida-Madison Elec. Coop.	3,038	24,010
Otsego Elec. Coop.	9,113	72,408
Village of Sherburne	11,568	88,976
Other Sales & Transmission Charges	213	104,913
Total	6,194,551	$26,553,337

Finances

STATEMENT OF CONDITION—DECEMBER 31, 1960

ASSETS	TOTAL	ST. LAWRENCE POWER PROJECT AND RELATED TRANSMISSION LINES	NIAGARA POWER PROJECT
Expenditures for Electric Plant in Service and Construction Work in Progress	$ 935,252,181.03	$332,606,333.04	$602,645,847.99
Cash (Includes Time Deposits):			
Construction Funds	69,290,193.04	16,812,370.17	52,477,822.87
Temporary Interest Funds (In Hands of Trustee)	2,289,247.14		2,289,247.14
Operating Fund	701,952.56	701,952.56	
Revenue Fund	1,528,161.46	1,528,161.46	
General Fund (In Hands of Trustee)	6,256,999.40	6,256,999.40	
Investments in U. S. Government Securities at Cost:			
Construction Fund (Principal Amount $5,100,000.00)	5,065,965.56	5,065,965.56	
Temporary Interest Funds (In Hands of Trustee) (Principal Amount $77,393,000.00)	75,176,087.75		75,176,087.75
Interest Receivable on Investments and Time Deposits	934,677.97	130,439.37	804,238.60
Accounts Receivable—Power Sales, Etc.	3,125,949.14	3,125,949.14	
Intra-Authority Accounts		100,489.83	(100,489.83)
Deposits with the Comptroller of the State of New York and Others	88,355.52	425.00	87,930.52
Materials and Supplies	99,658.56	99,658.56	
	$1,099,809,429.13	$366,428,744.09	$733,380,685.04

LIABILITIES AND OTHER CREDITS				
General Revenue Bonds		$ 968,850,000.00	$348,850,000.00	$620,000,000.00
Bond Anticipation Notes—Second Series, 2%, Due June 14, 1961		60,000,000.00		60,000,000.00
Liability to the State of New York for Appropriations Expended		2,932,502.87	2,932,502.87	
Due to The Hydro-Electric Power Commission of Ontario for Shareable Costs		667,919.59	667,919.59	
Retained on Contracts		23,932,646.73	237,879.58	23,694,767.15
Other Current and Accrued Liabilities		31,831,949.27	2,276,031.38	29,555,917.89
Interest Accrued on Bond Anticipation Notes—Second Series		130,000.00		130,000.00
Net Income Allocated To:				
Bond Service	$1,831,161.22			
Bond Reserve	8,462,219.39			
Principal Payment on Bonds	200,000.00			
Working Capital	971,030.06	11,464,410.67	11,464,410.67	
		$1,099,809,429.13	$366,428,744.09	$733,380,685.04

STATEMENT OF RECEIPTS AND DISBURSEMENTS—JANUARY 1, 1960 TO DECEMBER 31, 1960

	TOTAL	ST. LAWRENCE POWER PROJECT AND RELATED TRANSMISSION LINES	NIAGARA POWER PROJECT
Cash Balance January 1, 1960	$ 9,134,031.86	$ 5,146,012.29	$ 3,988,019.57
Cash Receipts From:			
Sale of General Revenue Bonds—Series G and H	$220,000,000.00		$220,000,000.00
Sale of Bond Anticipation Notes—Second Series	60,000,000.00		60,000,000.00
Interest from Investments:			
Construction Fund	4,573,421.90	841,885.77	3,731,536.13
Temporary Interest Funds	2,689,120.26	86,963.39	2,602,156.87
General Fund	29,239.30	29,239.30	
Gross Revenues—St. Lawrence Project*			
Sale of Power	23,737,875.79	23,737,875.79	
Use of Transmission Lines	1,759,514.77	1,759,514.77	
Wheeling Charges	302,515.12	302,515.12	
Employees' Contributions for Social Security and New York State Income Tax Withheld	76,955.05	76,955.05	
Intra-Authority Accounts and Deposits	128,443.78	128,443.78	
Sale and Lease of Land during Operations	3,901.74	3,901.74	
Sale of Investments:			
Construction Fund	294,674,500.28	55,614,103.52	239,060,396.76
Temporary Interest Funds	39,186,288.30	4,577,911.41	34,608,376.89
Total Receipts	$647,161,776.29	$87,159,309.64	$560,002,466.65
Total Cash Balance and Receipts	$656,295,808.15	$92,305,321.93	$563,990,486.22
Cash Disbursements For:			
Interest on Bonds and Bond Anticipation Notes	$ 33,720,007.70	$10,746,967.50	$ 22,973,040.20
Principal Payments—$100,000 each on Series B and C Bonds	200,000.00	200,000.00	
Purchase of Investments:			
Construction Fund	222,590,155.11	42,106,554.19	180,483,600.92
Temporary Interest Funds	43,840,242.29		43,840,242.29
Construction	269,367,373.30	11,460,886.94	257,906,486.36
Bond Discount and Financing Costs	4,020,046.44		4,020,046.44
Intra-Authority Accounts Receivable	100,489.83	100,489.83	
Operations and Maintenance—($1,320,595.39 Charged to Construction)	2,327,230.55	2,327,230.55	
Employees' Contributions for Social Security and New York State Income Tax Withheld	63,709.33	63,709.33	
Total Disbursements	$576,229,254.55	$67,005,838.34	$509,223,416.21
Cash Balance December 31, 1960	$ 80,066,553.60	$25,299,483.59	$ 54,767,070.01
Distributed as follows:			
Construction Fund—Demand Deposits	$ 8,290,193.04	$ 812,370.17	$ 7,477,822.87
—Time Deposits	61,000,000.00	16,000,000.00	45,000,000.00
Operating Fund—Demand Deposits	701,952.56	701,952.56	
Revenue Fund—Demand Deposits	1,528,161.46	1,528,161.46	
Temporary Interest Funds (In Hands of Trustee)—Cash	642.63		642.63
—Time Deposits	2,288,604.51		2,288,604.51
General Fund—Bond Reserve Account (In Hands of Trustee)—Time Deposits	6,256,999.40	6,256,999.40	
Cash Balance December 31, 1960	$ 80,066,553.60	$25,299,483.59	$ 54,767,070.01

