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BRITISH COLUMBIA HYDRO AND POWER AUTHORITY **EIGHTH ANNUAL REPORT**

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Year Ended 31 March 1970

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CONTENTS

Letter of Transmittal	1
Directors and Officers	2
Chairman's Letter-	3
The Year in Brief	4
Results of Operations	5
Inflation	6
Electric Service	7
Rates	7
Generation and Supply of Electricity	7
Marketing of Electricity	8
Regional Development	9
Rural Electrification	11
Gas Service	11
Transportation Services	13
Urban Transportation	13
Interurban Transportation	13
Rail Freight	14
Cost of Providing Services	15
Financing	16
Columbia River Treaty Funds	16
Construction Program	17
Peace River Project	18
Columbia River Treaty Storage Projects	19
Other Major Electric Service Plant Additions	20
Corporate Organization	22
Employees	23
Billing Customers' Electric and Gas Accounts	24
Environmental Control	25
Outlook	25
Report of the Auditors	26
Financial Statements	27
Financial Statistics	34
Operating Statistics	35
Divisional Organization	36
Map of Electric Transmission System	Inside Back Cover



PRIME MINISTER
VICTORIA

1 9 7 0

June 15th

Colonel the Honourable John R. Nicholson, P.C.,
O.B.E., Q.C., LL.D., Lieutenant-Governor
of the Province of British Columbia.

MAY IT PLEASE YOUR HONOUR:

The undersigned has the honour to present the
Annual Report of British Columbia Hydro and Power Authority
for the year ended 31st March 1970.

W.A.C. Bennett



DIRECTORS AND OFFICERS

JOHN DUNSMUIR
*EINAR M. GUNDERSON
*THE HONOURABLE W. KENNETH KIERNAN
FRED D. MATHERS
*GORDON M. SHRUM *Chairman*
FREDERICK A. SMITH
*JOHN H. STEEDE
*THE HONOURABLE RAY G. WILLISTON
**Member of Executive Management Committee*

GEOFFREY G. WOODWARD *Secretary*
ELIZABETH B. FULWELL *Assistant Secretary*

Auditors: PRICE WATERHOUSE & CO.

Bankers: CANADIAN IMPERIAL BANK OF COMMERCE

Securities issued by British Columbia Hydro and Power Authority:

Registrar, Canadian issues: B.C. HYDRO

Registrar, United States issues: THE CANADIAN BANK OF COMMERCE
TRUST COMPANY, New York

Securities issued by the former British Columbia Electric Company Limited:

Registrar, Perpetual Callable Bonds and 25-year Bonds: MONTREAL
TRUST COMPANY

Registrar and Trustee, First Mortgage Bonds: MONTREAL TRUST
COMPANY

Registrar and Trustee, Debentures: THE ROYAL TRUST COMPANY

Securities issued by the former British Columbia Power Commission:

Registrar: B.C. HYDRO

THE BUSINESS OF B.C. HYDRO AND THE AREAS SERVED (See map, inside back cover)

Electric Service

Generation and transmission of electricity.

Distribution of electricity throughout areas of British Columbia containing more than 90% of the population of the Province.

Gas Service

Distribution of natural gas in Greater Vancouver and in the Fraser Valley eastward to Hope.

Distribution of liquefied petroleum gas-air in Greater Victoria.

Passenger Transportation Service

Urban passenger transportation in Greater Vancouver and Greater Victoria.

Interurban passenger transportation in Greater Vancouver, in the Fraser Valley eastward to Hope, between Vancouver and Victoria and between Vancouver and Nanaimo.

Rail Freight Service

Rail freight operations in Greater Vancouver and the Fraser Valley.

BRITISH COLUMBIA HYDRO AND POWER AUTHORITY

OFFICE OF THE CHAIRMAN

970 BURRARD STREET

VANCOUVER 1, B. C.

12 June 1970

The Honourable W.A.C. Bennett, P.C., LL.D., D.Pol.Sc., K.St.J.,
Prime Minister of British Columbia,
Parliament Buildings,
Victoria, British Columbia.

Dear Sir:

The Board of Directors presents herewith the Annual Report of British Columbia Hydro and Power Authority for the year ended 31 March 1970.

Economic expansion and growth in population have resulted in an increasing demand for electricity throughout the Province. B.C. Hydro's electric service facilities were further expanded during the year to meet this demand and thereby contribute to major developments in British Columbia.

Inflation in the form of increases in wages and higher interest rates continues to be the most serious problem affecting B.C. Hydro's operations, and as a direct consequence, a loss was incurred during the year for the first time in the history of the Utility. To enable B.C. Hydro to operate on a sound financial basis, increases in electric rates and transit fares were announced in February 1970.

Demand for energy during the decade of the Seventies is forecast to be more than double that of the past decade. B.C. Hydro faces a challenge to provide the necessary facilities to supply this energy, and management and staff will concentrate their efforts in meeting the challenge.

Submitted on behalf of the Board of Directors.



CHAIRMAN

THE YEAR IN BRIEF

- B.C. Hydro suffered a loss on operations for the first time in its history. The loss for the year was \$408,118 compared with a net income of \$9,283,868 for the previous year.
- To obtain additional revenues necessary to operate on a sound financial basis, increases in electric rates and transit fares were announced in February 1970.
- Kilowatt-hours of electricity sold in British Columbia were 9.4% higher than last year.
- Therms of gas sold were 3.1% higher than last year.
- Number of passengers carried on urban transportation services increased 1.7% over last year.
- The fourth and fifth generating units at Gordon M. Shrum Generating Station were placed in service. B.C. Hydro's total generating capacity at 31 March 1970 was 3,511 megawatts, up 14.9% from last year.
- The dam at the Arrow project was named "Hugh Keenleyside Dam" in honour of the former Chairman of B.C. Hydro at a dedication ceremony on 9 June 1969. Work on Mica Dam, the last of the three Columbia River Treaty storage projects in British Columbia, proceeded on schedule.
- Expenditures on new plant amounted to \$189,629,998 compared with \$227,274,238 for the previous year.



Mica Dam, last Columbia Treaty storage project to be built by B.C. Hydro, will be highest earthfill dam on continent.

ANNUAL REPORT OF BRITISH COLUMBIA HYDRO AND POWER AUTHORITY

for the year ended 31 March 1970

RESULTS OF OPERATIONS

A loss was incurred on operations for the first time in the history of B.C. Hydro. The loss during the year ended 31 March 1970 was \$408,118 compared with a net income of \$9,283,868 for the previous year.

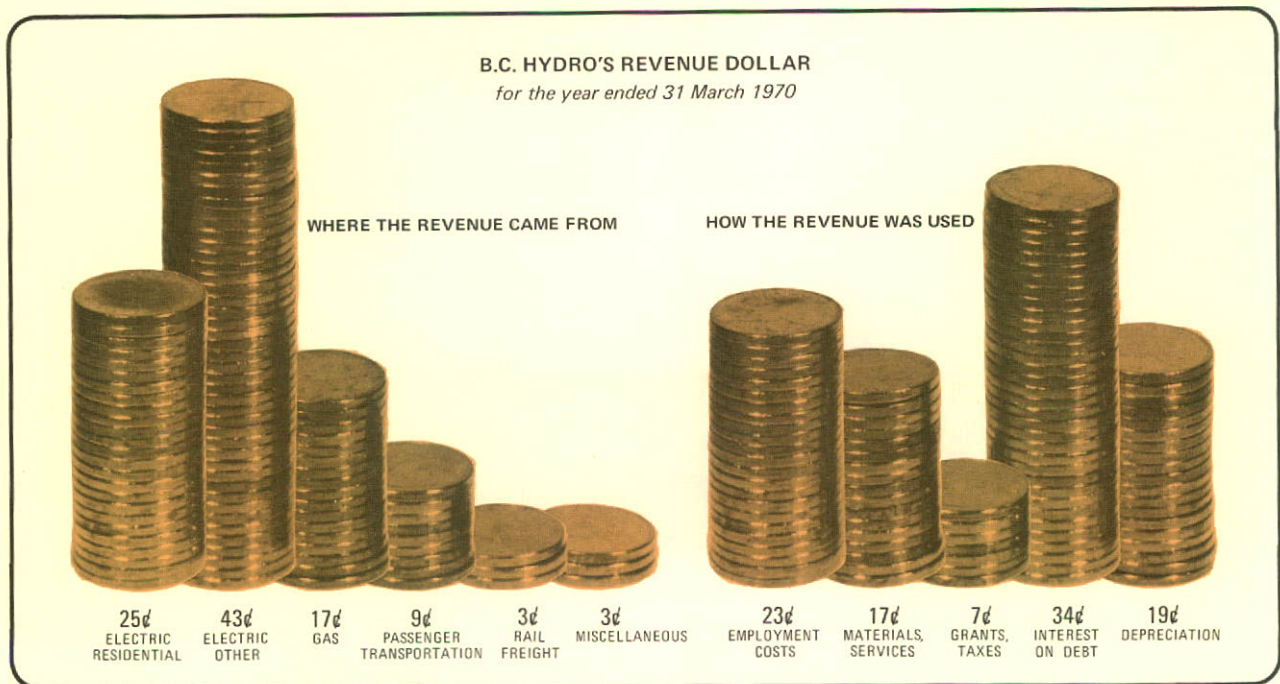
Gross revenues for the year ended 31 March 1970 amounted to \$239,900,280, an increase of \$18,792,254 or 8.5% over the previous year.

The following table shows the principal sources of revenue and how this revenue was used in the operations of B.C. Hydro:

	Year Ended 31 March 1970	Year Ended 31 March 1969
Where the revenue came from:		
Sale of electricity to residential customers	\$ 60,660,409	\$ 57,682,739
Sale of electricity to other customers	102,087,136	91,677,011
Sale of gas	40,965,694	40,575,251
Transportation of urban and interurban passengers	20,739,317	19,509,572
Rail freight operations	8,441,237	7,462,538
Interest on temporary investments	3,854,459	1,607,749
Miscellaneous	3,152,028	2,593,166
	<u>\$239,900,280</u>	<u>\$221,108,026</u>

How the revenue was used:

Salaries, wages and employee benefits	\$ 55,085,900	\$ 49,611,424
Materials and services	40,409,194	44,932,909
Grants, school taxes, etc.	17,041,965	14,953,333
Interest on debt, less interest charged to construction	83,042,438	63,695,856
Depreciation of plant	44,728,901	38,630,636
Employed in the business (withdrawal).	(408,118)	9,283,868
	<u>\$239,900,280</u>	<u>\$221,108,026</u>

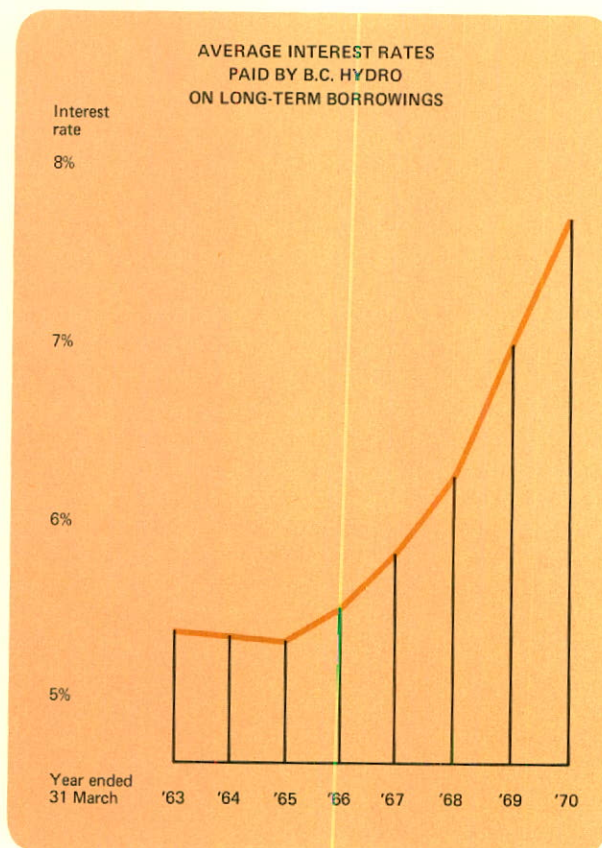
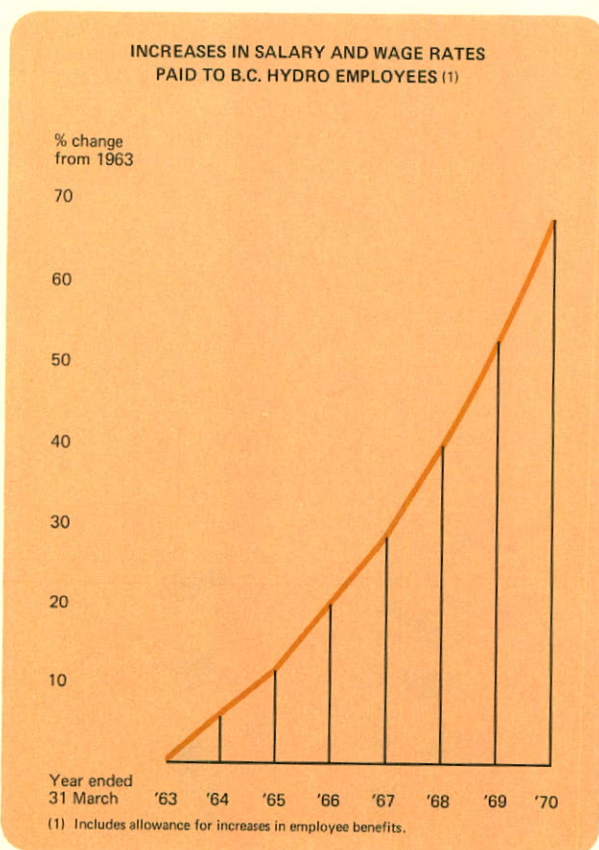


INFLATION

Inflation has been a factor in the economy for many years, but while it was advancing at a relatively moderate rate, B.C. Hydro was able to absorb the increases in costs and even reduce rates through operating efficiencies and growth. In recent years, however, inflationary pressures have mounted in an unprecedented manner, affecting nearly all aspects of B.C. Hydro's operations. Unquestionably, inflation was a major cause of the loss incurred for the year ended 31 March 1970.

