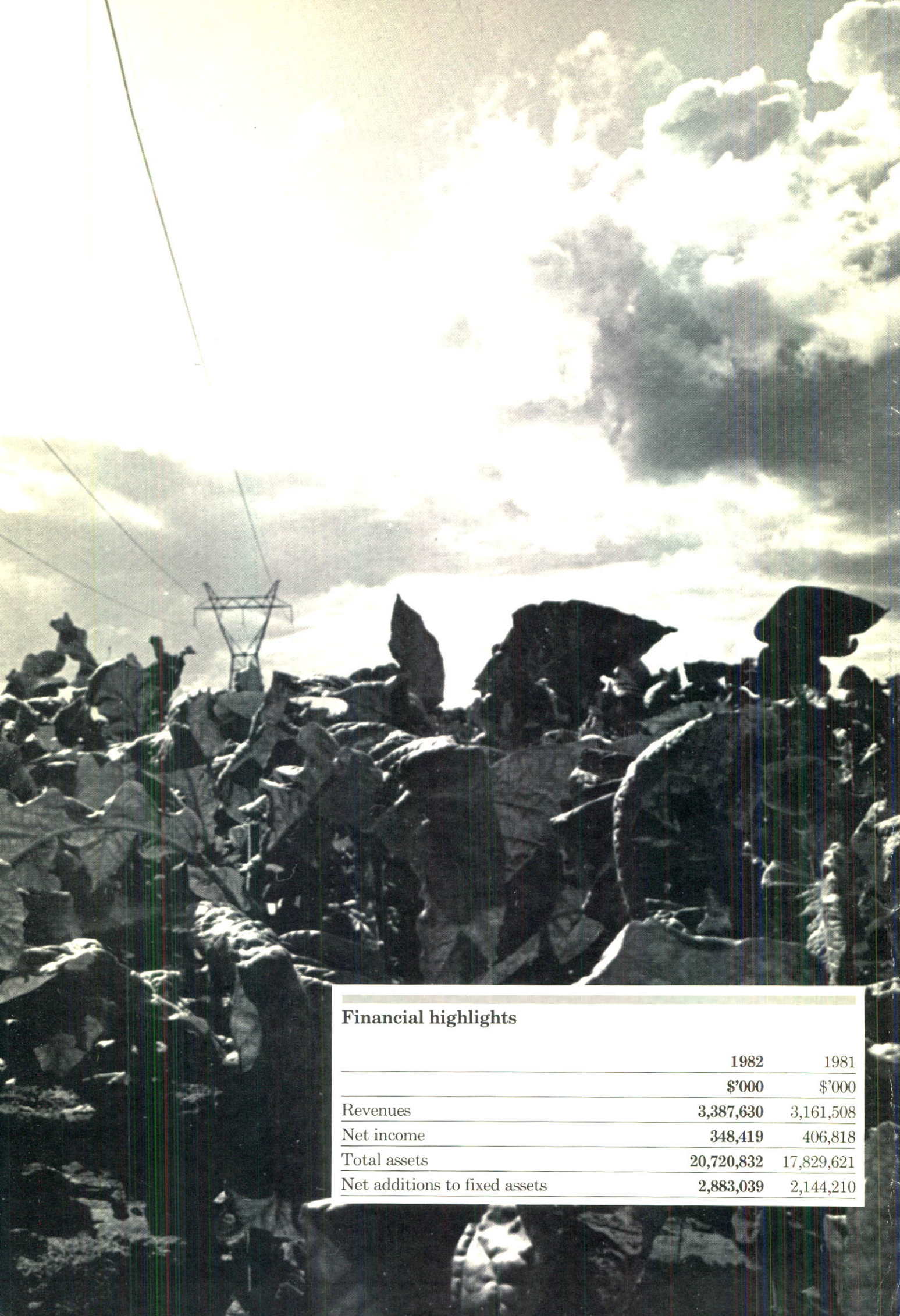
ONTARIO HYDRO 1982 ANNUAL REPORT



Financial highlights

	1982	1981
	$'000	$'000
Revenues	**3,387,630**	3,161,508
Net income	**348,419**	406,818
Total assets	**20,720,832**	17,829,621
Net additions to fixed assets	**2,883,039**	2,144,210

The Corporation

ONTARIO HYDRO is a special statutory corporation established by the Province of Ontario in 1906. Hydro now operates under the Power Corporation Act, Revised Statutes of Ontario, 1980, Chapter 384, as amended, with broad powers to generate, supply and deliver electric power throughout the province.

Hydro operates an extensive power grid which provides interconnections with Manitoba Hydro and Minnesota Power and Light on the west, Hydro-Quebec on the east, and with utilities in New York and Michigan to the south.

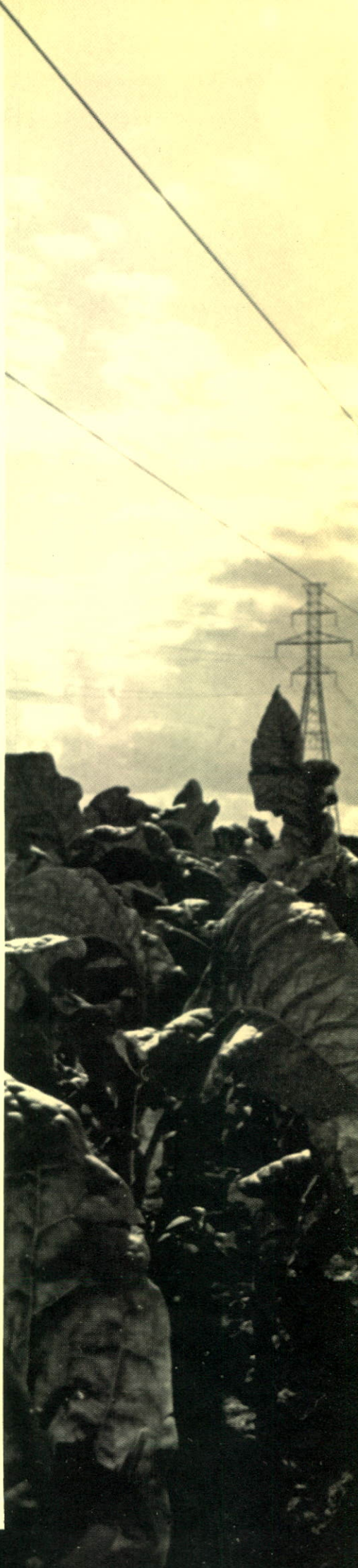
In 1981 an amending act of the Ontario Legislature authorized Hydro to produce and sell steam and hot water as primary products. Early in 1983 this authority was broadened by a further amendment which authorizes the Corporation to acquire and develop land, and to provide facilities and services for the sale of steam and hot water produced at the Bruce Nuclear Power Development for use in agriculture and industry in the County of Bruce.

Hydro's primary responsibility is to provide power to municipalities — over which it has certain regulatory functions — which in turn distribute the power to customers in their areas. Hydro also supplies more than 100 direct industrial customers and about 763,000 retail customers in rural areas not served by municipal utilities.

The Power Corporation Act provides that power be supplied to municipalities at "cost". This includes charges for operation, maintenance, administration, depreciation, fixed charges and reserve adjustment. Also authorized for inclusion under legislation passed in 1981 are the cost of an energy conservation program and any shortfall in revenue resulting from the rural rate differential adjustment. Fixed charges include interest and expenses of debt service and a debt retirement charge adequate to retire outstanding debt over a 40-year period.

The Province of Ontario guarantees the payment of the principal and interest on bonds and notes issued to the public by Ontario Hydro. In the case of public borrowing in the United States, the province borrows on behalf of Hydro by issuing its own debentures and advancing the proceeds to Ontario Hydro upon terms and conditions agreed upon between the Corporation and the Treasurer of Ontario.

Ontario Hydro is administered by a Board of Directors consisting of a chairman, a vice-chairman, a president and not more than 10 other directors. Regular review of strategy, programs and resources is a function of the Executive Office, composed of the chairman, the president, the two executive vice-presidents and the secretary and general counsel.



Report of the Board of Directors of Ontario Hydro for the Year 1982

The Honourable Robert Welch
Minister of Energy

On behalf of my predecessor Chairman Hugh Macaulay and the Board of Directors, I submit to you this report of the financial position and relevant Ontario Hydro activities for the year 1982. We would like to thank you and the staff of the Ministry of Energy for the cooperation and understanding extended during the year.

Milan Nastich

Milan Nastich
May, 1983

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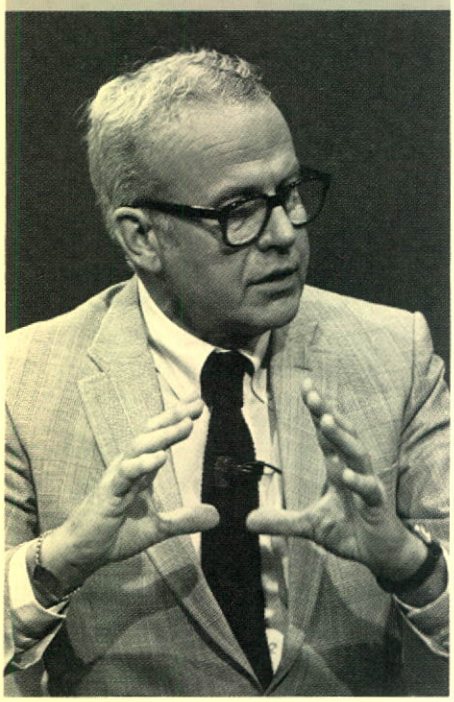
Comments from the Chairman

“There’s a tough transition ahead - Hydro is going to have to redirect all of its resources.”



*Chairman Hugh Macaulay**

The year 1982 may well be remembered as a turning point in the evolution of Ontario Hydro. It was a year when Hydro, like any other business in Canada, had to face squarely the challenges of a slumping world economy — a year in which Hydro had to re-examine its goals and objectives to better serve the needs of its customers.

Hydro has a record to be proud of — 76 years of reliability, service and unsurpassed technological achievements. It’s because of this record, because of these strengths, that I’m confident Hydro can adapt when changing times dictate changing direction.

That’s not to say there isn’t a tough transition ahead. Hydro is going to have to redirect all of its resources to deal with slower growth, higher costs and the financial uncertainties of the current economic climate.

In the past, and especially in the ’60s and ’70s, we had our work cut out for us building generating stations to meet the demands of an energy-hungry province. To that end, Hydro is now seeing some of its hard work realized.

In 1982, the first of four nuclear reactors at Pickering B Generating Station began producing power, while construction continued at the Bruce B and Darlington nuclear generating stations. With so many businesses today shying away from energy megaprojects, Hydro is completing three of Canada’s most ambitious large-scale projects and providing thousands of jobs for the Ontario economy.

Now Hydro is turning to new demands — looking at ways to use more efficiently the resources it already has.

Over the past year, the Corporation has been developing a new strategy designed to result in a more efficient, customer-oriented Hydro. It will demand cutbacks and no small sacrifice as Hydro works to develop an organization responsive to tough times and changing patterns of energy use.