*Includes Revenues During Construction For:

Sale of Power	$ 9,733,232.93
Use of Transmission Lines	804,709.47
Wheeling Charges	136,701.08
	$10,674,643.48

POWER SALES

MONTH	FIRM POWER DEMAND		FIRM & INTERRUPTIBLE ENERGY		SECONDARY ENERGY		MISCELLANEOUS		
	Billing Demands (kw)	Capacity Charges* ($1.00 kw)	Billed Energy** (kwh)	Energy Charges (2.67 mills per kwh)	Billed Energy (kwh)	Energy Charges (2.00 mills per kwh)		Billed Energy (kwh)	Power Revenues
January	674,435.00	$ 654,148.00	444,210,148	$ 1,186,041.10	9,064,000	$ 18,128.00	$ 4,057.21	453,274,148	$ 1,862,374.31
February	669,010.70	662,526.70	422,955,776	1,129,291.92	7,742,000	15,484.00	194.10	430,697,776	1,807,496.72
March	668,826.70	668,826.70	461,711,617	1,232,770.02	20,600,000	41,200.00	4,447.91	482,311,617	1,947,244.63
April	694,395.00	681,622.60	461,173,122	1,231,332.23	71,870,000	143,740.00	509.37	533,043,122	2,057,204.20
May	690,759.90	690,759.90	508,064,361	1,356,531.84	86,967,000	173,934.00	1,900.21	595,031,361	2,223,125.95
June	689,828.10	689,825.27	501,430,533	1,338,819.53	82,107,000	164,214.00	2,423.95	583,537,533	2,195,282.75
July	688,898.10	688,898.10	524,895,558	1,401,608.65	82,998,000	165,996.00	1,918.13	607,893,558	2,258,420.88
August	692,573.10	692,569.35	536,336,995	1,432,166.06	41,315,000	82,630.00	1,638.98	577,651,995	2,209,004.39
September	695,223.10	695,196.93	500,203,658	1,335,694.87	6,987,000	13,974.00	926.97	507,190,658	2,045,792.77
October	697,748.10	697,377.10	480,161,611	1,282,203.87	3,728,000	7,456.00	760.71	483,889,611	1,987,797.68
November	703,481.10	703,435.10	456,848,101	1,219,908.80	4,222,000	8,444.00		461,070,101	1,931,787.90
December	709,085.10	709,080.23	472,127,037	1,260,725.14	6,833,000	13,666.00		478,960,037	1,983,471.37
TOTAL 1960	8,274,264.00	$8,234,265.98	5,770,118,517	$15,407,094.03	424,433,000	$848,866.00	$18,777.54	6,194,551,517	$24,509,003.55