The greatest impact of inflation was caused by increases in costs of construction, salary and wage rates and interest on borrowed money. These elements of cost, which have risen at an extremely high rate during the past three years, are of prime significance because B.C. Hydro, like most major public utilities in Canada and the United States, must continually expand plant facilities to meet an ever-increasing demand for energy. For example, during the past three years, escalation of wages paid by contractors to construction workers on the Peace River Project alone has amounted to nearly \$12 million; and higher rates of pay for employees have added \$32 million to B.C. Hydro's costs. Similarly, during the same period, spiralling interest rates have increased the cost of borrowed money by more than \$9 million. Costs of materials, services and taxes also reflected the inflationary trend.

To restore B.C. Hydro's operations to a sound financial basis, it became mandatory to increase electric rates and transit fares. Without adequate revenues, B.C. Hydro would be unable to continue providing essential services to its customers—services that must be provided if the economy of the Province is to remain healthy.



ELECTRIC SERVICE

Rates

Increases in electric rates for B.C. Hydro's residential, commercial and industrial customers were announced in February 1970, applicable to bills after 30 April 1970. Despite the higher rates, costs for most residential customers are still below levels in effect in 1961—prior to the formation of B.C. Hydro—a very creditable record considering the effect of years of inflation. Some comparisons of electric bills for residential customers are shown below:

LOWER MAINLAND			
Monthly Consumption	1961	New Rates	Increase (Decrease)
150 kwh	\$ 5.50	\$ 4.50	\$(1.00)
300	9.17	9.00	(.17)
600	11.87	12.30	.43
1,000	16.19	16.70	.51
1,500	22.44	22.20	(.24)
2,000	28.69	27.70	(.99)

Since B.C. Hydro was formed, overall rate reductions have saved electric and gas customers more than \$170 million to 31 March 1970.

Generation and Supply of Electricity

Demand for electricity during the year ended 31 March 1970 totalled 15,196 million kwh compared with 13,750 million kwh during the previous year. The following table shows requirements for energy and sources of supply for the year under review:

	Kwh in Millions	% of Total
Requirements for Energy		
Sales to customers	13,390	88.1
Export of surplus	266	1.8
Line loss and system usage	1,540	10.1
	<u>15,196</u>	<u>100.0</u>
Sources of Supply		
Hydro generation—		
Peace River Project	6,501	42.8
Other	7,339	48.3
Thermal generation	773	5.1
Purchases, etc.	583	3.8
	<u>15,196</u>	<u>100.0</u>

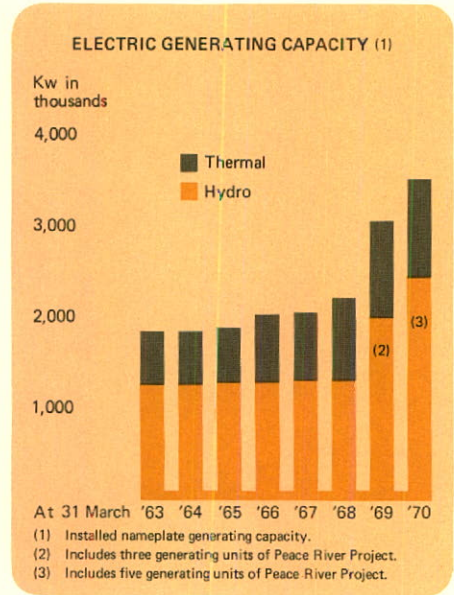
As shown in the above summary, 42.8% of the energy was supplied from Gordon M. Shrum Generating Station on the Peace River, where the fourth and fifth 227,000 kw generating units became operational in the summer of 1969. Installed nameplate generating capacity of the system at 31 March 1970 totalled 3,511,268 kw, up 14.9% from last year and 124.6% from March 1962, when B.C. Hydro was formed.

The highest one-hour demand ever recorded on B.C. Hydro's integrated system, 2,499,000 kw, occurred on 13 January 1970. This record demand represented an increase of 6.0% over the previous year's peak.

With expansion of the Peace River Project during the year, there was some excess energy available at Burrard Thermal Generating Plant in off-peak periods, and consequently 266 million kwh were sold to Bonneville Power Administration and Seattle City Light. Revenues from these sales were sufficient to recover the cost of fuel and contribute to

the fixed costs associated with Burrard Thermal Generating Plant. The exchange of electricity between the Northwest Power Pool and B.C. Hydro is to the mutual advantage of the western United States and British Columbia; during recent years, B.C. Hydro has imported considerably more energy from the United States than it has exported.

To serve the growing demand for power in the East Kootenay area, a long-term agreement was negotiated with Bonneville Power Administration providing for delivery by B.C. Hydro of up to 300,000 kw of power at Douglas in the Lower Mainland for transmission over facilities of Bonneville Power Administration in the United States to Nelway near the international boundary in the eastern part of the Province. A 230 kv transmission line from Nelway to Cranbrook is planned for completion in 1971 to deliver this power to the East Kootenay area.

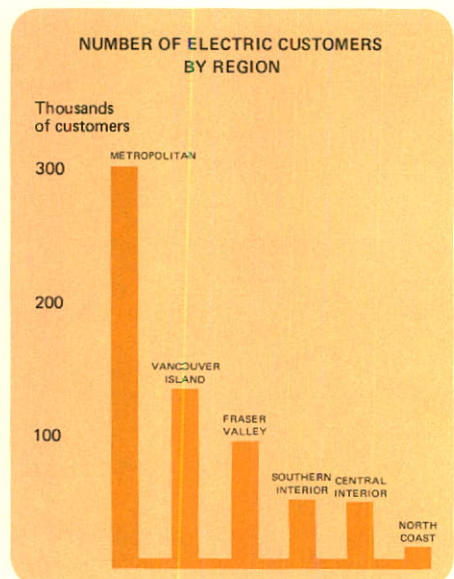
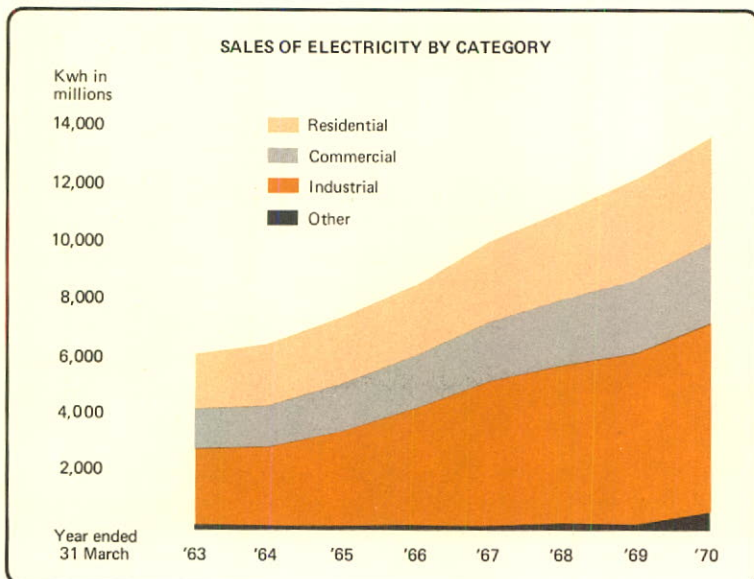


Marketing of Electricity

Gross revenues from the electric service were \$162,747,545, an increase of 9.0% over the previous year. Kilowatt-hours of electricity sold during the year in British Columbia increased 9.4%, with gains recorded for all categories of customers. Sales to residential consumers increased 4.9%, commercial 9.4% and industrial 11.6%, reflecting British Columbia's rapidly growing population, a continuing high level of economic expansion and an ever-improving standard of living. There were 651,900 customers served with electricity by B.C. Hydro at year-end.

Increased use of electric appliances with good load characteristics ultimately benefits electric consumers by reducing the cost per kilowatt-hour of producing energy. B.C. Hydro, in cooperation with other major Canadian utilities and manufacturers, participates in the promotion of electric appliances that tend to stabilize electric load.

During the year, electric water heaters were actively promoted, and a financing plan was made available by B.C. Hydro enabling customers to replace old water heaters with new,





Electric appliances are demonstrated on television.



Lakeside apartments at Vernon feature electric heat.

high-performance electric water heaters. Electric water heaters are used in nearly 50% of all residences in the Province.

The number of electrically heated dwellings in B.C. Hydro's service area increased more than 20% during the year to 24,400, against strong competition from other fuels. Throughout B.C. Hydro's service area, electricity was chosen for space heating in 14% of all houses constructed during the year.

The benefits of automatic laundry dryers, automatic dishwashers, frost-free refrigerators and air-conditioning units were also brought to the attention of the homemaker through promotional programs.

Regional Development

In the Lower Mainland, rising costs of construction, increased cost of land and higher interest rates on mortgages have resulted in continuation of a trend to multiple residential construction—both apartment buildings and condominiums—with the total number of dwelling units under construction up substantially from the previous year. A number of large commercial developments, including office buildings, hotels and shopping centres, are being built or being planned in the Greater Vancouver area. Pacific Centre, currently under construction in downtown Vancouver, will be the



New CP Air hangar near Vancouver is largest in Canada.



NHL stars will play next season under Coliseum lights.

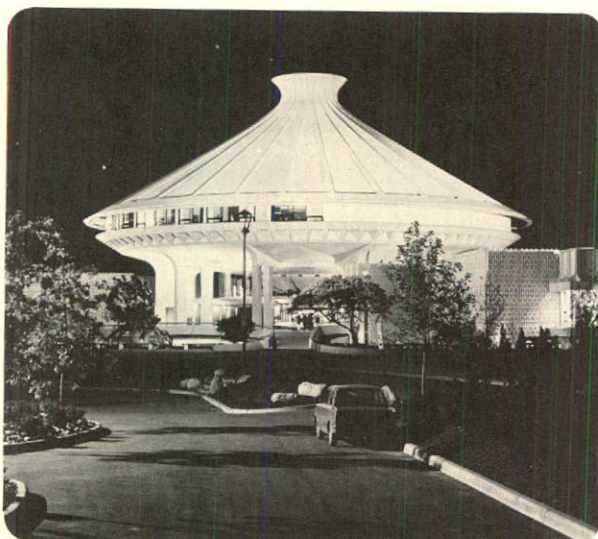
largest single commercial development in British Columbia when completed in 1971; and Phase 1 of Project 200, a large commercial-industrial complex to be located on the Vancouver waterfront, was under way in March 1970.

Roberts Bank Superport in Delta commenced handling deliveries of coal from the East Kootenays in April 1970. Ultimately, 15 million tons of coal are expected to be shipped annually through Roberts Bank to Japan. As the port is developed, shipment of coal and other bulk cargoes will significantly benefit the economy of the Lower Mainland and British Columbia as a whole.

On Vancouver Island, the economic potential of the Port Hardy district soared as a result of a decision by Utah Construction and Mining Company to proceed with a large open-pit copper mining operation and B.C. Hydro's plans to construct a transmission line to serve the area from its integrated system. During the year under review, six new commercial buildings—four of which are electrically heated—were constructed in the Port Hardy area. In the coming year, two new electrically heated schools will be constructed, and an underground distribution system will be installed to serve the large townsite planned by the operator of the mine. Steady growth was experienced in other areas of Vancouver Island.

In the Southern Interior Region, residential and commercial construction continued at a pace above normal as a number of new plants were located in the region. The East Kootenay area, stimulated by coal mining activity and expansion of lumber, plywood and pulp manufacturing facilities, showed an increase of 34% in consumption of electricity over the previous year; at Kamloops, which is experiencing the greatest expansion boom in its history, new or expanded facilities under construction include a cement manufacturing plant, pulp and paper plant, plywood plant, vocational school, hospital and warehouse complex. World markets and increasing prices for metals are improving the feasibility of developing large-volume, low-grade ore bodies; the Highland Valley is expected to be one of the principal areas to benefit from these developments.