We have already taken some major steps in this direction, as the record shows. During 1982, Hydro cancelled or deferred several large capital projects, slashed operating budgets and took measures to reduce wage and salary costs beyond those required by the provincial government’s restraint program.

There will be more cost-cutting in the future. But electricity customers can still be assured of a high level of service and reliability from their utility.

As I’ve said, Hydro has many strengths to help it face the challenges of the ’80s and ’90s. Not the least of these is its people — hardworking, resourceful and dedicated. I am confident their efforts will ensure that Hydro responds to Ontario’s changing energy needs with vigor and creativity.

On behalf of the Board of Directors, I would like to thank Sister Mary, Conrad Lavigne and Philip Lind for their valuable contributions to the work of the Corporation during their time on the Board. As well, I would like to welcome new appointees John Cronyn, Isobel Harper and John Erickson.

Our thanks are also extended to Ontario’s municipal utilities and their associations, the Ontario Municipal Electric Association and the Association of Municipal Electrical Utilities, for their cooperation and their unfailing service to the people of Ontario.

On a personal note, I wish to express my deep appreciation to my colleagues on the Board, to senior management — particularly President Milan Nastich — and to all those Hydro people who have helped make my term as Chairman the most stimulating and rewarding years of my career.

Hugh Macaulay

**Hugh Macaulay retired as Chairman of the Board of Directors March 31, 1983. President Milan Nastich was appointed interim Chairman for a six-month term effective April 1, 1983.*

A conversation with Hugh Macaulay

What was the most significant factor affecting Ontario Hydro in 1982?

Without a doubt, the economic recession, especially the drop in industrial demand for electricity. For the first time since World War II, people in Ontario used less electricity than they did the year before. Not much less, but less. The rate of growth in electricity use has been slowing down since 1977, but coping with an actual drop has meant a fundamental adjustment for an organization that for decades has been geared to doubling the capacity of its system every 10 years.

The immediate result was that Hydro earned less revenue than expected — we had fewer dollars to do the job of providing electricity for our customers. It became clear early in the year that Hydro had to squeeze more out of its resources, make do with less and take a hard look at some of its planned projects. Thanks to a strong staff effort we did succeed in bringing costs more in line with revenues during the latter part of the year.

Ontario Hydro indicates in its new corporate strategy that one of its goals is to hold rate increases to no more than the rate of inflation. Will Hydro be able to do this?

Looking at the average increase over a number of years, I think the answer is yes. Individual years may be higher or lower, but look at our record. Over the past four years, the real price of electricity declined 7 per cent following a period of substantial increases.

In the next two or three years, we may be seeing real increases in the price of electricity again as we start charging customers for the accumulated interest on new nuclear plants coming into service. This situation will probably change by the late 1980s, especially if industrial demand for electricity picks up as we expect it will. Over the decade, we'll see that electricity prices have remained very stable, especially compared with other forms of energy like natural gas and oil.

With revenue from power sales down and a commitment to keep a tight lid on rate increases, is Hydro's borrowing program affected?

Certainly, there's a temptation to lean more heavily on capital markets — a lot of pressures point toward increased borrowing. But there are some countervailing pressures as well. There's a definite limit to how much money is available to Hydro at the right price and to the total amount of funds we can borrow if we want to maintain our financial health and provide for future rate stability. Hydro already has a major borrowing program — the production of electricity is a capital intensive business — and this program will have to continue. But, particularly in the present economy, we have a responsibility not to put undue pressure on the market or take more than our share of funds.

Ontario Hydro has been encouraging its customers to practice conservation, yet it is stepping up efforts to encourage them to use electricity in place of other forms of energy. Why?

Because we believe that both conservation and substitution are in the best interest of our customers.

We encourage conservation because it is neither economic nor responsible to waste energy.

We encourage substitution because getting off oil is a national and provincial priority, and electricity is a good alternative. Ontario, like its neighboring provinces, has surplus electrical generating capacity. Not to use efficient, new generating stations which have been built and are being paid for can be a waste too — a waste of the money and material resources that went into them.

You mentioned that Ontario Hydro has made an effort to reduce costs. Will this have any effect on Hydro's commitment to reduce the impact of its operations on the environment?

I don't think the people of Ontario will permit that. Until recently, it used to be that in tough economic times concerns for the environment faded into the background as people became preoccupied with their personal security. We have more unemployment in Canada now than we've had in decades, yet I don't detect any decrease in the interest in protecting the environment. Nor is there any indication that government is prepared to slacken environmental controls.

In view of Hydro's surplus generating capacity, and the high cost of building new plants, would it not make sense to defer indefinitely construction of the Darlington nuclear generating station?

No. For a number of reasons. Despite the high capital cost, nuclear plants are the cheapest means of generating electricity that we can build today.

We have some coal plants that through the 1990s will be retired from service. Their capacity will have to be replaced. And there are no acid gas emissions from a nuclear plant. Even if you have fossil-fired generation, it's preferable to run

Hugh Macaulay answers listeners' questions on an open line radio program.

nuclear plants. Finally, it's just not sensible when you're building a project the size of Darlington to start and stop and start again. Our suppliers have committed themselves to major component production and the investment already made in plant, in employment and in materials is such that it's not economical to stop the project altogether.

We're going to need Darlington and it's going to be economic to have.

By 1990, more than half of Ontario's electricity will come from nuclear plants. At least one poll has indicated declining public support for nuclear power. Will it be difficult to increase electricity's share of the energy market without greater support for nuclear power?

Public attitudes are far more complex than what a few questions in a poll can show. If you're trying to determine the level of public support for any form of energy, you've got to put that support in context with the alternatives.

If you want a useful measure of the level of support for nuclear-generated electricity, for example, you should be asking whether electricity consumers would be prepared to pay, say, 25 per cent more for their electricity if we switched from nuclear to coal, and whether they would accept more acid gas emissions. In my view, the people of Ontario don't think they pay too little for electricity now. If you and I had to rely on a lower proportion of nuclear power, the price of electricity in Ontario would go up.

Is Ontario Hydro too large to be effectively accountable to anyone but itself?

No, because it is an agency of government, and the mechanisms of control over its operations are very well developed.

Ontario Hydro is accountable to the elected representatives in the provincial legislature through the Ministry of Energy and is administered by a Board of Directors appointed by the Government of Ontario.

Every year we have to submit our rate proposals to the Minister of Energy, and then to explain them, and all of the cost components in them, at hearings conducted by the Ontario Energy Board. These are public hearings of an adversarial nature at which the public is free to intervene.

Virtually all of our major activities — borrowing, property purchases, all types of generation, routing of transmission lines, safety and labour relations practices — are subject to government regulation or approval. And many are open to direct public review.

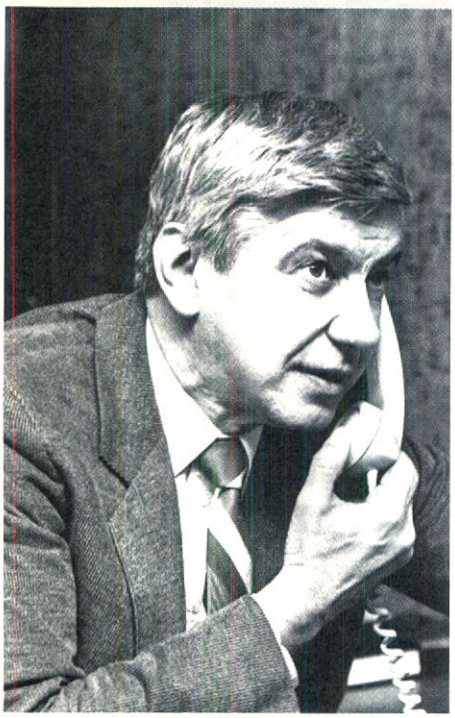
What are the main challenges facing Ontario Hydro in the years ahead?

Right now, keeping the price of electricity down. Our challenge is the same one facing other industries — to produce a reliable and competitive product in a tough economy.

Taking a longer view, we have to be careful not to overreact to this economic slump. I don't think the people of Ontario would want Hydro to plan the utility system on the assumption that one-third of Ontario's industrial capacity will always be idle, as it was in 1982. They'll expect Hydro to be able to meet increased demand — at the right price — when the economy recovers. And Hydro will be ready.

Report from the President

“Keeping electricity rates competitive over the longer term demands more than cost-cutting.”



President Milan Nastich

For Ontario Hydro, it was a year of achievement in the midst of tough economic circumstances in both Ontario and Canada.

Despite the weak economic conditions that prevailed during the first five months of the year, use of electrical energy was close to what had been forecast. The particularly long, cold winter accounted for much of this electricity use which, in turn, masked the impact of poor economic conditions and the resulting industrial downturn.

At mid-year, however, as the weather became milder, the effect of the weak economy on Hydro's load pattern became much more evident. Growth in electricity use and, consequently, revenues began to fall off. At the time, it looked as though this downward trend – compounded by high inflation and interest rates – would continue through the year.

Hydro responded to these events quickly and decisively. An immediate effort was made to cut costs and reduce borrowings. All capital expenditures were stringently reviewed and operating budgets reduced.

As the year drew to an end, these efforts appeared to have paid off. Our revenue picture, although below what had been forecast, improved substantially during the latter months of the year. With the help of declining interest and inflation rates as well as a stronger Canadian dollar during the last two quarters, 1982 shaped up to be a successful year for Ontario Hydro – particularly when compared with other utilities and industries.

But many of the economic pressures experienced in 1982 will continue during the coming years. These pressures, coupled with a firm commitment to maintaining our standards of quality and service, put a strain on Hydro's resources.

Higher costs usually mean higher rates. Yet we're also committed to providing electricity to the people of Ontario at the lowest cost possible. Over the past few years, we have maintained an enviable record on electricity rates – since 1979, electricity rates have increased less than the rate of inflation – and our goal is no real increase in the price of electricity over the next decade.

Early in 1982, we applied to the Ontario Energy Board for an increase in electricity rates for 1983. After reviewing Hydro's submission of unavoidable cost increases and its financial projections, the OEB recommended a reduced increase. Subsequently, the province announced an inflation restraint program for government and public sector agencies. As a consequence, Hydro's Board of Directors announced a rate increase of 8.4 per cent for 1983.

The lower increase in electricity rates presented us with a challenge to maintain our financial health by cutting costs even further. Indeed, the major push to reduce costs across the board was a clear indication of Hydro's continued determination to become a trimmer, more cost-conscious organization.

But it was also clear that keeping electricity rates competitive over the longer term demanded more than cost-cutting.

Faced with this challenge, Hydro developed a new corporate strategy

for the 1980s which took into account the economic environment of the coming decade. This strategy represents a shift in emphasis from supplying new generation toward working with customers to determine how best to meet their energy needs. Hydro will be encouraging its customers to make better use of Ontario's electricity system wherever it is in their best interests to do so.