TRANSMISSION CHARGES

	For Use Of Barnhart-Plattsburgh Line	For Use Of Adirondack And Reynolds Lines	Wheeling Charges***	Total	TOTAL REVENUES
January	$ 88,272.67	$ 58,129.10	$ 25,405.30	$ 171,807.07	$ 2,034,181.38
February	80,433.13	55,872.90	22,865.33	159,171.36	1,966,668.08
March	92,885.72	62,382.60	21,418.80	176,687.12	2,123,931.75
April	71,140.81	74,128.90	38,327.42	183,597.13	2,240,801.33
May	66,819.86	74,018.10	36,674.46	177,512.42	2,400,638.37
June	77,880.28	72,906.30	28,548.63	179,335.21	2,374,617.96
July	95,822.80	70,008.85	20,278.19	186,109.84	2,444,530.72
August	92,242.29	66,756.65	18,684.79	177,683.73	2,386,688.12
September	83,810.54	61,155.40	19,549.25	164,515.19	2,210,307.96
October	83,429.60	58,013.50	19,912.67	161,355.77	2,149,153.45
November	76,241.13	54,864.05	22,495.25	153.600.43	2,085,388.33
December	83,210.88	46,337.20	23,409.31	152,957.39	2,136,428.76
TOTAL 1960	$992,189.71	$754,573.55	$297,569.40	$2,044,332.66	$26,553,336.21

*After adjustment for partial months deliveries as provided in contracts.
**Includes 251,196,000 KWH of interruptible energy furnished Niagara Mohawk Power Corporation.
***Wheeling Charges are collected by Power Authority from customers and are remitted by the Authority to utilities for use of their transmission facilities.

ST. LAWRENCE PROJECT — STATEMENT OF INCOME AND EXPENSE FOR THE YEAR 1960

	TOTAL	CONSTRUCTION FUND	GENERAL FUND	OPERATING FUND
Total Operating Income	$26,553,336.21	$8,365,582.54	$15,787,753.67	$2,400,000.00
Operating and Maintenance Expenses	2,698,540.52	1,272,335.58		1,426,204.94
Net Operating Income	$23,854,795.69	$7,093,246.96	$15,787,753.67	$ 973,795.06
Other Income				
Interest	$ 74,967.58		$ 74,967.58	
Miscellaneous	1,378.11		1,378.11	
Total Other Income	$ 76,345.69		$ 76,345.69	
Total Income	$23,931,141.38	$7,093,246.96	$15,864,099.36	$ 973,795.06
Deduct				
Interest	$10,746,967.50	$5,373,483.75	$ 5,373,483.75	
Net Income	$13,184,173.88	$1,719,763.21	$10,490,615.61	$ 973,795.06

Income and Expense have been distributed to General Fund and Operating Fund on basis of ultimate disposition of earnings for the year ended December 31, 1960.

ST. LAWRENCE PROJECT — OPERATING AND MAINTENANCE EXPENSES — 1960

	TOTAL		CONSTRUCTION FUND		OPERATING FUND	
PRODUCTION EXPENSES						
ELECTRIC GENERATION—HYDRAULIC POWER						
Operation						
Operation Supervision and Engineering	$ 32,736.66		$ 16,283.73		$ 16,452.93	
Station Labor	195,416.35		75,243.00		120,173.35	
Water for Power	58,386.00				58,386.00	
Supplies and Expenses	26,024.90		19,433.37		6,591.53	
	$312,563.91		$110,960.10		$201,603.81	
Maintenance						
Maintenance Supervision and Engineering	36,906.07		17,616.19		19,289.88	
Maintenance of Structures and Improvements	73,561.86		35,441.56		38,120.30	
Maintenance of Reservoirs, Dams and Waterways	44,284.03		23,385.35		20,898.68	
Maintenance of Generating and Electric Equipment	254,757.11		109,503.91		145,253.20	
Maintenance of Roads, Railroads and Bridges	40,940.88		15,336.89		25,603.99	
	$450,449.95		$201,283.90		$249,166.05	
Other						
Purchased Power	365.75		365.75			
Total Production Expenses		$763,379.61		$312,609.75		$450,769.86
TRANSMISSION EXPENSES						
Operation						
Operation Supervision and Engineering	$ 21,491.39		$ 10,736.18		$ 10,755.21	
Load Dispatching Labor and Expenses	48,628.12		21,802.16		26,825.96	
Operation of Stations	58,915.87		28,759.91		30,155.96	
Operation of Lines	18,480.89		6,296.41		12,184.48	
	$147,516.27		$ 67,594.66		$ 79,921.61	
Maintenance						
Maintenance Supervision and Engineering	$ 17,065.66		$ 8,102.57		$ 8,963.09	
Maintenance of Structures and Improvements	7,117.56		3,207.11		3,910.45	
Maintenance of Station Equipment	69,998.90		33,632.53		36,366.37	
Maintenance of Overhead System	24,820.27		7,334.11		17,486.16	
Maintenance of Underground System	524.69		367.10		157.59	
Maintenance of Roads and Trails	825.23		357.42		467.81	
	$120,352.31		$ 53,000.84		$ 67,351.47	
Miscellaneous						
Rents	$488,199.48		$203,933.09		$284,266.39	
Total Transmission Expenses		$756,068.06		$324,528.59		$431,539.47
ADMINISTRATION AND GENERAL EXPENSES		$1,179,092.85		$635,197.24		$543,895.61
TOTAL OPERATING AND MAINTENANCE EXPENSES		$2,698,540.52		$1,272,335.58		$1,426,204.94