Consumption of electricity in the Central Interior and North Coast regions increased 10.9% over the previous year, reflecting the steady growth in this part of the Province. Extensions of the Pacific Great Eastern Railway and of B.C. Hydro's integrated electric transmission system are making possible the development of northern areas of British Columbia, which have abundant natural resources. Although these extensions will benefit all segments of the economy, they will have a pronounced effect on mining operations. A predicted upturn in world demand for pulp, newsprint and other



Planetarium has become familiar Vancouver landmark.



Ski slopes offer superb night view of city and harbour.

forest products is stimulating planning for new facilities or expansion of existing plants in the Central Interior and North Coast regions of the Province.

Rural Electrification

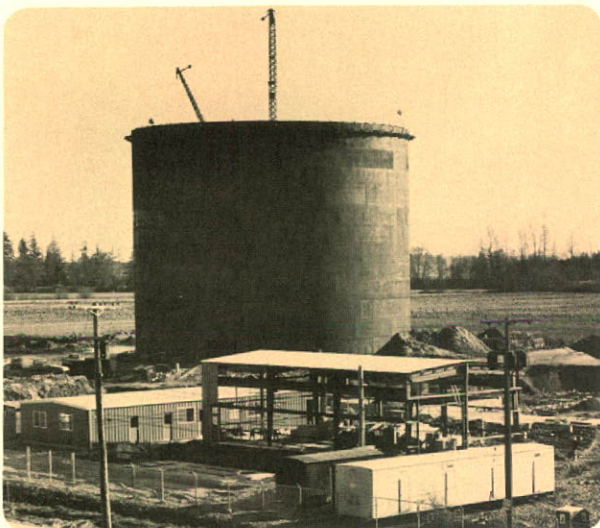
During the year, the Government of British Columbia made a grant of \$2,000,000 to B.C. Hydro to provide financial assistance for the electrification of rural areas in British Columbia. As a result of this grant, many rural areas are being supplied with electricity for the first time. At Bella Bella, a community inaccessible by road and located on the west coast of the Province, 195 customers will be served with electricity from a newly constructed 1,200 kw diesel generating station. Farther north on the coast, a 23-mile extension of the Prince Rupert distribution system was completed to deliver power to 150 customers in the communities of Metlakatla and Port Simpson. At Usk, east of Terrace, 66 homes were supplied from a new 16-mile line, and north of Squamish, a shorter extension of 13 miles began serving the rapidly developing area at Alta Lake. Throughout B.C. Hydro's service area, commitments were made during the year to extend financial assistance to 132 projects serving 969 customers.

GAS SERVICE

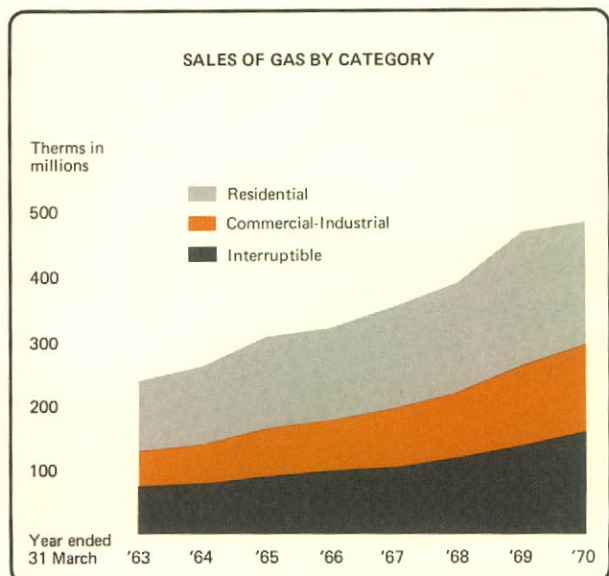
Gross revenues from the sale of gas to the public were \$40,965,694, up 1.0% from the previous year, while therms of gas sold rose 3.1%. Weather conditions, which have a marked influence on sales of gas for heating, were considerably milder than in the previous year, when abnormally cold weather was experienced in the winter months. The number of degree days recorded at Vancouver International Airport during the prime heating months of October through March was 14.3% less than in the corresponding period a year ago.

The peak one-day output of gas in the Lower Mainland during the year, excluding interruptible loads and gas delivered to Burrard Thermal Generating Plant, was 188 million cubic feet on 17 January 1970, well below the record peak of 274 million cubic feet in December 1968.

In the Lower Mainland, the shift to multiple-dwelling accommodation continued with 10,500 units added during the year. Natural gas continued to dominate the space heating market as 94% of the new suites were heated with this fuel. At 31 March 1970, there were 168,131 residential customers using natural gas in B.C. Hydro's Lower Mainland



Liquefied natural gas plant will help meet peak loads.



service area. In the commercial field, natural gas was the fuel chosen to heat 532 new buildings, or 97% of the additional heating load. There were 21,700 commercial and industrial customers on line at 31 March 1970. Interruptible gas sales, which represented one-third of B.C. Hydro's total gas sales for the year, were 17% higher than during the previous year.

In Greater Victoria, sales of liquefied petroleum gas-air for the year increased 1.1% over the previous year, when the volume of sales reflected exceptionally cold weather.

The net increase in gas mains in service during the year was 113 miles, bringing the total to 3,591 miles at year-end. Improvements were also made to the distribution system to provide increased reliability of supply to the growing industrial load in Richmond, Queensborough and on Annacis Island.

Westcoast Transmission Company Limited supplies natural gas to B.C. Hydro in the Lower Mainland. In accordance with terms of a new purchase agreement with that company, the daily billing demand for firm gas was lowered from 252.9 million cubic feet to 218.3 million cubic feet effective 1 November 1969.

Preparation of the site for construction of a liquefied natural gas plant on Tilbury Island in Delta began in June 1969. The plant, scheduled for completion in the autumn of 1970, will be a landmark in the area with its 118-foot-high storage tank capable of holding 175,000 barrels of liquid natural gas, equivalent to 625 million cubic feet of gas when vapourized. This new facility, which is sufficiently automated to permit operation by one man, will reduce the demand for gas from the transmission pipeline during the periods of peak load and thereby minimize the cost of gas to B.C. Hydro.

The acceptance of natural gas as a desirable heating fuel and the growing awareness that natural gas contributes to the preservation of a clean environment are factors which will ensure the continuing demand for gas as a source of energy for residential, commercial and industrial purposes.



Nearly 3,600 miles of gas mains are now in service.



Use of natural gas helps preserve clean environment.

TRANSPORTATION SERVICES

Urban Transportation

B.C. Hydro's urban transportation services in Greater Vancouver and Greater Victoria continued to incur heavy losses despite a substantial grant in each of the past two years from the Provincial Government. Since the year ended 31 March 1965—the year in which the previous transit fare increase was introduced—inflation has had a significant impact on B.C. Hydro's transit operations. The annual cost of labour, which represents more than 70% of total transit operating expenses, has increased \$4.4 million or 42.4%. In addition, the cost of borrowing money to purchase new equipment has risen sharply during this period; since 31 March 1965, 216 new diesel buses have been purchased at a cost of \$8.1 million for use in Greater Vancouver and Greater Victoria.

To reduce the increasing losses on transit operations, new fares became effective 1 April 1970. At the same time, an "exact fare" plan was introduced to speed up passenger loading and improve the efficiency of transit service. A new low multi-zone fare for off-peak periods was also introduced, allowing passengers to ride anywhere on the Greater Vancouver system at a considerable saving from the regular fare.

Gross revenues from urban transportation services, excluding the grant of \$2,000,000 received from the Government of British Columbia, totalled \$15,274,054, an increase of .9% over the previous year. This increase reflects a continuation of the upward trend in passenger riding that commenced four years ago.

A number of improvements in service were made during the year, including the commencement of the "Beach Avenue" route, which provides better service to residents of the West End of Vancouver. Also, with the opening of the Lougheed Shopping Mall in the eastern part of Burnaby, a new service was introduced to connect with an existing line. In Victoria, the "Haultain" route was extended to provide improved service to users of the Hillside Shopping Centre complex.

The transit franchise agreement with the City of New Westminster expired 30 December 1969. All transit franchises with municipalities have now terminated, but B.C. Hydro is continuing to operate transit services in these municipalities.

The City of Vancouver and B.C. Hydro are cooperating in a study of transit operations with a view to expediting service in the downtown area of Vancouver. The study is expected to be completed in 1970. Another study, by a firm of outside consultants, was commenced in 1969 to determine the role of "rapid transit" in the future of Greater Vancouver. The cost of this study, the first phase of which was completed in January 1970, will be shared jointly by the Greater Vancouver Regional District and B.C. Hydro.

Twenty-six new diesel buses were purchased during the year for use in the Greater Vancouver area; of these, sixteen replaced older buses, and ten were required to meet increased demand for service.

Interurban Transportation (Pacific Stage Lines)

Gross revenues from interurban transportation services rose 2.7% during the year to \$3,465,263. The trend of increasing patronage on Greater Vancouver and Fraser Valley routes was responsible for an increase of 3.9% in revenues from these areas compared with the previous year. Revenues from the services operated between Vancouver and Victoria and between Vancouver and Nanaimo (via ships of the British Columbia Ferry Authority) declined from the previous year. This decline was caused partly by a suspension of service in May 1969 when a strike was called against

Vancouver Island Coach Lines, the company that operates these inter-city services jointly with B.C. Hydro.

Sightseeing and charter services showed gains in revenue for the year as promotional programs conducted by B.C. Hydro, in cooperation with others, helped make tourists and other visitors aware of the attractions of British Columbia.

Passenger fares and express rates on Greater Vancouver and Fraser Valley routes were increased effective 1 April 1970. This was the first increase in passenger fares and express rates on these routes in more than a decade.



Promotional programs helped stimulate travel industry by increasing use of charter and sightseeing buses.



Volume of rail freight hauled reached record levels, and 14 new spurs were built to serve industrial sites.

Rail Freight

Gross revenues from rail freight operations amounted to \$8,441,237 for the year, an increase of 13.1% over the previous year, as volume of freight handled reached record levels. There were 2,466,138 tons of freight hauled during the year, up 8.9% from the previous year. Notable increases in volume were recorded for iron and steel ingots, motor vehicles and parts, pool cars and forest products—primarily veneer.

The continuing settlement of new industries on lands adjacent to B.C. Hydro's railway ensures future growth of the rail freight service. During the year, 24 sites—a record for a single year—were purchased or leased from B.C. Hydro by industrial firms, and 14 new railway spurs were built. It is expected that the last sites in Van Horne Industrial Centre will be sold or leased in 1970, while Langley and Newton industrial centres are also being developed rapidly. In Matsqui Industrial Centre, a joint development by B.C. Hydro and the District of Matsqui, three more sites were sold during the year, and the sale of a building and 34 acres of property in the Sardis industrial area was being negotiated.

One 900-horsepower diesel locomotive was acquired during the year, bringing to 17 the total number of diesel locomotives owned by B.C. Hydro.

Construction of the rail access from a point near Cloverdale to the newly constructed superport at Roberts Bank was completed during the year.

COST OF PROVIDING SERVICES

The total cost of providing all services during the year was \$240,308,398, an increase of \$28,484,240 or 13.4% over the previous year.

The rapid rise in costs of providing services has presented a major challenge to B.C. Hydro, as higher costs have far outstripped economies achieved through growth and technological improvements. Although more evident in the areas of wage and interest rates, inflation was a factor in nearly all elements of expense.

Interest and other costs on debt charged to operations during the year were \$83,042,438, up \$19,346,582 or 30.4% from last year. The increase reflected:

- (a) The transfer to property in service of the cost of new plant facilities, including the fourth and fifth units at Gordon M. Shrum Generating Station, a proportion of the common property associated with the Peace River Project and the second transmission line from Gordon M. Shrum Generating Station to Kelly Lake Substation.
- (b) The impact of sharply increased costs of construction during recent years, when B.C. Hydro's plant expansion program reached record levels to keep pace with load growth. Interest on money borrowed to pay for these higher costs becomes a charge against operations when plant is placed in service.
- (c) A continuing rise in interest rates.

Provision for depreciation of plant was \$44,728,901 compared with \$38,630,636 last year, an increase of 15.8%. Increases in depreciation expense are directly related to the transfer to active service of new plant; consequently, higher costs of construction are now being reflected as a charge against operations.

Grants, school taxes and water rentals charged to operating expenses totalled \$17,041,965, an increase of \$2,088,632 or 14.0% over last year. Water licence fees for operating Gordon M. Shrum Generating Station were \$1,039,306, up \$722,416 from the previous year; the remainder of the increase was caused by growth in B.C. Hydro's assessable property, higher mill rates for school taxes and generally higher assessments on property.