In every sense, this is complementary to the energy conservation message that Ontario Hydro, along with many other utilities, has been stressing for several years. Electricity should not be wasted. It should be used wisely. And it should be used in more places where it is an appropriate source of energy. More efficient use of Ontario's electricity supply system will reduce the cost to the power consumers of the province. Wiser and more efficient use of electricity can also play an important part in our national oil substitution effort.

Electricity exports will continue to play a major role. Since the mid-1970s Ontario Hydro's power exports to the United States have been a significant source of revenue. In 1982, exports brought in an income of $163 million, which was applied directly to reducing the cost of power in Ontario. Last year we also negotiated multi-year firm power sales to two American utilities and we intend to pursue more firm power exports in the future.

Another component of our strategy for the '80s is to seek out business opportunities related to electricity production such as the sale of surplus steam, sale of radioisotopes or making available the expertise of Hydro staff. Here again the revenue earned will help keep the unit cost of electricity down – to the benefit of the people of Ontario. During 1982, for instance, the provincial government requested that Hydro assume control of the Bruce Energy Centre located near our Bruce Nuclear Power Development. This will allow us to market the surplus steam produced in the Bruce reactors to agricultural and industrial users in the area.

Milan Nastich chats with Lakeview Generating Station control room staff.

So the year 1982 marked a change in course for Ontario Hydro. The encroaching economic pressures of the past few years demanded firm action. We took firm action. The challenge that faced us in the past was to produce more and more power to meet rapidly growing demand for electricity. Today's challenge lies in successfully re-orienting Ontario Hydro to a pattern of slower growth while continuing to meet the energy needs of the people it serves. And we will meet that challenge.

I want to pay special tribute to Hugh Macaulay, who has retired as Hydro's chairman after a term spanning the years 1979 to 1983. Hugh has guided us through a very challenging time, during which Hydro had to adjust to new circumstances. He achieved this by imparting to the organization his sense of the importance of keeping in close touch with our various publics. The people of Ontario have been well served by his leadership and foresight and the record will show that Hugh Macaulay's chairmanship was a period of great positive change for Ontario Hydro. We owe him an immense debt of gratitude.

Milan Nastich

Recession dampens energy demand

Reflecting the severity of the economic recession, primary electrical energy demand for the year failed to exceed that of the previous year for the first time since 1944. Actual demand reached 100.8 billion kilowatt-hours, 0.8 per cent below 1981.

On January 18, annual peak demand reached an all-time high of 18.1 million kilowatts, an increase of 5.4 per cent over the previous record set in January, 1981.

During the year, Ontario Hydro generated 104.1 billion kilowatt-hours of electricity, with almost equal contributions from the three primary sources – nuclear, coal and water power.

In addition, Hydro purchased 7.5 billion kilowatt-hours of electricity, 85 per cent of which was supplied by utilities outside the province, primarily in Manitoba and Quebec. Douglas Point Generating Station, owned by Atomic Energy of Canada Limited, provided the balance.

At year-end, in-service dependable peak capacity totalled 21.9 million kilowatts, down 3.6 per cent from the December, 1981, figure.

Performance record

During 1982, Ontario Hydro's nuclear generating units continued their outstanding performance. In September, Bruce Unit 3 completed a 494-day run at continuous full power, thereby setting a world record for continuous high operation. With a gross capacity factor of 96.8 per cent, this unit ranked first in world reactor performance for 1982.

In a world-wide comparison of reactors of 500,000 kilowatts or more, five of the eight Bruce and Pickering units ranked within the top 10 performers in 1982. On a lifetime basis, Hydro units occupy seven of the top 10 places.

At the same time, the operating costs of nuclear generation continued to be considerably lower than those of fossil-fuelled generation for base load application.

Nuclear milestones

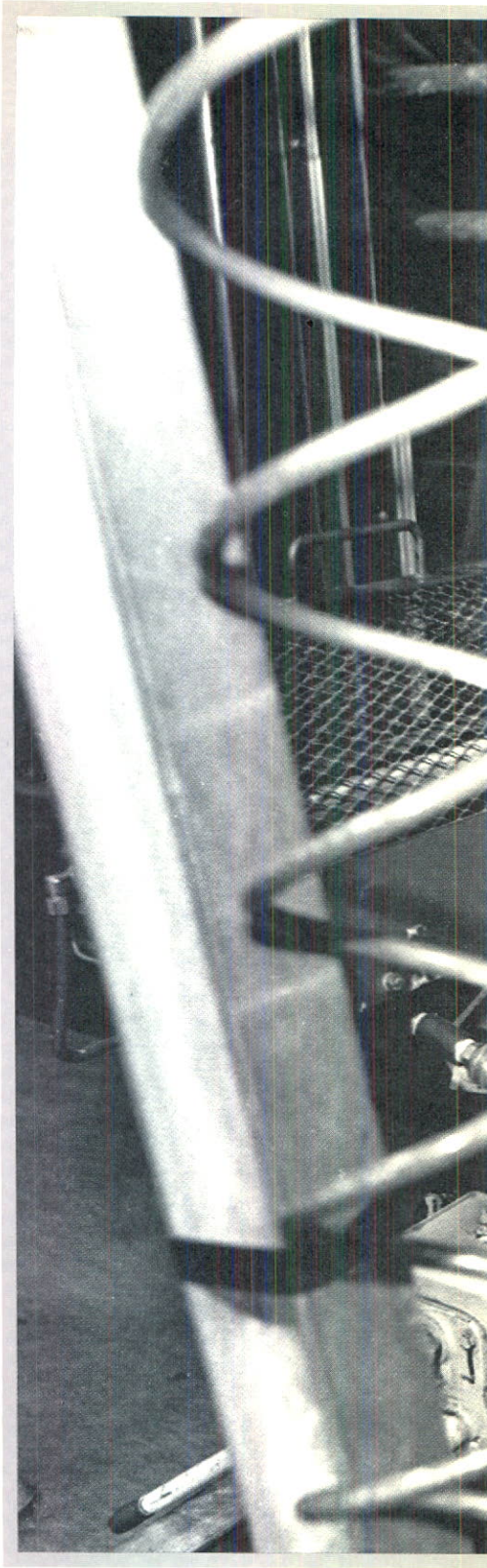
The year marked a milestone in the Candu program as Canada's first nuclear power station, the 20,000-kilowatt Nuclear Power Demonstration near Rolphton, celebrated 20 years of operation on October 1. Later that month Pickering B Unit 5 started up and produced its first electricity in December. Scheduled to go into service in July, 1983, this unit is the first of four at Pickering B which will provide almost 2.2 million kilowatts of additional nuclear capacity by 1985.

At Bruce A, an innovative method was used in October to repair Unit 3's fuel transfer system after irradiated fuel was damaged during transfer to the storage bay. A remote-controlled vehicle was used to remove the damaged fuel to a shielded flask. As a result, the job was completed in a short period of time and with low radiation exposure to staff.

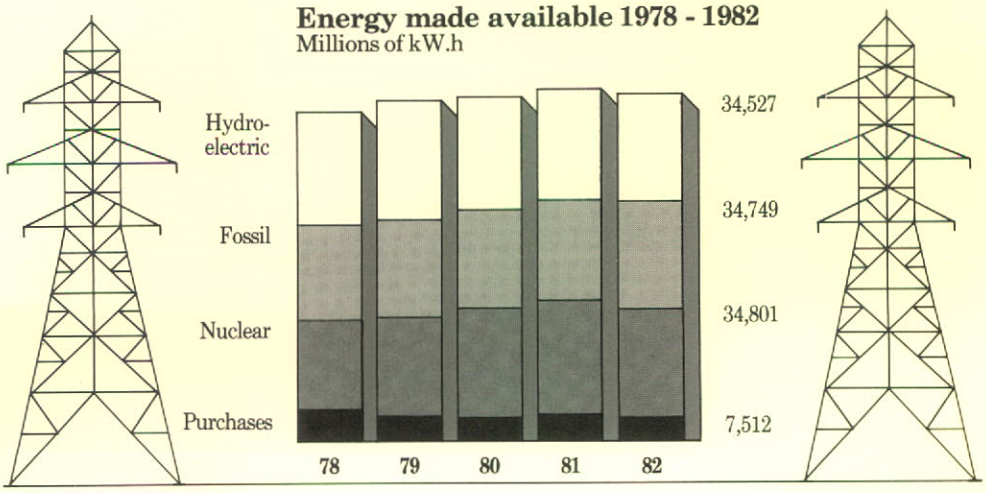
Thunder Bay Unit 3 began commercial operation July 15, marking completion of the two-unit, 300,000-kilowatt extension to the single-unit station in service since 1963. Designed to burn low-sulphur western Canadian lignite, the new units are more efficient, cheaper to operate and environmentally more acceptable than the original unit.

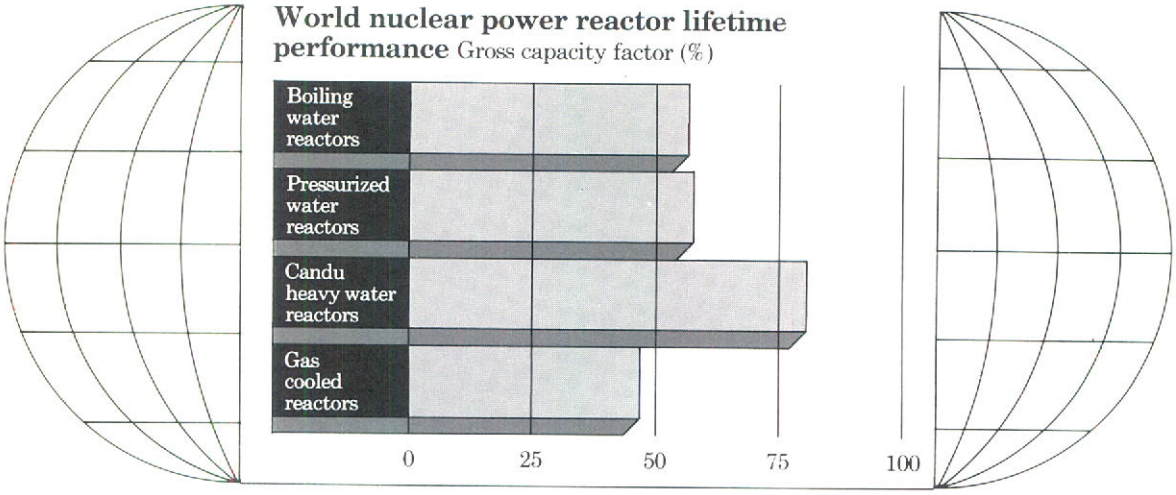
Construction activities

Hydro's generating station expansion program will add almost 9.2 million kilowatts of capacity to the Ontario power system by 1992.



Fuel is loaded into Unit 5 reactor at Pickering B. The unit started up in October and produced its first electricity in December.