SUMMARY OF FUNDS

St. Lawrence Power Project and Related Transmission Lines

Construction Fund

Available Funds, January 1, 1960:		$ 22,997,920.78
Cash Balance	$ 4,424,405.89	
Investments in U. S. Government Securities	18,573,514.89	
Cash Receipts From:		
Interest	$ 928,849.16	
Gross Revenues During Construction	10,674,643.48	
Intra-Authority Receivables and Deposits	128,443.78	
Employees' Contributions for Social Security and New York State Income Tax Withheld	76,955.05	
Total Cash Receipts		$ 11,808,891.47
Total Available Funds and Receipts		$ 34,806,812.25
Cash Disbursements For:		
Construction Costs	$ 11,465,319.97	
Operations and Maintenance	1,320,595.39	
Employees' Contributions for Social Security and New York State Income Tax Withheld	63,709.33	
Intra-Authority Accounts Receivable	4,885.89	
To the Temporary Interest Fund	73,965.94	
Total Cash Disbursements		$ 12,928,476.52
Available Funds, December 31, 1960		$ 21,878,335.73
Distributed as follows:		
St. Lawrence Power Project		
Demand Deposits	$ 325,792.21	
Time Deposits	14,500,000.00	
U. S. Government Securities	4,970,879.17	$ 19,796,671.38
Barnhart-Plattsburgh Transmission Line		
Demand Deposits	$ 242,535.52	
U. S. Government Securities	95,086.39	$ 337,621.91
Supplemental Transmission Lines		
Demand Deposits	$ 227,212.12	
Time Deposits	1,500,000.00	$ 1,727,212.12
Social Security and New Your State Income Tax Withheld—Demand Deposit		$ 16,830.32
		$ 21,878,335.73

Temporary Interest Fund

Available Funds, January 1, 1960:		$ 5,373,483.75
Cash Balance	$ 721,606.40	
Investments in U. S. Government Securities	4,651,877.35	
Cash Disbursements For:		
Interest on Bonds	$ 5,373,483.75	
Total Disbursements		$ 5,373,483.75
Available Funds, December 31, 1960		$ –0–

Revenue Fund

Cash Receipts From:		
Interest	$ 29,239.30	
Gross Revenues	15,125,262.20	
Sale of Land, Lease of Property, etc.	4,143.11	
Total Cash Receipts		$ 15,158,644.61
Cash Disbursements For:		
Disbursement to General Fund	$ 11,830,483.15	
Disbursement to Operating Fund	1,800,000.00	
Total Cash Disbursements		$ 13,630,483.15
Available Funds, December 31, 1960—		
Demand Deposits		$ 1,528,161.46

Operating Fund

Cash Receipts From:		
Revenue Fund	$ 1,800,000.00	
Total Cash Receipts		$ 1,800,000.00
Cash Disbursements For:		
Electric Plant in Service	$ 8,105.67	
Intra-Authority Accounts Receivable	108,516.85	
Operations and Maintenance	981,424.92	
Total Disbursements		$ 1,098,047.44
Available Funds, December 31, 1960—		
Demand Deposits		$ 701,952.56

General Fund

Cash Receipts From:		
Revenue Fund	$ 11,830,483.15	
Total Cash Receipts		$ 11,830,483.15
Cash Disbursement For:		
Interest on Bonds and Notes	$ 5,373,483.75	
Principal Payment on Bonds	200,000.00	
Total Cash Disbursements		$ 5,573,483.75
Available Funds, December 31, 1960—Time Deposits		$ 6,256,999.40

Niagara Power Project

Construction Fund

Available Funds, January 1, 1960:		$ 62,403,995.73
Cash Balance	$ 3,820,168.64	
Investments in U. S. Government Securities	58,583,827.09	
Cash Receipts From:		
Interest	$ 6,747,735.03	
Sale of General Revenue Bonds	220,000,000.00	
Sale of Bond Anticipation Notes	60,000,000.00	
Accrued Interest on Sale of Bonds	605,559.80	
Total Cash Receipts		$287,353,294.83
Total Available Funds and Receipts		$349,757,290.56
Cash Disbursements For:		
Construction Costs	$257,906,486.36	
Bond Discount and Financing Costs	4,020,046.44	
Provision for Temporary Interest Fund	35,352,934.89	
Total Cash Disbursements		$297,279,467.69
Available Funds December 31, 1960		$ 52,477,822.87
Distributed as follows:		
Demand Deposits	$ 7,477,822.87	
Time Deposits	45,000,000.00	$ 52,477,822.87