Salaries, wages and employee benefits charged to operations amounted to \$55,085,900, an increase of \$5,474,476 or 11.0% over the previous year. The increase was caused mainly by higher rates of pay, although a small increase in the number of regular employees was a contributing factor.

Purchases of natural gas from Westcoast Transmission Company Limited totalled \$20,180,726, of which \$18,826,512 was for gas sold to the public or an increase of



Unique soil cement protection for waterfront, built by B.C. Hydro at Nakusp, is an important side benefit to the community from construction of Arrow storage project.

9.4% over last year. The remainder of the gas purchased was used principally at Burrard Thermal Generating Plant. The increase in cost of gas purchased from the pipeline company for sale to the public reflects the continuing growth in consumption of gas and higher demand charges arising from the unusually cold weather in the previous winter.

Total cost of fuel for generation at Burrard Thermal Generating Plant decreased \$5,439,915 from last year. Production of energy at the Burrard plant during the year showed an overall reduction, primarily because more hydro power was available from the expanded Peace River Project.

FINANCING

The following 25-year sinking fund bonds were sold in Canada during the year ended 31 March 1970:

Issue	Amount	Effective Rate
7½% Series AX	\$25,000,000	7.64%
7% Series AY	30,000,000	7.72
8% Series CA	10,000,000	8.08
8% Series CB	15,000,000	8.17
8% Series CC	17,580,000	8.14
8% Series CD	4,520,000	8.14

Six issues of Series V sinking fund bonds totalling \$57,416,000 were sold to the Canada Pension Plan Investment Fund, at an average interest cost of 7.36%; by comparison, bonds totalling \$66,154,000 were sold during the previous year to the Canada Pension Plan Investment Fund, at an average interest cost of 6.78%.

The average effective annual interest cost of all long-term bonds issued by B.C. Hydro during the year was 7.69% compared with an average of 7.01% for the previous year, again reflecting the continuing general rise in the cost of money.

On 1 September 1969, \$50,505,000 6½% Parity Development Bonds Series AZ, due 1 September 1974, were sold. The net proceeds of this issue were applied to the repayment of \$50,505,000 6½% Parity Development Bonds Series P, which matured 1 September 1969.

The amount of \$18,775,053 was paid to Trustees during the year to meet sinking fund requirements of B.C. Hydro's long-term debt. All sinking fund obligations have been met.

Bonds and other securities issued by B.C. Hydro and its predecessors are unconditionally guaranteed as to principal and interest by the Province of British Columbia.

Columbia River Treaty Funds

Funds accruing to B.C. Hydro under terms of the Columbia River Treaty amounted to \$432,175,748 at 31 March 1970, derived from the following sources:

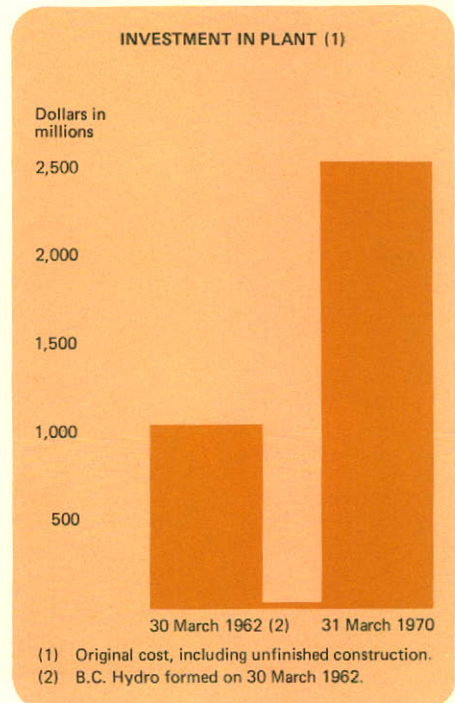
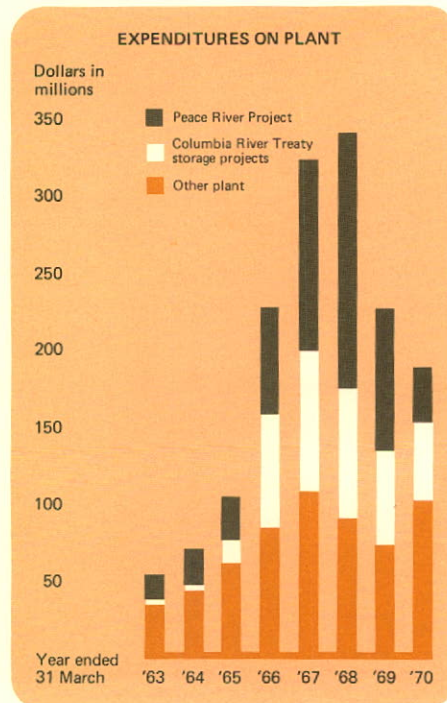
Amount received from sale of Canada's entitlement to downstream power benefits	\$273,291,661
Amounts received for flood control provided by Duncan and Arrow storage projects	68,137,086
Additional downstream power benefits received as a result of Duncan and Arrow storage projects becoming operational ahead of schedule (net)	6,272,975
Interest (including \$39,512,591 charged to construction of storage projects)	84,474,026
	<u>\$432,175,748</u>

CONSTRUCTION PROGRAM

Expenditures on plant additions, land and improvements totalled \$189,629,998 compared with \$227,274,238 for the previous year. Net property additions amounted to \$182,502,595, after deducting plant retirements of \$7,127,403. Because of a restricted supply of money and pressures exerted by higher interest rates, additions to plant were carried out only when deemed mandatory. Major expenditures for the year by projects or broad classifications included the following:

Peace River Project, including transmission lines	\$35,196,798
Columbia River Treaty storage projects	51,258,956
Jordan River generating plant	8,078,278
Major electric transmission line construction—	
Lower Mainland to Vancouver Island—260 kv D.C.	10,328,307
Camosun loop—230 kv	2,729,965
Nelway to Cranbrook—230 kv	1,539,111
Ingledow Substation to Mainwaring Substation—230 kv	1,280,912
Other	4,591,393
Substations, associated distribution facilities and local transmission systems—electric	23,516,312
Electric extensions to serve new customers	17,510,141
Electric system control centre on Burnaby Mountain, microwave and other communication and control facilities	3,506,919
Gas extensions to serve new customers	4,918,517
Gas system renewals and alterations	2,321,041
Liquefied natural gas plant	2,286,188
Buses for Greater Vancouver urban transit system	1,056,182
Rail access to Roberts Bank	7,661,814

Design and construction engineering on many of B.C. Hydro's construction projects is carried out by International Power and Engineering Consultants, Limited, a wholly owned subsidiary of B.C. Hydro.



Peace River Project

The fourth and fifth 227,000 kw generating units were placed in service in the underground powerhouse of Gordon M. Shrum Generating Station in the summer of 1969. The addition of these two units brought the capacity of the plant to 1,135,000 kw, or half its ultimate rated capacity. Rated output of the five units was achieved during periods of high demand in the winter, despite the fact that the water level of Williston Lake Reservoir was approximately 60 feet below normal maximum elevation. A contract was awarded in October 1969 for installation of a further three generating units and associated works at Gordon M. Shrum Generating Station. One unit is scheduled to be placed in service in 1971, and the other two in 1972. Two more units will be installed later, as needed.

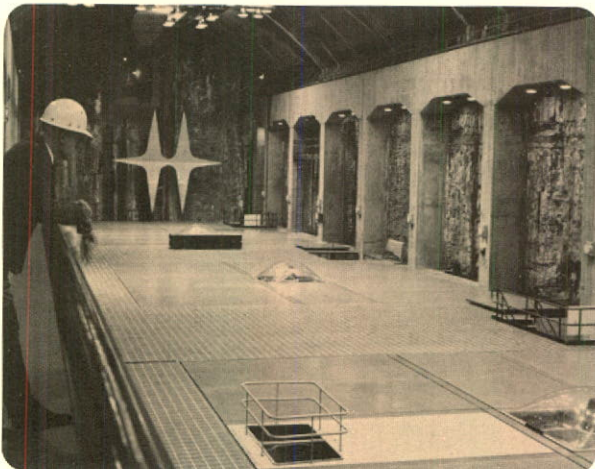
B.C. Hydro's high-capacity, north-south transmission system was expanded to make the increased generating capacity of Gordon M. Shrum Generating Station available to more areas of British Columbia. The second 500 kv transmission line from that station became operational as far south as Kelly Lake Substation, near Clinton, in the summer of 1969; this addition provides increased surety of supply of Peace River power to the Central Interior and Southern Interior regions of the Province. The section of the line between Kelly Lake Substation and Ingledow Substation, in Surrey, is scheduled for completion in 1970.

Total expenditures on the Peace River Project to 31 March 1970 were \$566,013,072, of which \$35,196,798 was spent during the year under review. The maximum labour force for the entire project in 1969 was 652 men compared with 2,393 men in 1968. A maximum work force of 800 is anticipated for the 1970 construction season.

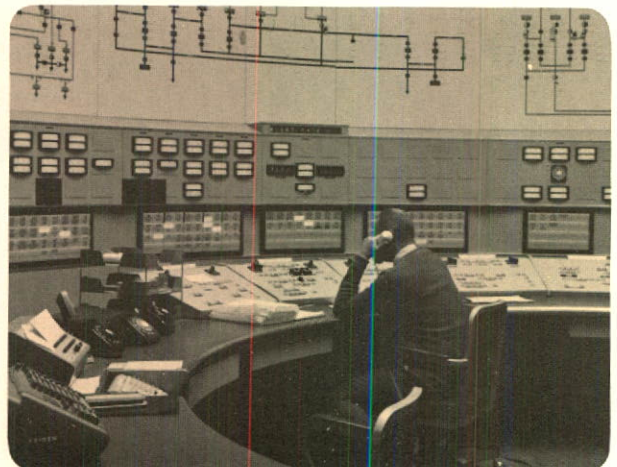
A trial of the lawsuit initiated on 17 July 1967 by Northern Powerplant Builders against B.C. Hydro for additional remuneration, damages and declarations as to the contractor's rights with respect to the contract for construction of the underground powerhouse and associated works is scheduled to commence in 1970.

Major contracts awarded during the year included:

The Foundation Company of Canada Limited and Dawson Construction Limited	
<i>Work associated with installation of units 6, 7 and 8</i>	\$16,763,886
CEDON (Commonwealth Electric Company Delaware, Donovan Construction Company, Ceco Electric of Canada Limited, Donovan Construction Co. of Canada, Ltd.)	
<i>Installation of foundations, erection of towers and stringing conductor for transmission lines</i>	7,250,634
Aluminum Company of Canada, Limited	
<i>Supply of conductor for transmission lines</i>	2,784,397



Peace plant now is B.C. Hydro's major source of power.



Control facilities at this project are highly automated.

Columbia River Treaty Storage Projects

The Columbia River Treaty between Canada and the United States called for construction of three storage projects in Canada—Duncan, Arrow and Mica—to regulate river flow for both hydro-electric generation and flood control purposes. B.C. Hydro completed the Duncan and Arrow storage projects well in advance of the scheduled dates, and work on the Mica project is proceeding satisfactorily. The total spent on the three projects to 31 March 1970 was \$386,996,639, of which \$51,258,956 was spent during the year.

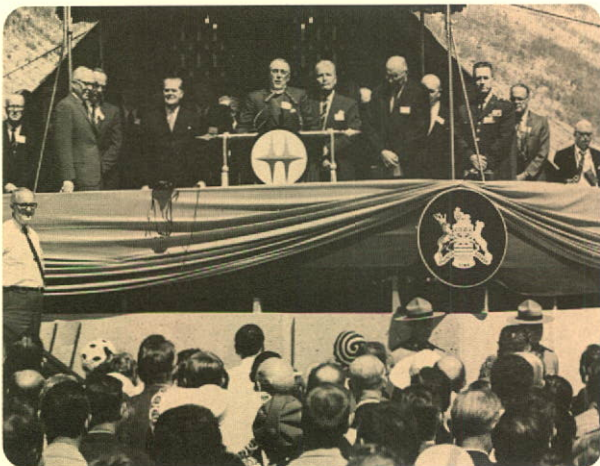
The Arrow storage project, which was declared operational in the previous year, was dedicated at a ceremony on 9 June 1969 at which Prime Minister W.A.C. Bennett named the dam "Hugh Keenleyside Dam" in honour of the former Chairman of B.C. Hydro.

Duncan and Arrow storage projects were operated throughout the year under provisions of the Columbia River Treaty. The navigation lock in the Hugh Keenleyside Dam was operated in accordance with Department of Transport regulations, and the reservoir behind the dam reached normal full storage level in July 1969. All power lines and roads affected by the creation of the reservoir were relocated, and new ferry facilities were installed at Galena Bay, Shelter Bay, Needles and Fauquier. In the vicinity of Revelstoke, dyke protection of the Illecillewaet area and relocation of the airport were completed during the year.

On 8 January 1970, B.C. Hydro received \$298,242 as payment by the United States for additional flood control provided by the Duncan and Arrow storage projects ahead of the dates scheduled in the Treaty.