Energy made available 1978 - 1982
Millions of kW.h
Hydro-electric
Fossil
Nuclear
Purchases
34,527
34,749
34,801
7,512
78
79
80
81
82


World nuclear power reactor lifetime performance Gross capacity factor (%)
Boiling water reactors
Pressurized water reactors
Candu heavy water reactors
Gas cooled reactors
0
25
50
75
100

Bedrock is excavated for the cooling water discharge at Atikokan GS. The unit will burn Canadian lignite and is to be completed in 1984.

Almost all of this capacity will be nuclear.

With major design work for Bruce B nuclear generating station essentially completed, construction progressed as scheduled during the year. The four units, with a combined capacity of 3.2 million kilowatts, are expected to come into service between 1984 and 1987. In addition, a low-level radioactive waste storage facility was completed and placed in service at the Bruce Nuclear Power Development.

By the end of 1982, Babcock and Wilcox (Canada) Limited had completed delivery of rebuilt steam generators for Pickering B. Meanwhile, design for Pickering A's emergency coolant injection system continued during the year, while an upgraded site security system was declared in service in March.

At Darlington, design and construction activity continued at a high level with 1,700 construction workers on site at year-end. When completed in 1992, the four-unit nuclear generating station will have a capacity of 3.6 million kilowatts.

At Atikokan, construction activities continued, reaching a peak during the year with a workforce of 1,200 on site. The single-unit station, designed to burn western Canadian lignite, is expected to be completed in 1984.

Transmission projects

Ensuring service reliability to customers remained a corporate priority as evidenced by the 268 transmission system construction and upgrading projects undertaken during the year. Notable among these was the reinforcing of the power supply to Prince Edward County. This project included the installation of a 230-kilovolt submarine cable, 1.6 km (one mile) long – Hydro's first experience with underwater cable at this high voltage.

Design work and some construction have proceeded on the 345-kilovolt transmission line crossing of the Niagara Gorge at Sir Adam Beck Generating Station No. 2. This interconnection, scheduled for completion in 1984, will permit an increase in export sales to New York State.

In total, 172 km (107 miles) of new high voltage transmission lines as well as three new transformer stations at Picton, Nepean and Almonte were placed in service during 1982.

Construction cutbacks

Successive reductions in the long-range load forecast and the need to reduce costs prompted Board decisions during 1982 and early 1983 affecting construction of new power supply facilities.

In February, 1982, Hydro cancelled plans for one of the two units at Atikokan Generating Station in northwestern Ontario.

In November, based on a new load forecast of 2.1 per cent average annual growth in electricity use to the year 2000, down from the previous forecast of 3 per cent, in-service dates for the last two Darlington units were each put back two years. These changes in completion dates will reduce Hydro's borrowing requirements during the next few years.

Early in 1983, plans for a hydro-electric project on the Little Jackfish River, north of Lake Nipigon, were deferred indefinitely.

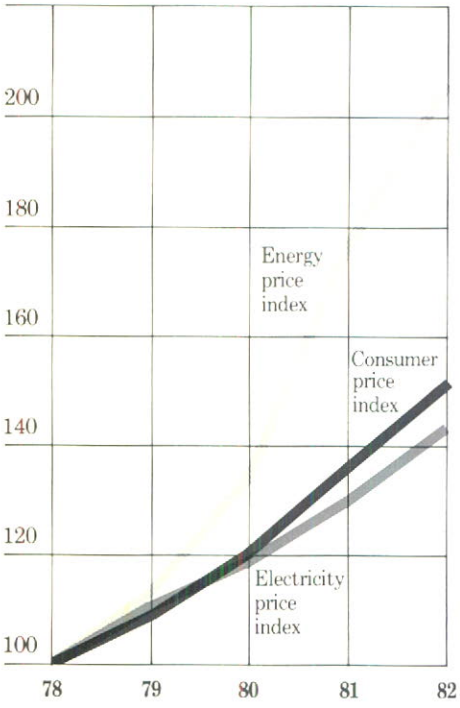
Cost-cutting reduces revenue shortfall

Late in October, Ontario Hydro announced rate increases averaging 8.4 per cent to take effect January 1, 1983. The 324 municipal utilities which purchase wholesale power from Ontario Hydro received an average increase of 8.2 per cent, while direct industrial and rural bills rose 8.5 per cent and 8.8 per cent respectively.

Originally Hydro had proposed a 13.9 per cent average increase for 1983. In August, following a public hearing, the Ontario Energy Board (OEB) recommended an increase of 8.8 per cent. The following month, the provincial government announced an inflation restraint program within government and public sector agencies. In keeping with both the OEB's recommendation and the aims of the province's restraint effort, Hydro's Board of Directors decided on an 8.4 per cent average increase.

Following its review of Hydro's 1983 rate submission, the OEB endorsed proposed changes to the costing and pricing of electricity, including the introduction in January, 1983, of time-of-use rates for bulk power customers. However, after the OEB released its report, Ontario Hydro agreed to an Ontario government request that introduction of this pricing system be deferred to permit time to reconsider the economic impact on customers.

Price change comparison in Ontario (1978 = 100)



Restraint program

Faced with a decline in energy demand which reflected the severity of the recession during 1982, the Corporation underwent a year of review and cost-cutting as it strove to become a more efficient and responsive organization while maintaining its quality of service.

By mid-year, not only were revenues from primary and secondary sales down, but interest and foreign exchange costs were up well beyond expectations. By July, it appeared that the Corporation could experience a shortfall of $120 million in net income from the forecast of $386 million. However, by year-end the situation had improved considerably so that actual net income was $348 million, $38 million below forecast.

A stronger Canadian dollar and decreases in inflation and interest rates during the latter part of the year contributed to this improvement. Greater than expected output from hydro-electric generating stations helped as well by reducing the need for more costly generation.

However, another important factor affecting net income was the implementation at mid-year of an aggressive corporate restraint program.

A feature of this program has been a stringent review of all planned and existing capital construction projects to determine which could be rescheduled or scaled down to reduce revenue requirements. As a result of this review, a number of projects, primarily in the design and construction areas, were affected. A major example was the rescheduling of two Darlington units in order to reduce borrowing requirements during the next few years.

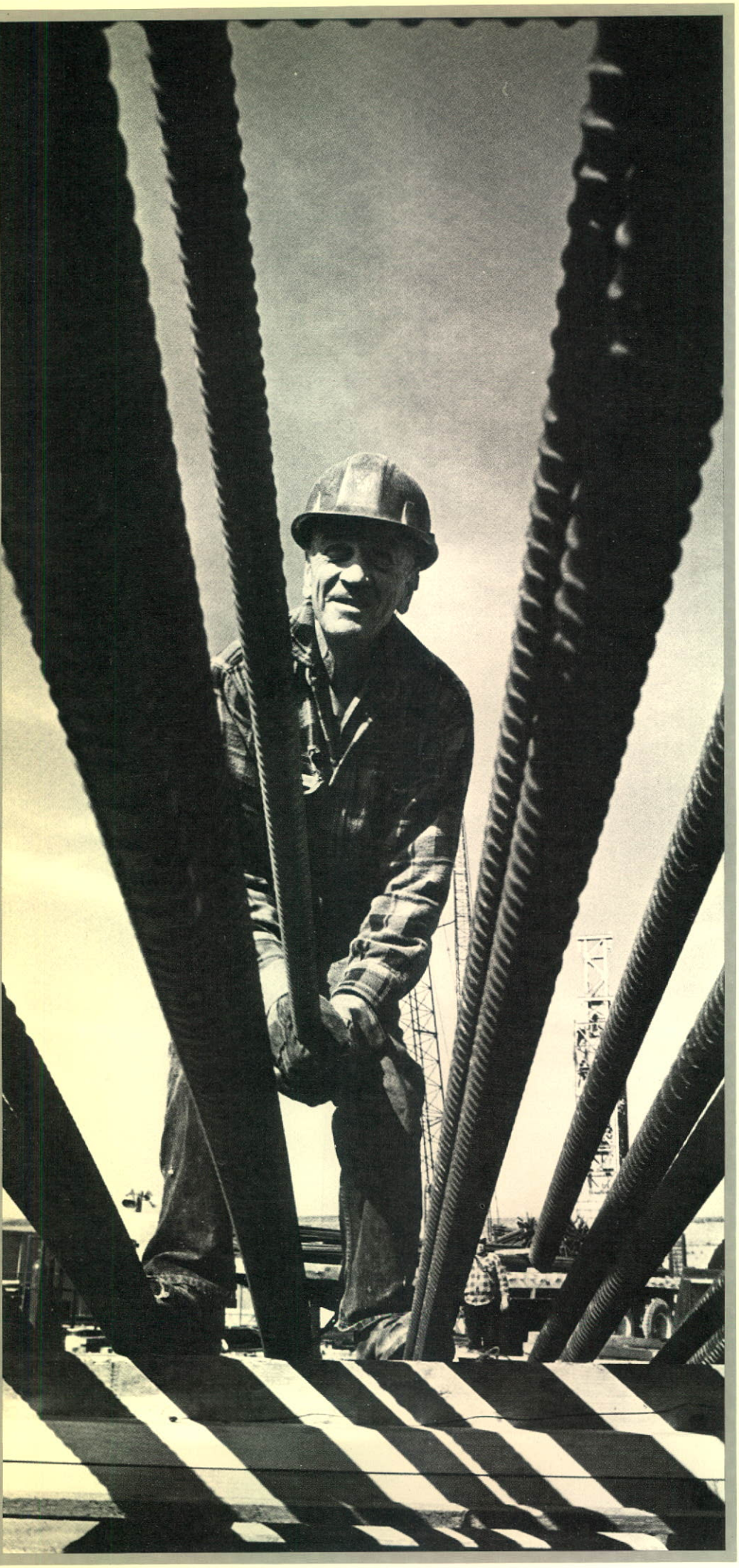
In cooperation with staff, management took a hard look at operating, maintenance and administration (OM&A) costs and succeeded in considerably reducing these during the last few months of the year. As a first step, hiring restrictions were imposed, overtime and travel costs were restricted, and discussions were begun with representatives of management and professional staff which resulted in a voluntary compensation restraint program.

At the same time, it was decided to mothball the two remaining units at Lennox, Hydro's only oil-fired generating station.

An inventory reduction program was developed to reduce carrying charges on coal, oil, heavy water, surplus real estate and standard materials. The program is expected to save the Corporation about $100 million by the end of 1983. In total, savings in excess of $300 million could be achieved by the end of 1985.

The new year brought more cost-cutting decisions.

Addressing OM&A costs further, the Board of Directors decided in January to suspend the operation of Thunder Bay Generating Station Unit 1 and make supplemental staff from Thunder Bay available to commission Atikokan Generating Station. This reduction in additional commissioning staff requirements for Atikokan is



expected to save the Corporation $1.6 million in 1983.

A decision was also made to close the Niagara Regional Office in Hamilton and redistribute the workload among other offices. This action is expected to save $3.25 million a year. At the same time, the Corporation announced plans to mothball a sixth unit at the R.L. Hearn Generating Station in Toronto and reduce the operating hours of the two remaining units.