Temporary Interest Fund

Available Funds, January 1, 1960:		$ 65,691,000.00
Cash Balance	$ 167,850.93	
Investments in U. S. Government Securities	65,523,149.07	
Cash Receipts From:		
Provision for Temporary Interest Fund	$ 35,352,934.89	
Total Cash Receipts		$ 35,352,934.89
Total Available Funds and Receipts		$101,043,934.89
Cash Disbursements For:		
Interest on Bonds and Notes Including $605,559.80 accrued interest received on Sale of Bonds	$ 23,578,600.00	
Total Cash Disbursements		$ 23,578,600.00
Available Funds, December 31, 1960		$ 77,465,334.89
Distributed as follows:		
Demand Deposits	$ 642.63	
Time Deposits	2,288,604.51	
U. S. Government Securities	75,176,087.75	$ 77,465,334.89

NOTES TO FINANCIAL STATEMENTS

GENERAL:

1. The Power Authority of the State of New York was created by the legislature of the State of New York by Chapter 772 of the Laws of 1931, approved April 27, 1931, and last amended by Chapter 792 of the Laws of 1958. It is a corporate municipal instrumentality of the state for the purpose of improving the Niagara and St. Lawrence rivers as instrumentalities of commerce and navigation and developing the hydro-electric power resources thereof in the interest of the people of the State of New York and to preserve and enhance the scenic beauty of the Niagara Falls and river.

2. Provisions of the General Revenue Bond Resolution require that revenues in excess of operating expenses, working capital and necessary reserves be first applied to the payment of interest and principal on outstanding bonds; also, that the operating expenses shall not include any provision for depreciation, amortization or similar charges.

3. Properties and income of the Authority are exempt from taxation.

NOTE A:—Expenditures for electric plant in service and construction work in progress include net bond discount and financing costs incurred in the issuance of the several series of revenue bonds and bond anticipation notes as well as the net interest expense during the period of construction.

NOTE B:—Costs of construction of the entire St. Lawrence Power Project (except principally costs of power equipment and financial costs) have been and are being shared equally, when paid, by The Hydro-Electric Power Commission of Ontario and the Power Authority. Shareable costs to December 31, 1960 assumed by the respective utilities are as follows:

Power Authority costs assumed by The Hydro-Electric Power Commission of Ontario	$125,214,335
The Hydro-Electric Power Commission of Ontario costs assumed by Power Authority	$114,005,980

NOTE C:—It is anticipated that available construction funds will be sufficient to cover the costs of construction of the St. Lawrence Power Project and its related transmission line projects.

Estimated costs to be incurred on outstanding Niagara Power Project contracts aggregated at December 31, 1960 approximately $54,000,000.

NOTE D:—Other current and accrued liabilities include recognized claims of contractors. No amounts have been provided for land acquisition claims in excess of appraisal estimates deposited with the Comptroller of the State of New York.

NOTE E:—Market values of U. S. Government securities, based upon published bid prices, were as follows:

Construction Fund	$ 5,066,781
Temporary Interest Fund	$77,767,938

NOTE F:—The General Revenue Bonds outstanding at December 31, 1960 bear interest payable semi-annually on January 1 and July 1 with maturities and respective interest rates per annum, shown below:

	Amount	Maturity January 1	Interest Rate
Series A—St. Lawrence Power Project			
Term Bonds	$268,000,000	1995	3.20%
Serial Bonds	67,000,000	1965 to 1976	2.10% to 2.75%
Series B—Barnhart-Plattsburgh Transmission Line Project			
Serial Bonds	$ 7,150,000	1962 to 1985	5% to 2.75%
Series C—Supplemental Transmission Lines Project			
Serial Bonds	$ 6,700,000	1962 to 1985	5% to 3.75%
Series E—Niagara Power Project			
Term Bonds	$168,000,000	2006	4.20%
Serial Bonds	32,000,000	1965 to 1977	3.75%
Series F—Niagara Power Project			
Term Bonds	$160,000,000	2006	4.20%
Serial Bonds	40,000,000	1965 to 1979	3.50% and 3.75%
Series G—Niagara Power Project			
Term Bonds	$ 96,000,000	2006	4⅜%
Serial Bonds	24,000,000	1965 to 1979	3.75% and 4.00%
Series H—Niagara Power Project			
Term Bonds	$ 80,000,000	2006	4⅛%
Serial Bonds	20,000,000	1965 to 1980	3.50% and 3.75%

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

NOTE G:—To finance the cost of construction of the Niagara Power Project the Authority may issue one or more series of bonds in such principal amount or amounts for each such series as the Authority may from time to time deem necessary pursuant to its General Revenue Bond Resolution as amended.