Construction of Mica Dam, which will rise 645 feet above the river bed and be the highest earthfill dam in North America, proceeded on schedule towards a completion date of 1 April 1973, as required under terms of the agreement for the sale of downstream power benefits. Of the 42,000,000 cubic yards of fill required to complete Mica Dam, 10,500,000 cubic yards had been placed before winter weather caused the contractor to suspend this activity. All major phases of the associated works were under way by the year-end. Excavation of rock for the spillway control structure and approach channel was completed, and excavation of the spillway chute was well advanced. Placement of concrete in the area of the control structure was commenced in September 1969. Contracts for control gate equipment were awarded to Canadian, Austrian and Japanese suppliers, and the manufacture of large radial gates for the spillway by a United Kingdom supplier was continued during the year.

Mica Creek townsite continued to grow with construction of a privately owned, modern hotel and the installation of a community swimming pool donated by Mica Dam Contractors. A public trailer court was opened 2.5 miles downstream from the townsite. The labour force at the Mica project reached a peak of 1,465 men during the year



Hugh Keenleyside Dam was named at ceremony in 1969.



Excavation for Mica Dam spillway progressed steadily.

compared with 1,195 men a year ago; a maximum labour force of 1,600 is expected for 1970.

Effective 1 July 1969, the Honourable Ray G. Williston, Minister of Lands, Forests and Water Resources for the Province of British Columbia, and an Executive Director of B.C. Hydro, succeeded Dr. H.L. Keenleyside as Chairman of the Canadian Entity, which was established by the Columbia River Treaty.

Major contracts awarded during the year included:

Vereinigte Osterreichische Eisen-und Stahlwerke Aktiengesellschaft	
<i>Supply of gates for low-level outlets</i>	\$1,531,180
Mitsui & Co., Ltd.	
<i>Supply of gates for power intakes</i>	1,011,047
Twin River Contractors Ltd.	
<i>Control and disposal of debris, Mica project</i>	1,000,000

Other Major Electric Service Plant Additions

Redevelopment of the hydro-electric generating plant at Jordan River, 45 miles west of Victoria, was continued during the year. In July 1969, a contract was awarded to Emil Anderson Construction Co. Ltd. for construction of a dam 430 feet long and 117 feet high, a powerhouse and a penstock. Work on the power tunnel and associated works, which had been started in the previous year by the same contractor, was also continued. Rehabilitation of the existing Diversion and Bear Creek dams is being undertaken by construction forces of B.C. Hydro. Upon completion in 1971, the Jordan River generating plant will provide 150,000 kw of peaking capacity.

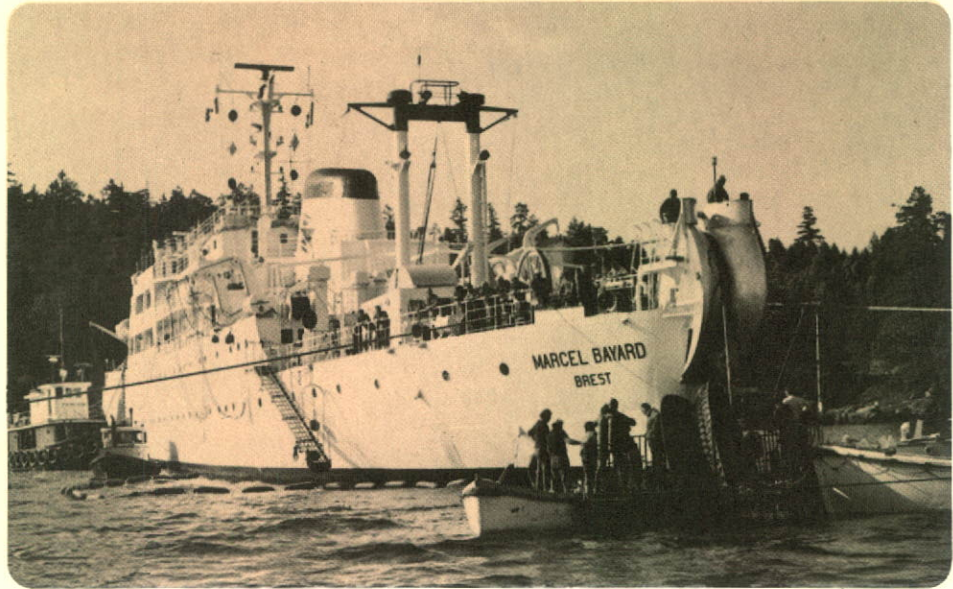
Engineering was commenced on redevelopment of Whatshan Generating Station, which had to be removed from service prior to the rise in water level in the reservoir behind Hugh Keenleyside Dam. The project will include construction of a new powerhouse and power tunnel and installation of a 50,000 kw turbine and generating unit. The generating station, which is planned for operation in 1972, will make additional energy available to B.C. Hydro's customers in the southern interior of the Province.

In addition to the expansion of hydro generating facilities, diesel generating capacity had to be increased during the year. A new diesel generating unit was installed to serve the community of Bella Bella, and existing installations at Golden and Port Hardy were augmented by gas turbine units. Additional diesel generating facilities were installed to meet growing loads at Port Clements, Sandspit and Stewart.

Forecasts of continuing rapid growth in requirements for power in B.C. Hydro's service area indicate that energy available from Gordon M. Shrum Generating Station will be fully utilized by 1973. Hydro generating capacity will ultimately be available at Mica, where a storage dam is being constructed under terms of the Columbia River Treaty. Other potential sources of power are being studied, including developments downstream from W.A.C. Bennett Dam and in the East and West Kootenay areas. Because hydro resources on Vancouver Island are limited, future sources of supply, including the possibility of a nuclear installation for this region, are also undergoing thorough review.

Strengthening of the transmission system from Arnott Substation in Delta to Vancouver Island Terminal near Duncan was completed in 1969, with the installation of three direct-current submarine cables across Strait of Georgia and Trincomali Channel. This direct-current interconnection added 312,000 kw of capacity to serve the growing load on Vancouver Island, bringing the total capacity of interconnections from the Mainland to 552,000 kw.

To increase the supply of energy for the new industrial loads on northern Vancouver Island, construction will begin in 1970 of a 230 kv transmission line from Gold River to Quatsino Substation (88 miles); this line will be operated initially at 138 kv and will be extended to serve Jeune Landing and the mining development near Port Hardy.



French ship placed three submarine cables to provide more power for Vancouver Island.

Energy is transmitted to major substations in the Lower Mainland over a 230 kv network. Extensions during the year to this network included a circuit from Ingledow Substation in Surrey to Mainwaring Substation in South Vancouver and a third circuit from Ingledow Substation to Arnott Substation, the terminus for the interconnection to Vancouver Island; construction of the circuit to Camosun Substation in the western part of Vancouver, which was commenced in 1969, was nearing completion by year-end. To meet load growth in the Powell River area and on the Sechelt Peninsula, work was continued on a 230 kv line from Sechelt to Powell River (53 miles). This line, scheduled for completion and initial operation at 138 kv in 1970, features an 11,500-foot crossing of Jervis Inlet that will be one of the longest overhead transmission line crossings in the world. Other reinforcements of the system, including a 60 kv line (9 miles) from Arnott Substation to the new superport at Roberts Bank, are being carried out in the Lower Mainland to serve the ever-increasing demand for electricity in this highly industrialized section of the Province.

In the southern interior of the Province, reinforcement during 1970 of the 138 kv transmission system will include a second 26-mile line from Savona to Highland Substation to meet the growing load in the Highland Valley. To provide an increased supply to serve developing industry in the East Kootenay area, a 230 kv line is planned to link the East Kootenays with a transmission network in the United States. Right-of-way for the 104-mile section of the line from Nelway, near the international boundary, to Cranbrook was acquired in 1969; construction of the line is scheduled to commence in 1970 for completion in 1971. Present plans are to extend this line in 1972 to Natal and on to the Alberta border where it will connect with the transmission system of Calgary Power Ltd.

Systematic expansion of generation and transmission capacity during the year required that substation facilities also be expanded. New and increased substation capacity was installed in various parts of the Province, including Fort St. James, Fort St. John, Glenannan, Kitimat, the Prince Rupert area, Cranbrook, Lumby, Savona, the Whistler Mountain area, Greater Vancouver and Vancouver Island.

B.C. Hydro's microwave system, which links Gordon M. Shrum Generating Station to the Lower Mainland with spurs to other areas of the Province, was expanded during the year. In the Greater Vancouver area the system was extended to Kidd Substation, and on Vancouver Island to John Hart Generating Station and Dunsmuir Substation. Installation of equipment in the new control centre on Burnaby Mountain proceeded during the

year, and the centre is expected to be operational in 1970. B.C. Hydro's microwave network is used to regulate the output of power from major generating stations, monitor and protect high-voltage transmission lines, control major substations and provide a means of communication between various B.C. Hydro locations throughout the Province.

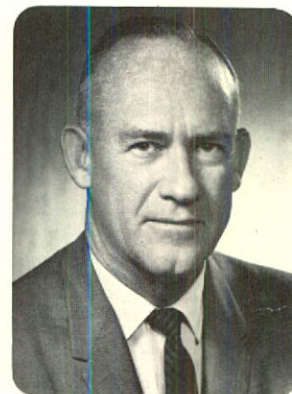
Major contracts awarded during the year included:

Emil Anderson Construction Co. Ltd. <i>Construction of power plant and dam, Jordan River re- development</i>	\$9,547,957
Catre Hi-Line Ltd. and Trans Power Construction Ltd. Joint Venture <i>Construction of Gold River—Quatsino—Jeune Landing— Utah Mining transmission line.</i>	2,077,266
Energoinvest <i>Supply of steel penstock for Jordan River redevelopment.</i>	1,608,870
Canadian General Electric Company Limited <i>Supply of power transformers for various substations</i>	1,337,517
Hume & Rumble Constructors Limited <i>Construction of 230 kv transmission line, Powell River to Sechelt</i>	1,172,122

CORPORATE ORGANIZATION

As mentioned in last year's Annual Report, Dr. H.L. Keenleyside resigned as Chairman and a Director of B.C. Hydro on 30 June 1969. At a ceremony earlier that month at the Arrow project, the dam was named "Hugh Keenleyside Dam" in honour of the former Chairman.

On 31 August 1969, after 36 years' service, Mr. William C. Mearns resigned as an Executive Director of B.C. Hydro. Mr. Mearns started with British Columbia Electric Railway Company Limited in Victoria and held a variety of positions both on Vancouver Island and on the Mainland; in 1958, he was appointed a Vice-President of British Columbia Electric Company Limited, in charge of Vancouver Island operations. On the formation of B.C. Hydro in 1962, Mr. Mearns became an Executive Director, a position he held until his resignation.



WILLIAM C. MEARNS

The Honourable W. Kenneth Kiernan and the Honourable Ray G. Williston, by Order-in-Council of 7 July 1969, were appointed members of the Executive Management Committee of B.C. Hydro, replacing Dr. Keenleyside and Mr. Mearns. Mr. Kiernan and Mr. Williston have been Directors of B.C. Hydro since its formation.

Mr. John H. Steede resigned from the position of Chief Engineer on 1 August 1969 but continued as an Executive Director. On the same date, Mr. Harold K. Pratt was appointed Chief Engineer.

On 30 September 1969, Mr. Sigurdur Sigmundson resigned from the position of General Manager, a post that had been created 1 June 1968. Mr. Sigmundson, formerly Manager of the Transportation Division, had postponed retirement to assume that position. He originally joined British Columbia Electric Railway Company Limited in 1945.

Other members of senior management who retired during the year included: Mr. John S. Purves, Manager, Purchasing and Stores, 40 years' service; Mr. John F. Intihar, Operations Manager, Metropolitan Transit Lines, 39 years' service; Mr. Guy Barclay, Manager, Labour Relations and Safety, 38 years' service; and Mr. Ralph H. Gram, Manager, Industrial Development, 32 years' service.



Meeting of B.C. Hydro division managers includes (from left) G.F. Green, H.K. Pratt, R.W. Gross, Garth Griffiths, H.M. Ellis, Thos. Chambers, P.W. Barchard, H.A. Elliott, R.K. Kidd, W.D. Mitchell, J.N. Olsen and D.W. Minion. J.P. Ottesen was absent when this picture was taken.

On 1 August 1969, the Law Department was reestablished as the Legal Division with Mr. William D. Mitchell as Manager. Mr. Mitchell continued in his capacity of General Solicitor.

Effective 1 January 1970, a reorganization resulted in the establishment of the Engineering Division, Construction Division and Production Division, with Dr. Harry M. Ellis, Mr. J. Peter Ottesen and Mr. G. Frederic Green appointed Managers respectively. Mr. Pratt, Chief Engineer, assumed responsibility for coordinating the work of the three Divisions.

Effective 1 October 1969, Mr. Hugh A. Elliott was appointed Coordinator of Administration, reporting to the Chairman.