Purchases

Fuel purchases set record highs in 1982. Coal deliveries amounted to 13.4 million megagrams (14.7 million tons), an increase of 23 per cent over 1981. Nuclear fuel delivered to generating stations increased to 996 megagrams (1,096 tons), a 3 per cent change from the previous year.

Agreements were negotiated with Uranerz Exploration and Mining Limited and Eldorado Nuclear Limited for the supply of 5,200 megagrams (5,720 tons) of uranium concentrates during the period 1985-1993. These purchases will provide low-cost uranium as well as downward flexibility in the event of reductions in future requirements.

In addition, nuclear fuel manufacturing contracts were awarded to Westinghouse Canada Incorporated and Canadian General Electric Company Limited at lower prices than previously attained.

Payments for United States coal increased during the first half of 1982 as the value of the

Ironworker places reinforcing bars at Darlington GS construction site. In-service dates for the last two units have been deferred two years.

Export revenue moderates rates

Canadian dollar declined. However, by year-end, the poor performance of the dollar was largely offset by the success of cost-reduction efforts undertaken in cooperation with suppliers. These savings amounted to more than $40 million.

Two million barrels of surplus residual oil at Lennox Generating Station were marketed during the year, resulting in increased revenue as well as a reduction in borrowings.

Excluding primary fuels, the total value of Hydro's awards for equipment, materials and services during 1982 was $770 million, representing a decrease of $144 million from 1981. Almost 76 per cent of the goods and services purchased by Ontario Hydro in 1982 came from Canadian sources. Ontario industries provided about 90 per cent of these Canadian purchases.

Power exports

Export sales of electricity to United States utilities, primarily in New York State and Michigan, amounted to 10.7 billion kilowatt-hours, 2.7 per cent less than the previous year. Income totalling $163 million from these sales was used to reduce the overall cost of providing electricity to Ontario customers by 5.1 per cent during 1982.

Sales in 1982 were adversely affected by the unavailability of some generation for export during the first quarter, transmission limitations and lower demand due to the economic recession and competition from other utilities. Revenues were also affected by lower than forecast export prices resulting from lower sales demand and lower world oil prices.

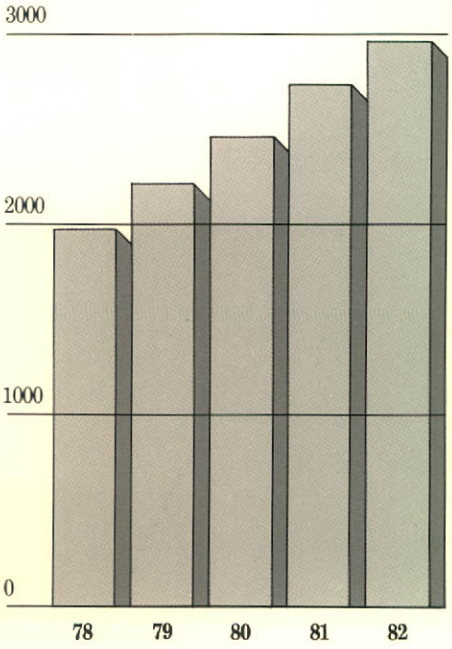
During 1982, one of Hydro's major export initiatives, a proposal to supply power to General Public Utilities (GPU) of New Jersey via a high voltage, direct current cable running under Lake Erie, was cancelled by GPU.

However, Hydro was successful in reaching an agreement to supply the Vermont Department of Public Service with up to 52,000 kilowatts of firm power annually for a five-year period which commenced in November.

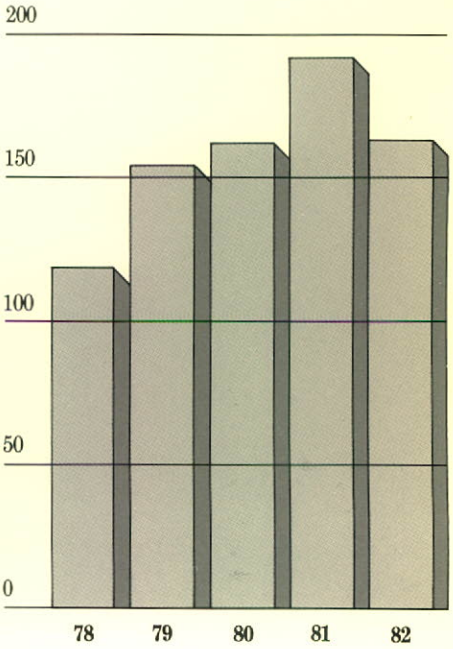
Under another agreement negotiated during the year, Hydro began supplying Niagara Mohawk in New York State with 400,000 kilowatts of firm power for four years effective in December. This sale is significant because the New York market is expected to become increasingly competitive when Hydro-Quebec completes its new interconnection with that state in 1984.

Hydro continued to pursue sales opportunities with other United States utilities with a view toward finding customers for eight to 12 billion kilowatt-hours of power a year, including at least one million kilowatts of firm power.

Revenue from sales of primary power and energy
$ Millions



Income from export sales
$ Millions



Insulation is applied to Douglas Point reactor dome against a backdrop of Bruce B construction (top).

Inside the Bruce B turbine hall, installation of a moisture separator-reheater nears completion (left).

Advisory program assists residential customers

In keeping with the new corporate strategy, Hydro undertook a number of activities designed to provide a more effective response to customers' energy needs. Building from existing programs, Hydro intensified its work in the residential, industrial/commercial and agricultural sectors and began planning for a renewed marketing effort in 1983.

Demand management part of new strategy

Central to the new corporate strategy approved by the Board of Directors in October is a shift away from the supply of new generation toward a greater effort to work with customers to determine how Ontario's electricity resources can best be used to meet their energy needs.

One goal of the strategy is to help customers make more efficient and more extensive use of the existing electricity supply system in order to keep the unit cost of electricity down. This will make electricity a more attractive choice for new customers and for customers who want to move away from oil.

Hydro will be encouraging electricity use where it is in the best interests of customers, whether it be from the point of view of cost, convenience, reliability or a reduction in total energy use. And it will be exploring and developing new applications for electricity. At the same time, the Corporation will continue to encourage the wise use of all forms of energy.

Chief among the residential initiatives undertaken during the year was the further development of the Residential Energy Advisory Program (REAP). Hydro and 67 participating municipal utilities conducted almost 16,000 REAP surveys for homeowners wishing to improve the energy efficiency of their homes. Follow-up surveys indicated that about 13 per cent of the oil-heated homes first visited were fully converted to electric heating and an additional 2 per cent underwent partial electric conversions. By year-end, more than half of Ontario's residential electricity consumers had access to the program.

During the year, more than 20,000 residential customers in the province received Canada Oil Substitution Program grants to convert from oil to electric heating. Ontario Hydro is administering this federal program for electric conversions in Ontario. Additional annual electricity consumption resulting from these conversions is estimated at 280 million kilowatt-hours – about the amount of electricity used in one year by a city the size of Woodstock.

In the new home market, Ontario Hydro, in cooperation with the Canadian Electrical Association (CEA), continued its work with builders across the province on a passive solar home program and prepared to introduce a new program fostering construction of "super energy-efficient" housing.

Another new program aimed initially at Hydro's rural residential customers was the third party notification program. Designed to assist customers who face collection action as a result of lost or forgotten electricity bills, it will be particularly useful to customers who are elderly, disabled or who have health or language difficulties.

In the industrial/commercial sector, Hydro conducted energy use surveys in 78 shopping centres and more than 35 large industrial plants to help businesses and industries determine what possibilities existed for effective energy savings and oil substitution. One promising area is the development of plasma arc technology which could play a major role in oil substitution in industry. Hydro also continued to work with the CEA on developing standards of efficiency for electric motors for industrial and commercial applications.

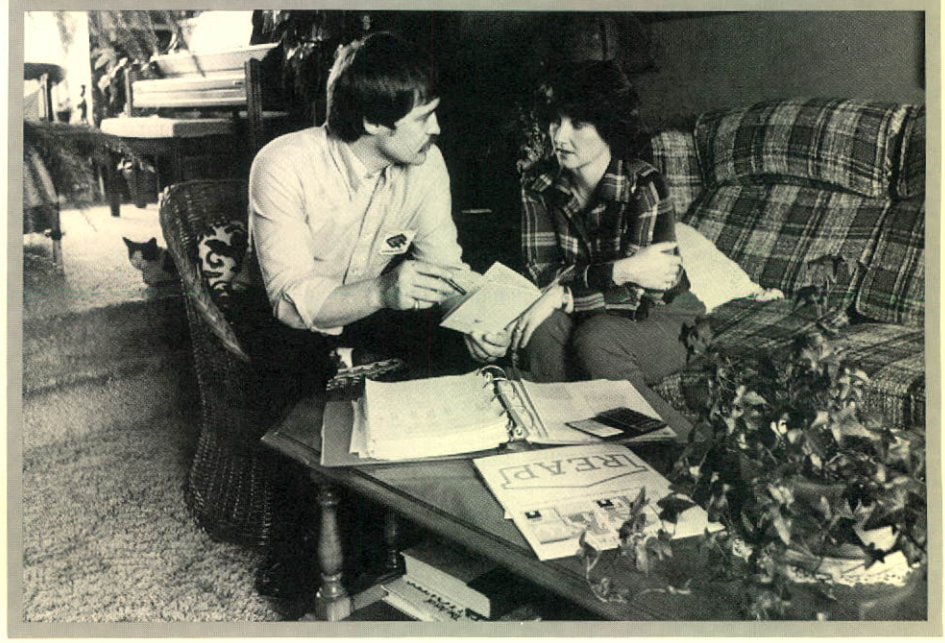
During the year, load management field trials involving commercial and residential customers continued in Scarborough and Oshawa. These are designed to determine the technical and economic feasibility of shifting electrical loads from peak to off-peak times. Reliable end-use data are now being obtained and analysed from the 517 test homes and 21 commercial

establishments in the Oshawa test program.

In addition, load management plant surveys were completed for customers in cement and glass manufacturing.

Several customer service programs focused on the agricultural sector. Farm commodity producer seminars aimed at greater energy efficiency were continued during the year. In-depth energy surveys of 18 large farms were also completed. In addition, Hydro's field research program, which tests the energy efficiency of new agricultural equipment, undertook 12 new projects.

The problem of tingle or stray voltage, which can adversely affect the productivity of livestock, was given a high priority during the year. In an effort to help the farming community, Hydro developed and tested prototype equipment for installation at an affected farm, trained staff and developed policies and procedures for dealing with individual inquiries.



Electricity uses in agriculture were displayed and explained at a plowing match and farm shows (top).

Almost 16,000 Ontario homeowners learned how to improve the energy efficiency of their homes (right).

Efforts continue to protect environment

Hydro continued its work to minimize the social and environmental impact of its wide-ranging operations.