NEW YORK
PITTSBURGH
PHILADELPHIA
CHICAGO
WASHINGTON
HOUSTON
HARRISBURG
EL PASO
SAN FRANCISCO
LOS ANGELES

CORRESPONDENTS IN
OTHER COUNTRIES

MAIN AND COMPANY

CERTIFIED PUBLIC ACCOUNTANTS

233 BROADWAY
NEW YORK 7, N. Y.
BEEKMAN 3-7190

Hon. Robert Moses, Chairman
Power Authority of the State of New York
New York, N.Y.

Dear Sir:

We have examined the Statement of Condition of the Power Authority of the State of New York as of December 31, 1960, statements of receipts and disbursements, power revenues, income and expense and summary of funds 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.

For verification of expenditures amounting to $114,005,980 pertaining to the St. Lawrence Power Project paid or due to The Hydro-Electric Power Commission of Ontario for the Power Authority's share of the Commission's expenditures we relied upon certification of said expenditures by the independent Chartered Accountants retained by The Hydro-Electric Power Commission of Ontario, examinations made by the Commission's internal auditors and by tests and such other auditing procedures we deemed necessary in the circumstances.

In our opinion, the above mentioned statements present fairly the financial position of the Power Authority of the State of New York at December 31, 1960 and the results of its operations, cash and fund transactions for the year then ended, in conformity with generally accepted accounting principles adapted to the provisions of the General Revenue Bond Resolution as being appropriate for the Authority, on a basis consistent with that of the preceding year.

Main and Company
CERTIFIED PUBLIC ACCOUNTANTS

New York, N.Y.
February 3, 1961

NIAGARA CONTRACTS

CONSTRUCTION CONTRACTS

Sprague & Henwood, Inc.	Contract N-1—Soil Exploration and Foundation Investigations for Niagara Power Project
Emerson-Garden Electric Co., Inc.	Contract N-2—Construction of Relocated Electrical Facilities in Lewiston, Niagara and Niagara Falls
Merritt-Chapman & Scott Corporation	Contract N-3—Construction of Lewiston Power Plant in Lewiston
Broadway Maintenance Corp.	Contract N-4—Construction of Construction Power Facilities
Merritt-Chapman & Scott Corporation	Contract N-5—Construction of Work Section No. 1 of Waterways in Niagara Falls
The Edward Balf Company, Savin Bros., Inc. and D. W. Winkelman Co., Inc.	Contract N-6—Construction of Work Section No. 2 of Waterways in Niagara and Niagara Falls
Gull Contracting Co., Inc. and L. G. DeFelice & Sons, Inc.	Contract N-7—Construction of Work Section No. 3 of Waterways in Lewiston and Niagara
Channel Constructors	Contract N-8—Construction of Work Section No. 4 of Waterways in Lewiston
W. J. Irwin & Sons, Inc.	Contract N-9—Construction of House Foundations, Roads and Services in Niagara
The Arundel Corporation, L. E. Dixon Company and the Hunkin-Conkey Construction Company	Contract N-10—Construction of Tuscarora Power Plant in Lewiston
Emerson-Garden Electric Co., Inc. and Day & Zimmermann, Inc.	Contract N-11—Electrical Work at Niagara Switchyard in Lewiston
W. J. Irwin & Sons, Inc.	Contract N-12—Construction of 42" dia. Sanitary Sewer in Niagara Falls and 36" and 48" dia. Storm Sewer in Village of Lewiston
Walter S. Johnson Building Co., Inc.	Contract N-13—Construction of Visitor's Building in the Town of Niagara
Walter S. Johnson Building Co., Inc.	Contract N-14—Substructures for the American Rapids Bridge
Bethlehem Steel Company	Contract N-15—Superstructures for the American Rapids Bridge
Coleman Bros. Corp.	Contract N-16—Construction of Niagara Parkway Viaduct Section
Laur and Mack Contracting Co., Inc.	Contract N-17—Construction of Maintenance Building, Whirlpool State Park in Niagara Falls
Gull Contracting Co., Inc. and L. G. DeFelice & Sons, Inc.	Contract N-18—Construction of Niagara Parkway Section 1 and related facilities at Prospect Park and Goat Island, Niagara Falls
S. J. Groves & Sons Co.	Contract N-19—Construction of Niagara Parkway, Bellevue Ave. to Devil's Hole State Park in Niagara Falls and Town of Lewiston
Simons and Wehrmeyer	Contract N-20—Construction of Road and Utilities between Madison Ave. and Lewiston Road in Niagara Falls
Emerson-Garden Electric Co., Inc. and Day & Zimmermann, Inc.	Contract N-21—Construction of Buildings in the Niagara Switchyard
L. I. Waldman & Co., Inc.	Contract N-22—Electrical Work on the Lewiston Power Plant
W. J. Irwin & Sons, Inc.	Contract N-24—Relocation of Whirlpool Street
Merritt-Chapman & Scott Corporation	Contract N-25—Relocation of Lewiston Road at Lewiston Power Plant
Bates & Rodgers Construction Corp.	Contract N-26—Construction of South Approaches to Lewiston Power Plant from Devil's Hole to Lewiston Power Plant in Lewiston and Niagara Falls
Nager Electric Co., Inc.	Contract N-27—Electrical Work at the Tuscarora Power Plant
Scrufari Construction Co., Inc.	Contract N-28—Construction of Maintenance Building for Niagara Power Project
Johnson, Drake & Piper, Inc.	Contract N-29—Construction of Incidental Niagara Power Facilities between North Grand Island Bridge and Treadway Inn