Miss Elizabeth B. Fulwell was appointed Assistant Secretary effective 1 September 1969, replacing Mrs. P. Ross Kidd who retired from the position on 30 June 1969.

EMPLOYEES

B.C. Hydro had a staff of 7,056 regular employees at 31 March 1970, an increase of 151 or 2.2% during the year.

New collective labour agreements, providing for wage increases and other benefits, were concluded during the year with the Office and Technical Employees' Union, International Brotherhood of Electrical Workers, International Brotherhood of Electrical Workers (Gas), Amalgamated Transit Union (Pacific Stage Lines), Brotherhood of Locomotive Engineers, United Transportation Union and Registered Nurses' Association of British Columbia. These agreements, except for the settlement with Amalgamated Transit Union (Pacific Stage Lines) and Registered Nurses' Association of British Columbia, were for periods of two years and provided for wage increases generally ranging from 7% to 10% for each year of the respective contract periods, as well as improvements in employee benefits. The settlement with Amalgamated Transit Union (Pacific Stage Lines) was for a 26-month period and provided for a series of five increases in wages aggregating 22.2% over the life of the agreement; and the settlement with Registered Nurses' Association of British Columbia was for a 15-month period and provided for an 8% increase in salaries. A general salary increase ranging up to 8% was granted supervisory and professional employees.

The British Columbia Hydro and Power Authority Pension Plan, introduced effective 1 January 1965, was closed as at 26 September 1969 to all but new employees. Prior to that date, employees who were members of earlier pension plans, or employees who were not members of any pension plan, had a choice of maintaining their existing pension arrangements or of enrolling in the B.C. Hydro Plan. At 26 September 1969, there were 5,482 employees enrolled in the B.C. Hydro Plan, but more than 1,000 employees chose to remain in earlier plans.

A total of 142 employees retired on pension during the year and, of these, 24 had service of 40 years or more. The following had served for more than 45 years:

- LEWIS BAKER PHYSICK, Special Assignment Assistant – 49 years, 11 months
- CLELLAND REID HAMILTON, Industrial Sales Representative – 49 years, 10 months
- JAMES McLEAN TODD, Cashier Manager – 49 years, 5 months
- LUCY HORNER, Accounting Clerk – 47 years, 9 months
- KENELM QUINEY, Area Bookkeeping Supervisor – 47 years
- DANIEL OSBORNE McLEAN, Supervisor, Heavy Electrical Equipment – 46 years, 10 months
- JOSEPH THOMAS HARRIS, Senior Storeman – 46 years, 1 month
- EDWARD ERNEST HOUGHAM, Generating Station Operator – 46 years



LEWIS BAKER PHYSICK
49 years, 11 months



CLELLAND REID HAMILTON
49 years, 10 months



JAMES McLEAN TODD
49 years, 5 months

The Directors wish to record their sincere appreciation of the contribution made by members of the staff to the substantial progress achieved during the year.

BILLING CUSTOMERS' ELECTRIC AND GAS ACCOUNTS

B.C. Hydro and its predecessor organizations have traditionally read meters and billed customers each month. Following an analysis of the billing system and a review of the practices of other electric and gas utilities in Canada and the United States, B.C. Hydro in 1969 commenced reading meters for approximately 625,000 residential and



Area bookkeeping section deals with enquiries about customers' electric and gas accounts.

commercial customers every second month; of these, 200,000 low-consumption customers are billed once every two months, and the remainder are billed every month with the bill for the "non-read" month being an estimated amount based on the history of the account. The change resulted in a reduction in billing and meter reading costs and was consistent with B.C. Hydro's continuing effort to implement economies wherever possible.

In 1970, an "equal payment plan" is being made available to the majority of residential and commercial customers. Under this plan, customers will have the option of paying for their total annual consumption in twelve equal monthly instalments. Because utility bills are seasonal in nature, this feature will facilitate personal budgeting by customers.

ENVIRONMENTAL CONTROL

The protection and preservation of the natural environment has already been established as one of the most important challenges of the decade of the Seventies. The health and happiness of future generations will depend upon the success mankind has in meeting this challenge.

The significant increase in environmental pollution is a consequence of many factors—growth in population, industrial and technological development, expanding urbanization and greater demand for energy. Because of the rapid growth of the world's population, there is no way in which all forms of pollution of the biosphere can be completely eliminated. Essentially, the challenge is to ensure that the long-term effects are well enough understood and kept as small as possible consistent with meeting the requirements of a growing population.

B.C. Hydro is concerned with the need to minimize the environmental effects of pollution associated with production of energy. Fortunately, unlike many other areas in North America, generation of power in British Columbia is primarily from hydro-electric installations, which are the most pollution-free of any system for supplying energy. Nor does B.C. Hydro have to worry about pollution of the air by coal-fired plants, because thermal generation at B.C. Hydro plants is basically from boilers fired by natural gas, the cleanest fossil fuel available today.

There has been confusion in the minds of many sincere and concerned people about the use of herbicides on transmission line rights-of-way. B.C. Hydro does use selective herbicides under approved and scientifically controlled conditions. These chemicals disintegrate rapidly upon contact with the soil, and only chemicals that have been approved by appropriate federal and provincial authorities are used. It can be stated categorically that B.C. Hydro does not use persistent insecticides which have been shown to create hazards for animal life.

Electric utilities are criticized because some distribution lines and almost all transmission lines are above ground. This is labelled "visual pollution". When one considers that the transmission lines from the Peace River will cost more than \$150 million, and that if it were possible to place 500 kv lines underground the cost could be 40 to 50 times as great, the magnitude of the problem begins to come into perspective. Where it is necessary for technical reasons to have underground wiring, as for example, in the central core of a city, B.C. Hydro pays the full cost of the installation. In other areas, where there is an option, B.C. Hydro will contribute the equivalent cost of an overhead service towards the cost of the underground installation. In many areas, the municipality or the developer has taken advantage of this offer, with the result that many new residential subdivisions in or adjacent to major population centres now have electric services underground.

B.C. Hydro, like all responsible organizations, fully recognizes its obligation to preserve and improve the natural environment. New research and technology are constantly under study by B.C. Hydro's engineers, working in close association with governments, universities and research agencies.

OUTLOOK

B.C. Hydro serves areas of British Columbia which contain more than 90% of the population, and as a consequence, is directly influenced by and contributes significantly to the economic growth of the Province.

During the decade of the Sixties, the economy of British Columbia expanded at a remarkable rate, as reflected by the increase of approximately 175% in kilowatt-hour sales of electricity by B.C. Hydro. Prospects for economic growth during the decade of the Seventies are equally encouraging for a number of reasons. First, demand from world markets for products of British Columbia's forests, mines and oil and gas wells is expected to rise; the growing industrialization of many countries on the rim of the Pacific Ocean will contribute greatly to this anticipated increase in demand. Secondly, British Columbia's strategic location will be further enhanced by the development of the new superport at Roberts Bank, with its capacity for handling large bulk-cargo ships; this port is expected to stimulate a period of unprecedented activity in trade between Canada and its Pacific neighbours—trade in which British Columbia will participate and benefit to a significant degree. British Columbia's pavilion at Expo '70 in Osaka, Japan, emphasizes the importance placed on Pacific trade by the Government of British Columbia. Thirdly, the population of the Province is growing at a rate double that of Canada as a whole; more than 70% of the increase during 1969 was a result of net immigration into British Columbia. Fourthly, secondary manufacturing in British Columbia, supported by a skilled labour force, is continuing to increase. Last, but of prime importance, British Columbia has the potential to develop an abundant supply of electric energy that is vitally necessary to sustain the economic growth of the Province.

To meet the requirements for energy, which are forecast to increase at an average annual rate of nearly 10% during the decade of the Seventies, B.C. Hydro is constantly investigating new sources of power. At the indicated rate of growth, present generating capacity must be doubled every seven to eight years, and these additions to generating plant must, of necessity, be accompanied by expansion of transmission and distribution facilities. Most of the new construction will have to be financed with borrowed money, and as long as interest rates are high, the impact of interest costs, along with the tremendous increase in costs of construction, will continue to be major sources of economic pressure on operations of B.C. Hydro. Notwithstanding the serious consequences of inflation, B.C. Hydro's construction program is necessary if the nation's fastest growing Province is to be supplied with the electric energy it must have to meet the challenges of this new decade.

FINANCIAL STATEMENTS

The financial statements of B.C. Hydro have been examined by Price Waterhouse & Co., the Auditors appointed by the Lieutenant-Governor in Council. The Report of the Auditors appears below, and the Statement of Income, Statement of Source and Application of Funds and Balance Sheet are included in the following pages.

REPORT OF THE AUDITORS

The Lieutenant-Governor in Council,
Province of British Columbia:

We have examined the balance sheet of British Columbia Hydro and Power Authority as at 31 March 1970 and the statements of income and source and application of funds for the year then ended. Our examination included a general review of the accounting procedures and such tests of accounting records and other supporting evidence as we considered necessary in the circumstances.

In our opinion, these financial statements present fairly the financial position of British Columbia Hydro and Power Authority as at 31 March 1970 and the results of its operations and the source and application of its funds for the year then ended, in accordance with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

Vancouver, British Columbia.
20 May 1970.

PRICE WATERHOUSE & CO.,
Chartered Accountants.

BRITISH COLUMBIA HYDRO AND POWER AUTHORITY

STATEMENT OF INCOME FOR THE YEAR ENDED 31 MARCH 1970

(with corresponding figures for the year ended 31 March 1969)

	1970	1969
Gross revenues	<u>\$239,900,280</u>	<u>\$221,108,026</u>
Expenses:		
Salaries, wages and employee benefits	55,085,900	49,611,424
Materials and services	40,409,194	44,932,909
Grants, school taxes, etc.	17,041,965	14,953,333
Provision for depreciation	44,728,901	38,630,636
Interest on debt (Note 4)	\$97,732,311	\$86,861,147
Less—		
Interest charged to construction	<u>14,689,873</u>	<u>23,165,291</u>
	<u>240,308,398</u>	<u>211,824,158</u>
Net (loss) income, transferred to earnings employed in the business (Note 5)	<u>\$ (408,118)</u>	<u>\$ 9,283,868</u>

**STATEMENT OF SOURCE AND APPLICATION OF FUNDS
FOR THE YEAR ENDED 31 MARCH 1970**

(with corresponding figures for the year ended 31 March 1969)

	1970	1969
Funds provided:		
Operations—		
Net (loss) income	\$ (408,118)	\$ 9,283,868
Provision for depreciation	44,728,901	38,630,636
Other	<u>1,738,620</u>	<u>1,801,920</u>
	46,059,403	49,716,424
Contributions in aid of construction	6,343,209	3,749,797
Proceeds from sales of bonds	208,278,859	180,407,451
Columbia River Treaty—		
Benefits received during year (net)	125,218	58,347,280
Interest	<u>13,328,363</u>	<u>15,746,634</u>
	<u>\$274,135,052</u>	<u>\$307,967,586</u>
Funds expended:		
Plant additions—		
Peace River Project	\$ 35,196,798	\$ 92,687,087
Columbia River Treaty storage projects	51,258,956	60,890,516
Other	<u>103,174,244</u>	<u>73,696,635</u>
	189,629,998	227,274,238
Sinking fund purposes	18,775,053	17,264,348
Redemption of bonds matured	50,505,000	78,390,680
Increase (decrease) in working capital exclusive of changes in current portion of long-term debt	14,552,467	(16,196,579)
Increase in sundry assets, etc.	<u>672,534</u>	<u>1,234,899</u>
	<u>\$274,135,052</u>	<u>\$307,967,586</u>

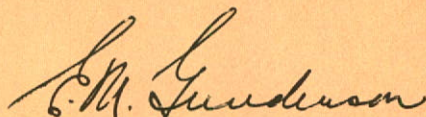
BRITISH COLUMBIA HYDRO AND POWER AUTHORITY

BALANCE SHEET AS AT 31 MARCH 1970

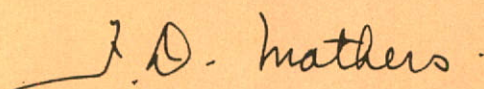
(with corresponding figures as at 31 March 1969)