Efforts to reduce acid gas emissions included the installation of special low NO_x burners on one unit at the Nanticoke thermal generating station. These burners are designed to burn coal at a lower temperature, thereby reducing the quantity of nitrogen oxides produced. Test results on the first unit have exceeded design expectations, achieving an emissions reduction of about 40 per cent. As part of the Corporation's program to reduce acid gas emissions, the remaining seven Nanticoke boilers will also be converted.

Another measure undertaken to improve air quality was the installation of an opacity monitoring system to facilitate detection of unacceptable emissions from Lambton Generating Station.

Public involvement

Following public hearings during 1982 under the Consolidated Hearings Act (1981), the provincial government approved plans for extending the bulk power system in both eastern and southwestern Ontario. With these broad system plans now determined, the next step – identifying and getting approval for specific routes – has begun. When completed in the latter part of this decade, these major transmission projects will improve service reliability to consumers in the eastern and southwestern parts of the province. The southwestern transmission project will also ensure that all the electricity generated at the Bruce Nuclear Power Development can be delivered to the power system.

Extensive public involvement programs for the "route phase" of these transmission expansion studies began in the fall of 1982. These programs involve citizens, municipal and provincial governments and agricultural, environmental and other interests in the identification and evaluation of alternative routes.

Assessing the effects of projects on people continued to be an important Hydro activity in 1982. Social impact assessments were carried out for projects in the planning stages, while regular social impact management and monitoring helped to mitigate the effects of Hydro's activities on Ontario communities.

About 40,000 people attended Hydro's electrical effects demonstrations held at various locations throughout the province during the year. These are designed to illustrate the effects of high voltage transmission lines on people, animals and farm equipment.

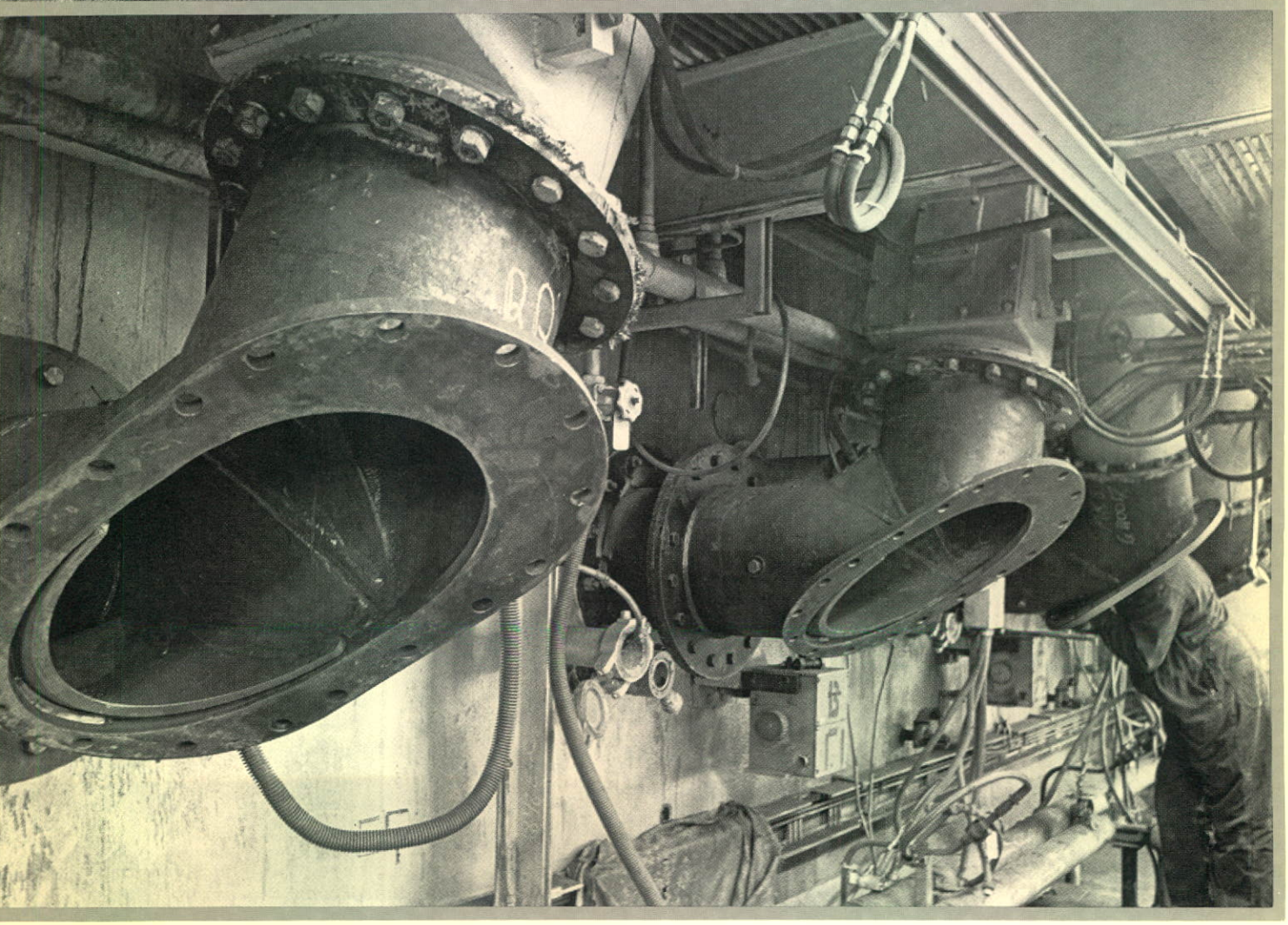
With a view to minimizing the amount of cultivated farmland taken out of production, preliminary designs for narrow base 230-kilovolt and 500-kilovolt towers were developed and discussed with the Ontario Federation of Agriculture.

Nuclear safety

In order to meet its public safety responsibilities with respect to nuclear power generation, Hydro is contributing to the development of methods for long-term radioactive waste storage and disposal. Conceptual design work for storage, transportation and disposal of all forms of radioactive waste materials was carried out during the year. In addition, examination of abnormal events at nuclear stations, studies of operating risks, and the establishment of engineering standards to ensure equipment operation consistent with public safety continued.

More than 1,700 staff, including this field technician, are at work on the Darlington GS site (top).

Modification of coal burners on one Nanticoke unit reduced the nitrogen oxides emitted by 40 per cent (right).



Employees respond to new priorities

Ontario Hydro continued to encourage employees' dedication, productivity and job satisfaction but with changed emphasis reflecting the need for restraint in a weakened economy and for the organization to adjust itself to a pattern of slower growth.

These pressures and the changing direction signaled by the new corporate strategy made it clear that the organization would have to be scaled down and that there would be a need to redeploy staff.

Employees responded well when asked to support cost-cutting measures aimed toward reducing the Corporation's projected shortfall in net revenue due primarily to inflation, high interest rates and a weak Canadian dollar.

A mid-year 4.4 per cent pay increase for 600 senior managers was cancelled, restrictions were placed on overtime and travel costs and staff numbers were frozen at mid-year levels throughout the Corporation except in the area of direct operation and maintenance of nuclear plants.

A major and welcome contribution toward reducing costs was made by more than 70 per cent of management and professional staff who voluntarily donated the equivalent of about one week's pay per person – either in unpaid work or reduced work time.

To absorb some of the expected surplus staff, Hydro's Board of Directors approved a policy which provides a special allowance to encourage early retirement in 1983. The offer is open to staff age 55 or older with at least 15 years of service.

In keeping with the Corporation's philosophy of providing continuity of employment through sound human resource planning, Hydro is attempting to match the skills and resources that are surplus to the needs of one part of the Corporation with those required by another. This is being achieved through close monitoring of surplus positions and openings resulting from attrition. Retraining is available for staff with potential to meet the requirements of those job vacancies being filled.

As the organization cut back on current and future programs, it considered the effect of shrinking prospects for work and career opportunities on staff morale. During the year, the Chairman, President and other senior officers continued to hold question and answer sessions at locations throughout Hydro.

But while trimming human resource costs is a major consideration, the organization's philosophy is still to manage its employees in a fair, open and consistent manner – one which recognizes both the needs and mutual obligations of Hydro and its employees. Hydro maintained its commitment to job-related training and development for improving the capabilities of its staff with trades, technical and managerial training.

Under its Equal Opportunities Program, Hydro introduced a number of initiatives designed to ensure equal access to training and career advancement for all employees.

Hydro's policy against discriminatory activities, which reflects the requirements of the Ontario Human Rights Code, is part of this overall philosophy of fair and equal treatment. Because of recent revisions to the Ontario Human Rights Code, Hydro's policies and procedures for administering the code have been modified, a corporate-wide training program has been initiated and human rights topics have been addressed in employee communications.

Hydro's 6,000 professional and lower-level management staff negotiated a 10 per cent salary increase with a 4.45 per cent additional increase at mid-year. In addition, the Corporation and the 17,000 member Ontario Hydro Employees Union agreed on a 12.8 per cent pay increase for the year beginning April 1. Two-year wage settlements were reached with Hydro's 6,500 construction workers. These followed the construction industry pattern of a 23.5 per cent average increase over the two-year term.

Later in the year, however, all pay increases for the following year were limited to 5 per cent in accordance with the provincial government's inflation restraint legislation.