SUPPLY CONTRACTS

Allis-Chalmers Manufacturing Company and S. Morgan Smith	Contract NP-1—28,000 HP Hydraulic Pump Turbines for Tuscarora Pump Power Plant
Allis-Chalmers Manufacturing Company	Contract NP-2—37,500 HP/25,000 KVA Motor Generators for Tuscarora Power Plant
Baldwin-Lima Hamilton Corp., Newport News Shipbuilding and Drydock Company	Contract NP-3—200,000 HP Hydraulic Turbines for Lewiston Power Plant
Westinghouse Electric Corp.	Contract NP-4—167,000 KVA Generators for Lewiston Power Plant
Ferranti Electric, Inc.	Contract NP-5—180,000 KVA Three Phase Power Transformers for Lewiston Power Plant
R & I E Equipment Division, ITE Circuit Breaker Co.	Contract NP-6—Generator Main Leads, Isolated Phase Bus for Lewiston Power Plant
Brown Boveri Corp.	Contract NP-7—100,000 KVA 3 Phase Power Transformers for Tuscarora Power Plant
Westinghouse Electric Corp.	Contract NP-8—Generator Air Circuit Breakers for Tuscarora Power Plant
Woodward Governor Co.	Contract NP-9—Hydraulic Turbine Governors for Lewiston Power Plant
Adsco Division—Yuba Consolidated Industries, Inc.	Contract NP-10—Draft Tube Pier Noses for Lewiston Power Plant and Tuscarora Power Plant
General Electric Company	Contract NP-11—200 MVA Autotransformers for Niagara Switchyard
General Electric Company	Contract NP-12—Grounding Cubicles for Lewiston Power Plant Generators and Tuscarora Power Plant Motor Generators
Okonite Company	Contract NP-13—High Pressure Oil Pipe Type Cable
General Electric Company	Contract NP-14—Motor Generator Main Leads — Isolated Phase Bus for Tuscarora Power Plant
Collyer Insulated Wire Co.	Contract NP-15A—Insulated Wire and Cable
Rome Cable Corp.	Contract NP-15B—Insulated Wire and Cable
General Electric Company	Contract NP-15C—Insulated Wire and Cable
Milwaukee Crane Div. of Industrial Enterprises, Inc.	Contract NP-16—Gantry Cranes and Traveling Cranes for Lewiston Power Plant
Baldwin-Lima-Hamilton Corp., Pelton Div.	Contract NP-17—Hydraulic Pump Turbine Governors for Tuscarora Power Plant
Federal Pacific Electric Company	Contract NP-18—Unit Control Boards for Lewiston Power Plant
General Electric Company	Contract NP-19—15 KV Metalclad Switch Gear and Appurtenances
Federal Pacific Electric Company	Contract NP-20—115 KV and 230 KV Power Circuit Breakers for Niagara Switchyard
R & I E Equipment Division, ITE Circuit Breaker Co.	Contract NP-21—High Voltage Disconnecting Switches for Niagara Switchyard
Chicago Bridge & Iron Co.	Contract NP-22—Penstocks for Lewiston Power Plant
General Electric Company	Contract NP-23—Secondary Unit Substations for Niagara Power Project
Link Belt Company	Contract NP-24—Towers, Guides and Sills for Lewiston Power Plant and Conduit Outlet Stoplog Structure of Waterways
M. L. Bayard & Company, Inc.	Contract NP-25—Intake Gate Fixed Hoists for Lewiston Power Plant
American Elin Corp.	Contract NP-26—High Voltage Instrument Transformers for Niagara Switchyard
Milwaukee Crane Div. of Industrial Enterprises, Inc.	Contract NP-27—Gates and Stoplogs for Lewiston Power Plant
Link Belt Company	Contract NP-28—Towers, Guides and Sills for Tuscarora Power Plant