	1970	1969
PROPERTY ACCOUNT:		
Lands, franchises, water rights, storage dams, plants for the generation, transmission and distribution of electricity and gas, trolley coaches, motor buses, freight railway and rolling stock, etc., at cost	\$2,131,097,845	\$1,899,718,220
<i>Less—</i>		
Accumulated depreciation	<u>371,068,370</u>	<u>332,045,129</u>
	1,760,029,475	1,567,673,091
Deferred costs of dam, powerhouse and other common property (Note 1) . .	182,180,730	239,225,597
Unfinished construction—		
Peace River Project	23,386,718	65,855,353
Columbia River Treaty storage projects	160,764,975	119,428,503
Other	<u>34,700,000</u>	<u>25,400,000</u>
	<u>2,161,061,898</u>	<u>2,017,582,544</u>
CURRENT AND WORKING ASSETS:		
Cash	8,394,329	7,094,292
Temporary investments	47,834,173	39,790,382
Accounts receivable and unbilled revenues	36,735,463	31,758,788
Materials and supplies at average cost	12,725,841	10,829,653
Prepaid expenses	<u>486,608</u>	<u>502,995</u>
	<u>106,176,414</u>	<u>89,976,110</u>
MORTGAGES AND OTHER DEFERRED ACCOUNTS RECEIVABLE	<u>5,454,686</u>	<u>5,893,565</u>
UNAMORTIZED DISCOUNT AND EXPENSE ON LONG-TERM DEBT AND PARITY DEVELOPMENT BONDS	<u>21,974,248</u>	<u>21,942,782</u>
	<u>\$2,294,667,246</u>	<u>\$2,135,395,001</u>

APPROVED ON BEHALF OF THE BOARD:



E. M. GUNDERSON, Director



F. D. MATHERS, Director

	1970	1969
LONG-TERM DEBT (Notes 2 and 3)	<u>\$1,443,772,629</u>	<u>\$1,305,940,767</u>
PARITY DEVELOPMENT BONDS, payable on demand (Notes 3 and 4):		
6½% Series P due 1 September 1969	—	50,505,000
6½% Series R due 1 September 1970	50,505,000	50,505,000
6½% Series AN due 15 August 1972	50,505,000	50,505,000
6½% Series AT due 3 August 1973	50,505,000	50,505,000
6½% Series AZ due 1 September 1974	50,505,000	—
	<u>202,020,000</u>	<u>202,020,000</u>
CURRENT AND ACCRUED LIABILITIES:		
Accounts payable	66,350,685	67,897,629
Interest accrued on long-term debt and parity development bonds.	26,056,190	22,861,409
Sinking fund instalments due within one year	15,528,187	14,411,863
	<u>107,935,062</u>	<u>105,170,901</u>
CONTRIBUTIONS ARISING FROM COLUMBIA RIVER TREATY (Note 8).	<u>432,175,748</u>	<u>418,722,167</u>
CONTRIBUTIONS IN AID OF CONSTRUCTION	<u>23,550,342</u>	<u>17,919,583</u>
EARNINGS EMPLOYED IN THE BUSINESS (Note 5)	<u>85,213,465</u>	<u>85,621,583</u>
	<u>\$2,294,667,246</u>	<u>\$2,135,395,001</u>
COMMITMENTS (Note 8)		

The accompanying notes are an integral part of the above balance sheet.

NOTES TO FINANCIAL STATEMENTS AS AT 31 MARCH 1970

Note 1 – Peace River Project:

Economic considerations have dictated construction of a dam, powerhouse and other common property for the Peace River Project to provide capacity for up to ten generating units. The dam and powerhouse have been completed, but the generating units are being installed over a period of several years to keep pace with the increase in demand for power.

Accordingly, B.C. Hydro has adopted an accounting practice of transferring the construction costs of the dam, powerhouse and other common property to plant in service by instalments proportionate to the number of completed and operational generating units in relation to the ten units presently contemplated. The transfers are to be completed not later than 31 March 1976. By 31 March 1970, five generating units were in service and consequently 50% of the costs of the dam, powerhouse and other common property had been transferred to plant in service.

The costs of the dam, powerhouse and other common property not yet transferred to plant in service are shown separately as deferred costs under property account. These costs will continue to attract interest charged to construction.

Note 2 – Long-term debt:

Issued by British Columbia Hydro and Power Authority—

Bonds:

5¼% Series A due 1 May 1982	\$ 32,496,300
3¼% Series B due 1 October 1979	10,000,000
5% Series C due 1 March 1993	15,000,000
5¼% Series D due 1 May 1993	25,000,000
5¼% Series F due 1 June 1993	10,000,000
5¼% Series G due 15 October 1993	15,000,000
5¼% Series H due 15 December 1993	10,000,000
5¼% Series J due 1 March 1994	10,000,000
5¼% Series L due 2 July 1994	10,000,000
5¼% Series M due 15 December 1994	20,000,000
5¼% Series N due 15 March 1995	10,000,000
5¾% Series S due 15 September 1995	10,000,000
5½% Series T due 29 December 1995	29,000,000
5¾% Series U due 18 April 1991	40,000,000
5¾% Series X due 1 July 1991	5,000,000
5% Series Y due 2 July 1991	50,000,000*
6¼% Series AG due 1 December 1991	20,000,000
5% Series AH due 2 January 1992	50,000,000*
5.46% Series W-A due 1 February 1987	80,396,000
6% Series AJ due 15 March 1992	25,000,000
6% Series BA due 29 May 1992	2,500,000
6¼% Series AK due 1 June 1992	50,000,000*
6.10% Series AL-A due 2 July 1992	10,000,000
6¼% Series AM due 4 July 1992	25,000,000
6¼% Series BB due 19 July 1992	4,000,000
6½% Series AP due 1 November 1992	20,000,000
6¾% Series BC due 1 February 1993	10,200,000
6¾% Series Z-S due 15 February 1993	3,300,000
carried forward	\$ 601,892,300

Note 2 — Long-term debt (continued):

brought forward	\$ 601,892,300
6¼% Series Z-T due 15 February 1993	4,200,000
6% Series AR due 29 March 1993	10,000,000
5.71% Series W-B due 1 February 1988	95,001,000
7¼% Series AS due 1 June 1993	10,000,000
7% Series AU due 5 August 1993	10,000,000
7% Series AV due 1 October 1993	10,000,000
7% Series Z-G due 15 December 1993	7,000,000
7.11% Series V-M due 4 March 1989	6,826,000
7.11% Series V-N due 4 March 1989	4,154,000
7½% Series AW due 31 March 1994	10,000,000
7.16% Series V-P due 1 April 1989	10,127,000
7.19% Series V-R due 1 May 1989	10,719,000
7.19% Series V-S due 1 May 1989	167,000
6.68% Series W-C due 3 February 1989	65,862,000
7¼% Series BD due 2 July 1993	5,500,000
7% Series BE due 1 December 1993	12,800,000
7½% Series AX due 2 June 1994	25,000,000
7.45% Series V-T due 2 July 1989	14,021,000
7.46% Series V-U due 1 August 1989	11,699,000
7.47% Series V-V due 2 September 1989	10,683,000
7% Series AY due 1 October 1994	30,000,000
8% Series CA due 1 December 1994	10,000,000
8% Series CB due 30 December 1994	15,000,000
8% Series CC due 31 March 1995	17,580,000
8% Series CD due 31 March 1995	4,520,000

Issued by the former British Columbia Electric Company Limited—

First Mortgage Bonds, after deducting bonds redeemed in accordance with sinking fund requirements:

3½% Series "E" due 1 March 1975	13,092,000
4% Series "F" due 1 July 1991	2,443,000
3¼% Series "G" due 1 December 1976	14,633,000*
4¼% Series "H" due 1 December 1977	10,763,000
4¼% Series "I" due 1 February 1979	11,042,000
3¼% Series "J" due 1 June 1980	11,513,000
4¼% Series "K" due 1 February 1981	23,033,000
5% Series "L" due 1 February 1982	31,744,000
5% Series "M" due 2 January 1988	40,608,000
5½% Series "N" due 1 March 1989	25,038,000
6½% Series "O" due 1 April 1990	26,391,000
5¾% Series "P" due 1 May 1991	13,415,000

Perpetual Callable Bonds:

4%	300,100
4¼%	117,450
4½%	198,000

carried forward \$1,237,081,850

BRITISH COLUMBIA HYDRO AND POWER AUTHORITY

NOTES TO FINANCIAL STATEMENTS AS AT 31 MARCH 1970 (continued)

Note 2 — Long-term debt (continued):

brought forward	\$1,237,081,850
4¾%	505,750
5%	433,250
5½%	309,750
25-year Callable Bonds due 1 August 1986:	
4% Series AA	11,699,900
4¼% Series AB.	10,882,550
4½% Series AC	14,802,000
4¾% Series AD	25,907,650
5% Series AE	24,566,750
5½% Series AF.	14,690,250
Sinking Fund Debentures:	
5¾% Series A due 1 April 1977, after deducting debentures redeemed in accordance with sinking fund requirements	35,200,000
Issued by the former British Columbia Power Commission—	
Bonds:	
3¾% Series C due 15 September 1991	3,000,000
4% Series D due 21 May 1992	1,000,000
4% Series E due 15 June 1992	1,000,000
4% Series F due 15 September 1992	1,500,000
4% Series G due 1 November 1988	10,000,000*
3¼% Series H due 15 July 1989	6,300,000*
3¼% Series J due 4 July 1975	10,000,000
5% Series MC due 15 September 1982	5,149,000
5% Series MD due 15 September 1992	18,724,000
5% Series N due 15 September 1992	10,000,000
3% Series S due 1 April 1976	17,738,000
3% Series T due 1 April 1977 (payable in Canadian or United States funds at option of holder).	9,285,000
Debentures:	
3¾% Series K due 15 June 1986	20,000,000*
4% Series L due 15 April 1987	25,000,000*
3% Series P due 1 February 1988	20,000,000*
	1,534,775,700
Exchange premium at date of issue on long-term debt payable in United States funds	9,153,566
	<u>1,543,929,266</u>
Less—	
Sinking funds on deposit with Trustee, Minister of Finance for the Province of British Columbia.	84,628,450
	<u>\$1,459,300,816</u>
	<i>*Payable in United States funds and carried at par of exchange.</i>
Classification on balance sheet—	
Long-term debt	\$1,443,772,629
Sinking fund instalments due within one year, included in current and accrued liabilities	15,528,187
	<u>\$1,459,300,816</u>

Note 3 – Guarantee by Province of British Columbia:

The Government of the Province of British Columbia has unconditionally guaranteed the principal and interest of the long-term debt and parity development bonds.

Note 4 – Interest:

Included in interest on debt for the year ended 31 March 1970 is \$1,738,620 for amortization of discount and expense on long-term debt and parity development bonds, and there has been deducted \$4,403,241 for income from sinking fund investments.

The interest rate on Series P, R and AN Parity Development Bonds was increased from 5½% to 6½% effective 3 August 1968.

Note 5 – Earnings employed in the business:

The stabilization of rates and contingency reserve has been reclassified under this heading to recognize that the accumulated earnings have been invested in the business over the years.

Balance as at 31 March 1969	\$85,621,583
Loss for the year ended 31 March 1970	408,118
Balance as at 31 March 1970	<u>\$85,213,465</u>

Note 6 – Pension plans:

Employees of B.C. Hydro are covered under contributory pension plans, and provisions are being made for current services according to the requirements of the various plans. Provision has been made for all past service costs under these plans with the exception of those relating to a contributory plan introduced effective 1 January 1965. B.C. Hydro is funding the estimated past service costs of this plan by annual payments of \$393,800 over a fifteen-year period which commenced 1 April 1967.

Note 7 – Self-insurance:

B.C. Hydro has adopted a policy of self-insurance in respect of plant and equipment and general liability with the exception of the following:

- (a) Fire insurance coverage of approximately \$210,000,000 as at 31 March 1970 on certain plant and equipment, maintained with insurance companies as required under terms of the trust deed under which those assets are mortgaged.
- (b) Insurance coverage maintained on major plant under construction.

In pursuance of this policy, an insurance reserve is being accumulated by annual charges to operations commensurate with the current cost of insurance. The reserve, amounting to \$389,245 as at 31 March 1970, is included in accounts payable on the balance sheet.

Note 8 – Commitments:

B.C. Hydro, being the Canadian Entity required to construct three storage dams under the Columbia River Treaty, is liable to compensate the Columbia Storage Power Exchange if Mica, the only dam still under construction, is not operational by the agreed date of 1 April 1973. B.C. Hydro also has obligations relating to the operation and maintenance of the three storage dams.

Purchase commitments and contracts of B.C. Hydro for capital projects and inventories of materials and supplies aggregated approximately \$224,000,000 as at 31 March 1970, which includes contracts awarded in respect of the general commitment of B.C. Hydro to construct Mica dam as referred to in the preceding paragraph.