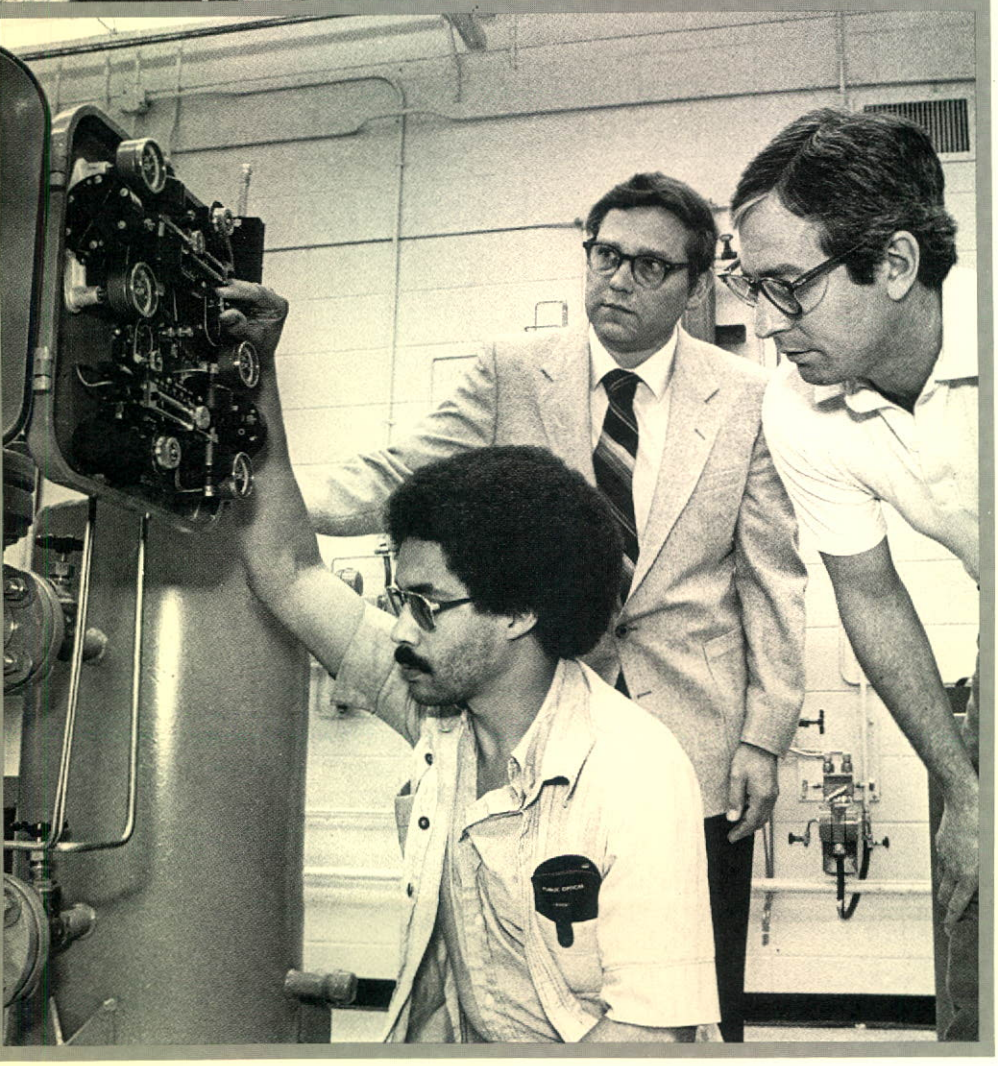
Health and safety

During 1982, Hydro was heavily involved in health and safety programs. Performance with respect to the incidence of disabling injuries was good with a rate of 5.5 per million employee hours. However, the fatal accident rate continues to cause concern. In the year there were three occupational deaths, bringing the Corporation's 10-year average to 8.1 fatalities per 100 million employee hours.

Corporate programs have been initiated to achieve a major reduction in the fatal accident rate. Attention has been focused on the highest priority problems – electrical contact, falls, falling objects and transportation incidents. Efforts under way include pole climbing studies, work

Pension information

Disclosure of The Pension and Insurance Fund financial statement in the Ontario Hydro Annual Report is being discontinued. Instead, a new Pension and Insurance Fund brochure containing the statement and additional information will be distributed to employees and pensioners.



on improved fall arresting systems, ergonomics of line work, driver competence and hazard analysis of high risk work such as structural steel erection.

As in the past, intensive system safety accident and incident analyses were carried out with the aim of correcting deficiencies.

A wide range of long-standing surveillance programs dealing with employee exposures to hazardous substances was continued and adjustments were made to reflect new designated substance regulations. A study was launched to identify possible hazards associated with the operation of video display terminals.

With regard to nuclear safety, employee exposures were maintained at a very low level and radioactive emissions generally remained at less than 1 per cent of the Atomic Energy Control Board's limits.

On a more personal level, Ontario Hydro is giving greater attention to employee lifestyles. For instance, it offers programs to help Hydro employees reduce smoking and improve their physical fitness — measures designed to benefit both employer and employee.

During the year, the President reinforced the Corporation's health and safety efforts by instituting a more effective President's Safety Award procedure, continuing his personal involvement in reviews of serious accidents and issuing a new Corporate policy for health and safety. This policy directs that all risks to the health and safety of employees and the public resulting from Hydro's operations be as low as reasonably achievable, taking both social and economic factors into account.

Safety efforts included making a film to show linemen correct use of fall arresting equipment (top).

Newly hired nuclear station staff receive "hands on" training before assignment to job locations (left).

Research provides answers

During the year, Hydro's research staff continued to apply their expertise to finding solutions to technical and environmental problems associated with development and operation of the power system. And development work related to electricity's potential role in future technologies reached into new areas.

Environmental protection continued to be a focus of activity in 1982. Acid rain research included study of the interactions of clouds and acidic pollutants, modelling of long-range atmospheric transport and development of an instrument assembly for measuring the deposition of acidic pollutants at ground level. Development of systems for excluding fish from generating station cooling water intakes continued. One such system, employing a rope net behavioral barrier, has been recommended for Bruce B. As well, tests of a slotted intake developed for Darlington promise good performance.

Continuing its participation in Atomic Energy of Canada Limited's radioactive waste management program, Hydro undertook design, welding, remote inspection and corrosion studies for containers to be used to isolate and protect irradiated fuel for transportation and underground storage.

Fusion project

The expertise which Ontario Hydro has developed in the handling of tritium and deuterium will be applied in the Canadian Fusion Fuels Technology Project, established in April, 1982 as a joint program by Hydro, the Ministry of Energy and the National Research Council of Canada. As project manager, Hydro is participating in the development of Canadian scientific and technological expertise in the areas of fusion fuel systems, materials technology, equipment development and health and environmental programs.

Hydro's participation in the project will permit access to international fusion work and provide business opportunities in related high technology fields for Canadian industry.

Utilization studies

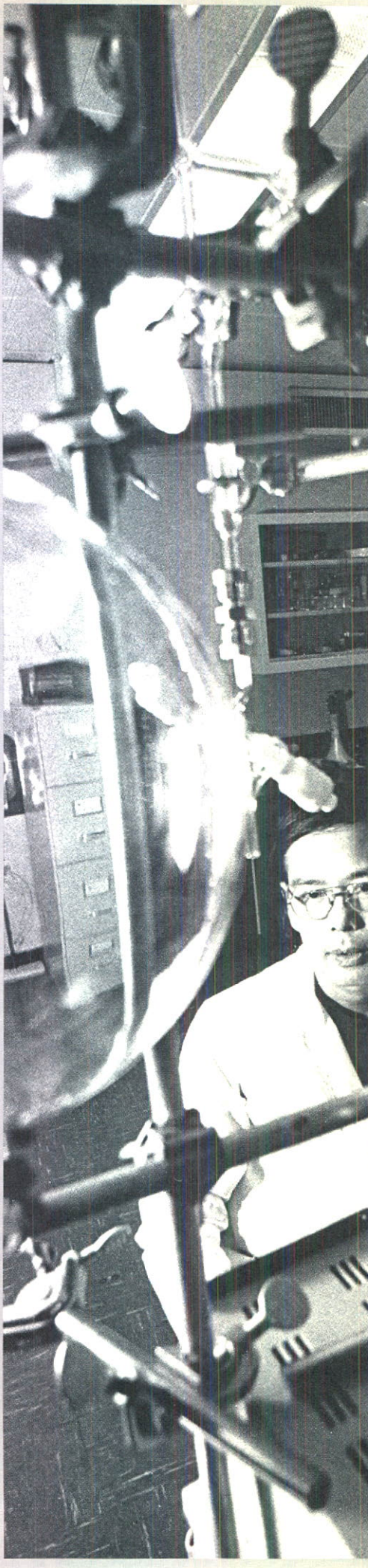
In anticipation of a greater provincial reliance on electricity during the next decade, utilization studies continued for developing ways of reducing costs of electrical applications without sacrificing safety, performance or reliability. Work included development and assessment of dual-fuel heating systems and of air, water and earth source heat pumps.

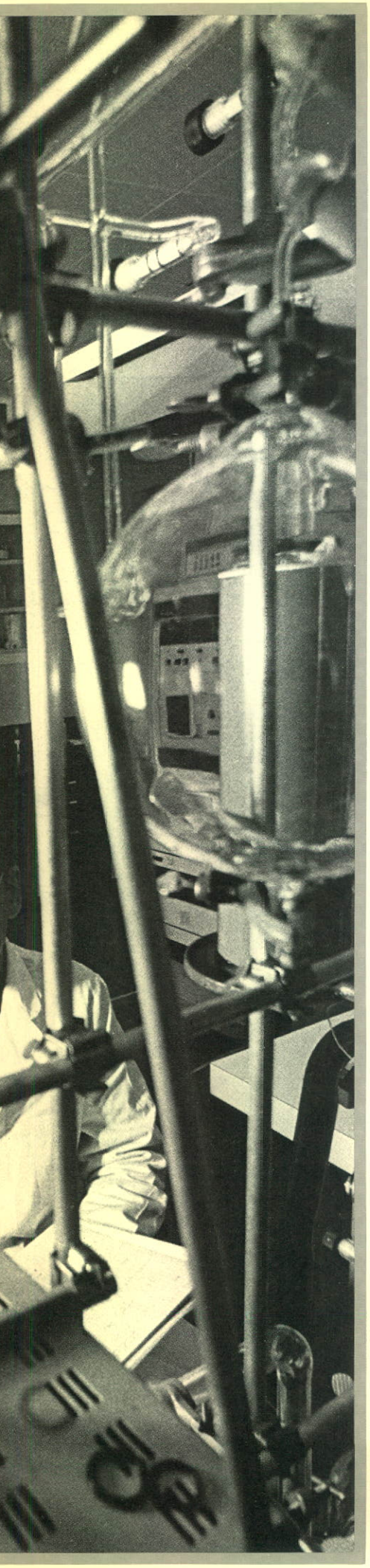
Electrical testing and development work increased in line with the organization's increasing emphasis on assisting customers to make the most economic use of available electrical capacity. Projects under way during the year included distribution system automation, load management and data acquisition, and design development of overhead and underground lines.

Alternative energies

Research and development activities continued in a number of alternative energy areas including propane and electric vehicles, energy storage devices, coal liquefaction, ethanol, methane, wind, biomass, cogeneration, solar cells and solar water heaters.

In a joint venture with the National Research Council, Ontario Hydro is involved in a five-year evaluation program for photovoltaic systems. At Atikokan, a remote monitor continuously samples the air quality at Finlayson Lake and transmits the data to Atikokan Generating Station, 14 km (nine miles) away. The 300 watts of electricity required to operate this monitor is generated by a 37-square metre (44 square yard) photovoltaic array, the largest in Canada. Huge energy storage batteries carry the system through sunless periods.





Skills in wide demand

The expertise of Ontario Hydro staff continued to be in demand around the world.

Skills were supplied to a number of utilities and agencies in other countries. As well, a number of their staff, including 26 thermal power plant supervisors from Indonesia, came to study Hydro's operations. During the year, Hydro received about $9 million in revenue from these activities.

In the fall of 1980, Hydro entered into an agreement with Atomic Energy of Canada Limited (AECL) to supervise the commissioning of a 600,000-kilowatt Candu station that AECL was building for the Korea Electric Power Corporation at Wolsung. A team of 35 Hydro employees is now finishing up this assignment and all but 11 will return home by the end of April, 1983. The remaining team members will act as consultants to Korean plant staff for 12 more months.

Since November, 1981, 13 Hydro people have been in Argentina performing commissioning duties on the 600,000-kilowatt Candu reactor being built by the Comision National de Energia Atomica.

The Hydro staff are part of AECL's commissioning team and are responsible for the training of maintenance and operating staff there as well.