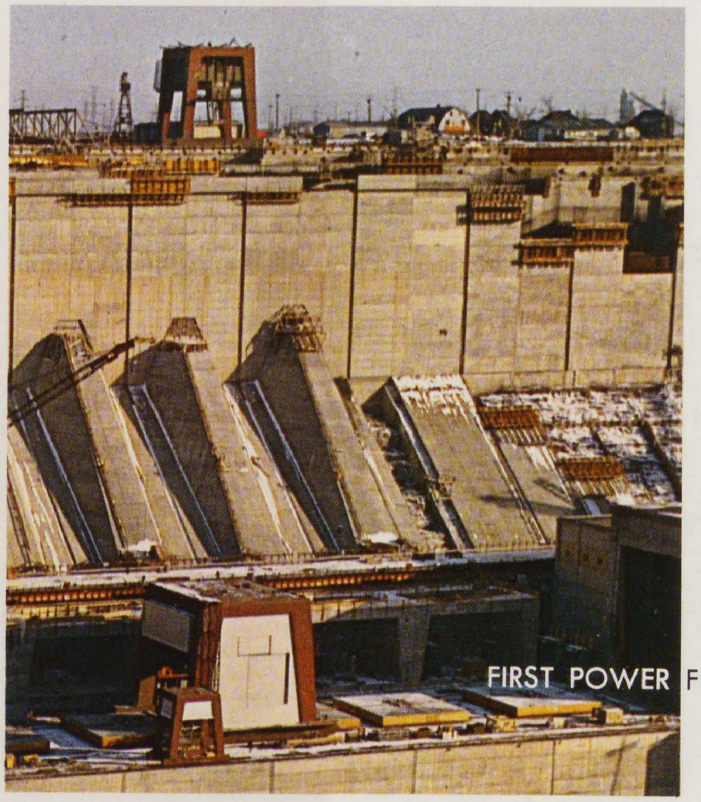
D. J. Murray Manufacturing Co.	Contract NP-29—Intake Gate Hoists for Waterways
Alco Products, Inc.	Contract NP-30—Intake Gates and Stoplogs for Tuscarora Power Plant
Kaustine Furnace and Tank Corp.	Contract NP-31—Trash Racks for Lewiston Power Plant and Tuscarora Power Plant
M. L. Bayard & Company, Inc.	Contract NP-32—Intake Gate Fixed Hoists for Tuscarora Power Plant
Allis-Chalmers Manufacturing Company	Contract NP-33—400 MVA Autotransformers for Niagara Switchyard
Societa Anonima Elettrificazione S.P.A.	Contract NP-34—Structural Steel for Switchyard for Niagara Power Project
Chicago Bridge & Iron Company	Contract NP-35—Penstocks for Tuscarora Power Plant
Milwaukee Crane Div. of Industrial Enterprises, Inc.	Contract NP-36A—Gantry Cranes and Traveling Crane for Tuscarora Power Plant
Whiting Corp.	Contract NP-36B—Gantry Cranes and Traveling Crane for Tuscarora Power Plant
Milwaukee Crane Div. of Industrial Enterprises, Inc.	Contract NP-37—Draft Tube Gates for Tuscarora Power Plant
General Bronze Company	Contract NP-38—Generator Hatch Covers for Lewiston Power Plant
Link Belt Company	Contract NP-39—Intake Gate and Stoplog Guides, Sills and Head Beams for Waterways
C. Frederick Wolfe, Inc.	Contract NP-40—Generator Hatch Cover Frames for Tuscarora Power Plant
Westinghouse Electric Corp.	Contract NP-41—440 Volt Motor Control Centers and Appurtenances
Otis Elevator Co.	Contract NP-42—Elevators and Moving Stairs for Lewiston and Tuscarora Power Plants
Societa Anonima Elettrificazione, S.P.A.	Contract NP-43—Structural Steel for Intake Gate Structures for Waterways
Bethlehem Steel Co.	Contract NP-44—Rails and Accessories for the Lewiston and Tuscarora Power Plants and Waterways Intake Gate Transfer Car
Bucyrus-Erie Company	Contract NP-46—Gates, Stoplogs and Gate Transfer Car for Intakes in Waterways

TIE LINE-CONSTRUCTION CONTRACTS

Emerson-Garden Electric Co., Inc.	Contract AL-2—Construction of Transmission Line between Niagara Switchyard and Rochester Substation
The L. E. Meyers Company	Contract AL-3 Construction of 345 KV Transmission Line between Rochester Substation and Syracuse Substation
Day & Zimmermann, Inc.	Contract AL-4—Construction of 345 KV Transmission Line between Syracuse and Utica
Emerson-Garden Electric Co., Inc.	Contract AL-5—Construction of 345 KV Transmission Line Circuit No. 1 between Niagara Switchyard and Rochester
D. H. Fellows Construction Corp.	Contract AL-6—Construction of the Syracuse Service Building

TIE LINE-SUPPLY CONTRACTS

Societa Anonima Elettrificazione S.P.A.	Contract ALP-100—345 KV Transmission Line Towers
Aluminum Company of America	Contract ALP-102—345 KV Transmission Line Overhead Ground Wire and Phase Conductor



FIRST POWER FEBRUARY 10, 1961