FINANCIAL STATISTICS

(in millions of dollars)

YEAR ENDED 31 MARCH	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961
SOURCES OF REVENUE										
Electric—residential	60.7	57.7	51.5	41.6	38.1	40.6	38.5	37.4	40.0	38.2
—other	102.1	91.7	86.2	76.8	66.8	60.4	54.8	55.1	50.3	46.6
Gas	41.0	40.6	34.4	32.1	31.2	30.0	25.7	24.6	22.5	19.7
Passenger transportation	20.7*	19.5*	18.1	17.6	16.9	14.5	13.8	13.9	13.4	13.9
Rail freight	8.4	7.4	7.0	6.4	6.2	5.9	5.6	5.3	5.0	4.8
Miscellaneous	<u>7.0</u>	<u>4.2</u>	<u>4.3</u>	<u>3.6</u>	<u>1.6</u>	<u>1.9</u>	<u>1.2</u>	<u>1.4</u>	<u>2.1</u>	<u>3.0</u>
Total	239.9	221.1	201.5	178.1	160.8	153.3	139.6	137.7	133.3	126.2
<i>* Includes metropolitan transit subsidy received from Provincial Government.</i>										
DISPOSITION OF REVENUE										
Employment costs, materials and services	95.5	94.5	87.4	76.8	69.2	59.9	54.5	51.7	47.9	46.1
Grants, school taxes, etc.	17.0	15.0	13.3	11.3	10.6	9.9	9.1	8.4	7.1	6.8
Provision for depreciation	44.7	38.6	34.7	31.7	28.8	27.1	25.3	22.8	21.8	20.7
Taxes on income	—	—	—	—	—	—	—	—	2.8	12.0
Interest on debt, less interest charged to construction	83.1	63.7	53.2	49.0	44.7	43.2	41.9	40.8	32.5	25.3
Dividends on preferred shares	—	—	—	—	—	—	—	—	1.7	5.0
Dividends on common shares	—	—	—	—	—	—	—	—	1.9	8.1
Employed in the business (withdrawal)	<u>(.4)</u>	<u>9.3</u>	<u>12.9</u>	<u>9.3</u>	<u>7.5</u>	<u>13.2</u>	<u>8.8</u>	<u>14.0</u>	<u>17.6</u>	<u>2.2</u>
Total	239.9	221.1	201.5	178.1	160.8	153.3	139.6	137.7	133.3	126.2
EXPENDITURES ON PLANT	189.6	227.3	341.2	324.1	227.5	105.3	70.6	54.2	57.1	64.3

NOTE: For 1961 and 1962, statistics of the former British Columbia Electric Company Limited and the former British Columbia Power Commission have been combined.

OPERATING STATISTICS

YEAR ENDED 31 MARCH	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961
ELECTRIC										
Generating capacity at year-end (rated kw in thousands)*										
Hydro	2,455	2,001	1,320	1,320	1,306	1,306	1,295	1,295	1,295	1,296
Thermal	1,056	1,055	906	752	738	588	571	570	268	268
Total	3,511	3,056	2,226	2,072	2,044	1,894	1,866	1,865	1,563	1,564
Peak one-hour demand, integrated system (kw in thousands)	2,499	2,357	2,152	1,860	1,686	1,490	1,244	1,169	1,154	1,083
Customers at year-end (in thousands)	652	605	583	555	529	503	478	459	443	432
Electricity sold to public (kwh)										
Total (in millions)	13,656	12,237	11,084	10,000	8,506	7,345	6,431	6,059	5,540	5,149
Increase over previous year (%)	11.6	10.4	10.8	17.6	15.8	14.2	6.1	9.4	7.6	4.4
By class of customer (%)										
Residential	27	28	28	28	30	31	32	32	33	33
Commercial	21	21	21	20	21	22	23	22	22	22
Industrial	48	49	49	50	48	45	43	44	44	43
Other systems	2	2	2	2	1	2	2	2	1	2
Export**	2	—	—	—	—	—	—	—	—	—
Residential service										
Average annual kwh use per customer	6,651	6,674	6,222	6,016	5,650	5,486	5,200	5,029	4,829	4,723
Average revenue per kwh (cents)	1.7	1.7	1.7	1.5	1.5	1.8	1.8	1.9	2.2	2.2
* Excludes electricity available from other systems. Rated capacity has been exceeded on occasion.										
** Less than ½ of 1% 1961 through 1969.										
GAS										
One-day capacity at year-end (therms in thousands)										
Mainland—firm pipeline contracts*	2,360	2,529	2,260	2,140	2,020	1,900	1,780	1,780	1,780	1,540
—plant	250	250	250	250	250	250	250	250	250	320
Greater Victoria—plant	45	45	36	36	36	36	36	36	36	27
Peak one-day demand (therms in thousands)										
Mainland system—including interruptible	2,770	3,108	2,537	2,634	2,593	2,341	1,359	1,580	1,287	934
—excluding interruptible	1,962	2,889	1,905	1,474	1,493	1,849	1,060	1,342	1,081	733
Greater Victoria system	19	24	19	16	17	23	16	18	21	13
Customers at year-end (in thousands)	197	186	178	169	161	153	145	137	129	120
Gas sold to public (therms)										
Total (in millions)	485	470	391	357	322	306	260	240	217	186
Increase over previous year (%)	3.1	20.2	9.6	10.7	5.3	17.7	8.6	10.3	16.8	18.5
Average revenue per therm (cents)	8.4	8.6	8.8	9.0	9.7	9.8	9.9	10.3	10.2	10.6
* On basis of 100 cu. ft. to one therm.										
PASSENGER TRANSPORTATION										
Vehicles at year-end										
Urban—buses	340	339	340	321	325	336	339	334	332	342
—trolley coaches	296	296	296	296	296	296	312	317	327	327
—total	636	635	636	617	621	632	651	651	659	669
Interurban buses	66	71	70	56	61	70	80	81	75	71
Passengers carried (in millions)										
Urban	78.7	77.4	74.6	72.7	70.7	73.1	75.8	77.3	78.3	82.4
Interurban	2.3	2.2	2.1	2.1	2.0	2.0	2.3	2.5	2.5	2.6
Revenue miles run—urban (in millions)	21.2	20.9	20.8	20.5	20.4	20.5	20.5	20.5	20.6	21.7
Passenger revenue per mile—urban (cents)	71.6	72.1	71.2	70.2	68.4	57.7	52.8	54.0	54.2	54.3
RAIL FREIGHT (tons in thousands)	2,466	2,265	2,057	2,011	1,971	1,832	1,663	1,567	1,527	1,427
EMPLOYEES AT YEAR-END										
Regular	7,056	6,905	6,737	6,452	6,250	6,006	5,761	5,641	5,804	5,919
Temporary	810	717	614	687	647	418	451	328	292	323
Total	7,866	7,622	7,351	7,139	6,897	6,424	6,212	5,969	6,096	6,242

NOTE: For 1961 and 1962, statistics of the former British Columbia Electric Company Limited and the former British Columbia Power Commission have been combined.

DIVISIONAL ORGANIZATION

Office of the Chairman

H.A. ELLIOTT
Coordinator of Administration
W.D. KENNEDY
Manager, Canadian Entity Services

Office of Chief Engineer

H.K. PRATT
Chief Engineer
R.C. McMORDIE
Principal Civil Engineer

Engineering Division

H.M. ELLIS
Division Manager
J.S. DAVIDSON
Manager, Commissioning and Acceptance
W.F. GEIST
Manager, Quality Control and Expediting
W.D. GILL
Manager, System Projects and Design
H.J. GOLDIE
Manager, System Planning and Development
J.F. MILES
Manager, Generation Planning
E.W. NEWBURY
Manager, Engineering Services
W.M. WALKER
Executive Assistant

Construction Division

J.P. OTTESEN
Division Manager
R.B. JACKSON
Construction Manager, Mica Dam Project
E.H. MARTIN
Manager, Construction
R.H. SPINNEY
Construction Manager, Gordon M. Shrum Generating Station
W.J. TREMBATH
Construction Manager, Transmission Lines
W.S. WALKER
Construction Manager, Jordan River Redevelopment

Production Division

G.F. GREEN
Division Manager
W.A. BATEMAN
Manager, Maintenance Control
T.M. BERGER
Production Manager, Southern Interior System
M.A. FAVELL
Production Manager, Central Interior System
S.C. IRVING
Manager, Burrard Thermal Generating Plant
W.E. KENNY
Manager, Operations Control
N.S. KENT
Production Manager, Lower Mainland System
E. MARZOCCO
Production Manager, Vancouver Island System

Distribution Division

G. GRIFFITHS
Division Manager
W.A. BEST
Regional Manager, Central Interior
S.C. BURNELL
Regional Manager, Metropolitan
T.V. FARMER
Regional Manager, Southern Interior
W.B. GALE
Manager, Distribution Services
D.J. McLENNAN
Regional Manager, North Coast
A.J. MACDONALD
Regional Manager, Vancouver Island
G.J. ROPER
Regional Manager, Fraser Valley
R.G. SCOTT
Marketing Services Manager
H.E. SLADEN
Senior Distribution Engineer

Gas Division

R.K. KIDD
Division Manager
L.A. BERNSTEIN
Technical Services Engineer
J.L. GEMMELL
Manager, Metropolitan Distribution
K.S. HENDERSON
Manager, Fraser Valley Distribution
N.M. KING
Manager, Staff Services
A.H. MacPHERSON
Manager, Engineering
G.A. THOMSON
Supply Superintendent

Transportation Division

P.W. BARCHARD
General Manager of Transportation
H.C. GIVINS
Manager, Transportation Maintenance
H.R. HALLS
Manager, Victoria Transportation
W.W. McAULAY
Operations Manager, Metropolitan Transit Lines
D.J. MARTIN
Manager, Railway Operations
A.S. MURIE
Manager, Transportation Staff Services
T.A. ROSS
Manager, Pacific Stage Lines Operations

Financial Division

T. CHAMBERS
Comptroller and Chief Financial Officer
L.E. BEARD
Assistant Comptroller
G.F. BLYTH
Cashier Manager
D. DAVIS
Manager, Customers' Accounts
G. EWING
Assistant to Chief Financial Officer
D.R. HUNDLEBY
Pay Manager
S.H. JAGGER
Stores Manager

C.G. KILLAM
Research and Laboratory Superintendent
I.R.A. MILLS
Assistant Treasurer and Registrar
S.B. PEACH
Manager, Purchasing and Supply
A.L. ROLLINS
Manager, Plant Accounting
G.A. WOODBURY
Manager, General Accounting

Legal Division

W.D. MITCHELL
Division Manager and General Solicitor
J.C. BLEWETT
Senior Solicitor
W.M. PHILIP
Senior Solicitor
D.W. PRATT
Senior Solicitor

Corporate Planning Division

D.W. MINION
Division Manager
E.S. GARDINER
Manager, Computing Facilities
G.J.A. KIDD
Manager, Strategic Planning and Development
D.G. McKILLOP
Manager, Productivity Services
T.A. NORDSTROM
Manager, Computer Sciences
J.A.D. SIMPSON
Manager, Corporate Information Systems

Administration Division

J.N. OLSEN
Division Manager
R.H. DOWNEY
Manager, Manpower and Organization Planning
M.H. FOX
Manager, Personnel Administration
B.A. HAWRYSH
Manager, General Services
A.R. KLUCKNER
Manager, Manpower Development
R.H. LUND
Manager, Personnel Services
J.V. MILBURN
Manager, Safety Engineering
E.R. PECK
Manager, Labour Relations

Corporate Services Division

R.W. GROSS
Division Manager
E.S. COLLINS
Land Manager
J.A. MacCARTHY
Manager, Information Services
C.W. NASH
Assistant Division Manager
G.G. WOODWARD
Corporate Secretary

Internal Audit Department

J.S. LANG
Internal Auditor

BRITISH COLUMBIA HYDRO AND POWER AUTHORITY

ELECTRIC TRANSMISSION SYSTEM AT 31 MARCH 1970 - WITH PLANNED ADDITIONS



LEGEND

- HYDRO-ELECTRIC GENERATING STATIONS
- DIESEL-ELECTRIC GENERATING STATIONS
- ▣ GAS-TURBINE-ELECTRIC GENERATING STATIONS
- SUBSTATIONS
- TRANSMISSION LINES 60 KV-360 KV (EXISTING AND UNDER CONSTRUCTION)
- - - TRANSMISSION LINES 500 KV (EXISTING AND UNDER CONSTRUCTION)
- TRANSMISSION LINES 60 KV-360 KV (PLANNED)
- - - TRANSMISSION LINES 500 KV (PLANNED)

- REGIONS:
1. METROPOLITAN
 2. FRASER VALLEY
 3. VANCOUVER ISLAND
 4. SOUTHERN INTERIOR
 5. CENTRAL INTERIOR
 6. NORTH COAST

VANCOUVER AREA

- MAJOR GENERATING PLANTS
- | | |
|--|-----------------------------|
| Alouette: Hydro-Electric | Port Mann: Gas-Turbine |
| Burrard: Steam-Turbine | Ruskin: Hydro-Electric |
| Lake Buntzen, Nos. 1 and 2: Hydro-Electric | Stave Falls: Hydro-Electric |

- MAJOR SUBSTATIONS
- | | |
|--------------------|------------|
| Arnot | Mainwaring |
| Dal Graer | Murrin |
| Horne-Payne | Newell |
| Inglelow | Walters |
| Kidd, Nos. 1 and 2 | |

VICTORIA AREA

- MAJOR SUBSTATIONS
- | | |
|--------------|---------|
| Esquimalt | Goward |
| George Tripp | Horsley |

PRINCE GEORGE AREA

- MAJOR SUBSTATIONS
- | | |
|---------------|-----------|
| Canreed | Northwood |
| Patricia | Williston |
| Prince George | |