Nine Ontario Hydro staff are currently training hydro-electric operators and maintenance employees for the Volta River Authority (VRA) in Ghana. The project, funded through the Canadian International Development Agency (CIDA), also involves a data processing audit requested by VRA and the development of terms of reference for a management audit of the VRA.

Under two other CIDA projects, an eight-member Hydro team is training high voltage transmission maintenance staff for the Water and Power Development Authority of Pakistan, and a Hydro employee is advising the Kenyan government on rural electrification.

Hydro is considering collaboration with Canadian consulting engineering firms on a number of other specially funded transmission, distribution and training projects in foreign countries. As well, Hydro is working with Canadian firms interested in installing solar water heating systems in Kenya and Greece.

Gas chromatograph is used for hundreds of chemical analysis jobs like determining whether oils are free of PCBs and ready for disposal.

Ontario Hydro

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(As at December 31, 1982)

Financial Review

Ontario Hydro's revenues in 1982 totalled $3,388 million. Primary sales of electricity to customers in Ontario amounted to $2,969 million, while secondary sales mainly to United States utilities totalled $419 million in 1982. Primary revenues increased 8.5% or $232 million over 1981 due to a 9.6% increase in power rates, partially offset by a 1.1% decrease in the volume of sales. Secondary revenues decreased $6 million largely due to lower demand for export electricity and transmission limitations with United States utilities. The income from these export sales reduced the costs to customers in Ontario by approximately $163 million or 5.1%.

The average increase in the cost of electricity to customers in Ontario during 1982 was below the 1982 inflation rate. The average increase in rates for municipal utilities was 9.6%, while the average rate increases for direct industrial customers and rural retail customers were 10.0% and 8.7%, respectively. Under an amendment to the Power Corporation Act, commencing in 1982, Ontario Hydro reduced the differential between rural retail and municipal utility residential rates to 15 per cent. In 1982, discounts amounting to $33 million were provided to rural residential customers and recovered from primary customers supplied with electricity by Ontario Hydro. The volume of primary energy sales in 1982 was lower than in 1981. The 1982 sales to municipal utilities and rural retail customers increased 0.8% over 1981. This increase was more than offset by the 11.5% decline in 1982 sales to direct industrial customers reflecting the economic downturn in 1982.

Ontario Hydro's total operating costs in 1982 amounted to $3,039 million compared to $2,755 million in 1981, an increase of 10.3%. Costs increased largely as a consequence of escalating prices for fossil fuels, and continuing inflationary pressure on the costs of labour, materials and purchased services.

Energy related costs including fuel and purchased power increased 14.5% over 1981. Electric energy generated by nuclear stations supplied 31% of total energy to the system in 1982, while hydraulic stations and fossil-fueled generation each provided another 31%. The balance of energy available was provided by purchases of power from interconnected utilities. The cost of fuel used for electric generation from all sources totalled $902 million in 1982, an increase of $136 million over 1981. This increase was largely because of the higher cost of fossil-fueled generation and the inclusion of a provision of $56 million for irradiated nuclear fuel disposal costs commencing in 1982. Purchases of power in 1982 amounted to $128 million, the same as in 1981. Payments to Atomic Energy of Canada Limited and the Province of Ontario, as required under the nuclear payback agreement, totalled $65 million in 1982, an increase of $2 million over 1981. These payments were made in proportion to the capital contributions of these parties to the construction of the Pickering Nuclear Generating Station units 1 and 2, and reflect the continuing advantage of nuclear over coal-fired generation.

During 1982, costs associated with the operation, maintenance and administration of Ontario Hydro's in-service facilities amounted to $854 million. The increase of $89 million over 1981 was primarily the result of escalation in labour and other costs, and increases in the cost of operating and maintaining new generation and transmission facilities.

Depreciation costs charged to operations totalled $348 million in 1982, an increase of $23 million or 7.1% over 1981. The primary factor contributing to this increase was additional facilities being placed in service, including Thunder Bay GS unit 3 and expanded transmission facilities. In addition, commencing in 1982, depreciation costs for the year included a provision of $14 million for decommissioning of nuclear generating facilities. These increases were partially offset by the impact of extensions in the service lives implemented in 1982 for these facilities.

Interest and foreign exchange costs charged to operations totalled $743 million in 1982, $34 million or 4.8% higher than 1981. These higher financing costs resulted from a $15 million increase in interest costs charged to operations and a $19 million increase in foreign exchange costs during the year. The increase in interest costs charged to operations reflected the net impact of a $338 million increase as a result of borrowings during 1982 for the capital construction and heavy water production programs, offset by a $323 million increase in interest capitalized as a cost of constructing new facilities and producing heavy water. The increase in foreign exchange costs reflected the higher level of the Corporation's foreign debt repayable within one year.

Net income for 1982 was $348 million, $58 million lower than in 1981. As required by the Power Corporation Act, $168 million of net income was appropriated for debt retirement purposes in 1982. The remaining $180 million balance of 1982 net income was appropriated to the Reserve for the Stabilization of Rates and Contingencies. The resulting interest coverage and debt ratio indicators of Ontario Hydro's financial soundness are:

Financial indicators	1982	1981
Interest coverage	1.20	1.30
Debt ratio	.845	.841

The funds required by Ontario Hydro to finance the construction

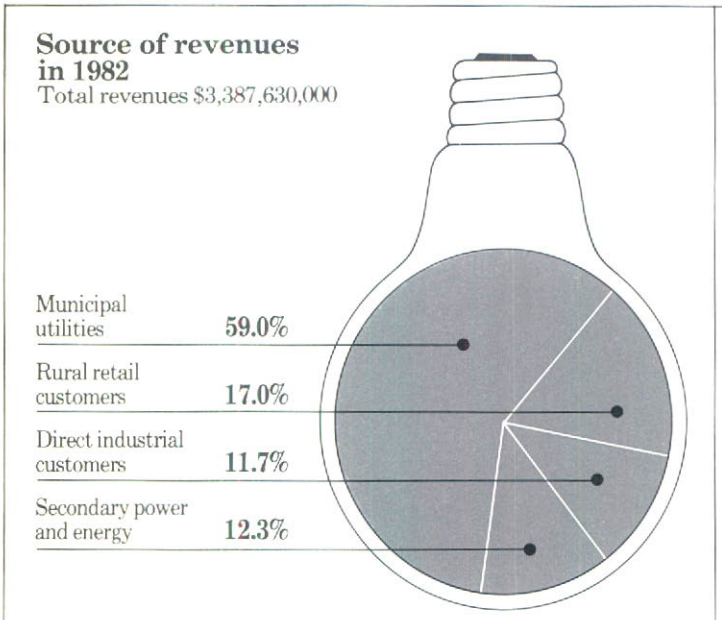
of fixed assets were provided from two major sources, operations and debt financing. In 1982, funds from operations provided $781 million of Hydro's total requirements, while $2,214 million was provided by debt financing. Compared to 1981, these amounts were $30 million and $498 million higher, respectively.

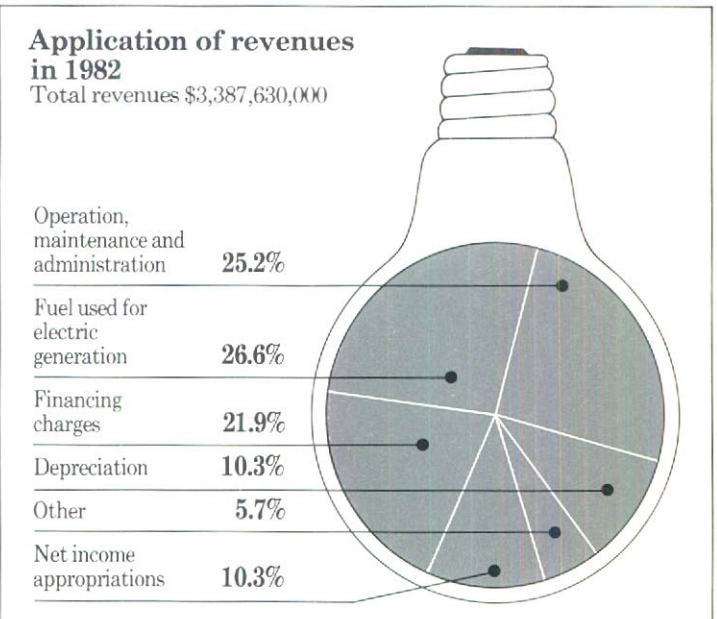
Bonds, notes and other long-term debt issued by Ontario Hydro during 1982 totalled $2,845 million. Canadian bonds of $1,120 million were sold during 1982. In addition, United States bond issues of U.S. $700 million (Cdn. $861 million) and Eurodollar bond issues of U.S. $700 million (Cdn. $863 million) were issued. The average coupon interest rate for bonds issued in 1982 was 14.6% compared to 15.2% in 1981. Maturing long-term debt amounted to $403 million in 1982 compared to $345 million in 1981. In addition, during 1982, a net amount of $228 million of debt was redeemed as part of Hydro's program to support the secondary market for its securities. This compares to net redemptions of $185 million in 1981.

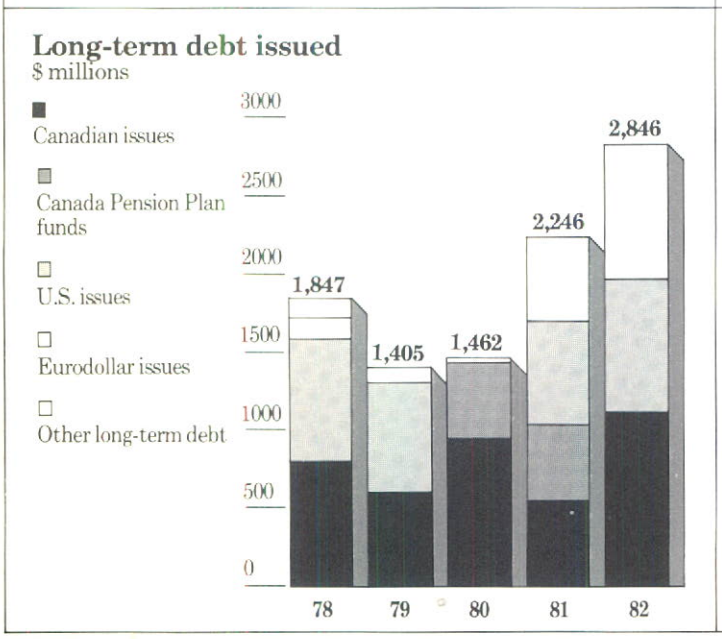
Net additions to fixed assets were $2,883 million during 1982. Major capital expenditures were $2,487 million for generation facilities including $359 million for heavy water, $291 million for transmission and distribution facilities, and $105 million for administration and service facilities. Net additions were $739 million higher than those in 1981, mainly the result of increased expenditures of $756 million on generation facilities, offset by decreased expenditures of $53 million on heavy water production facilities. The expenditures on major generation projects under construction during 1982 and 1981 were:

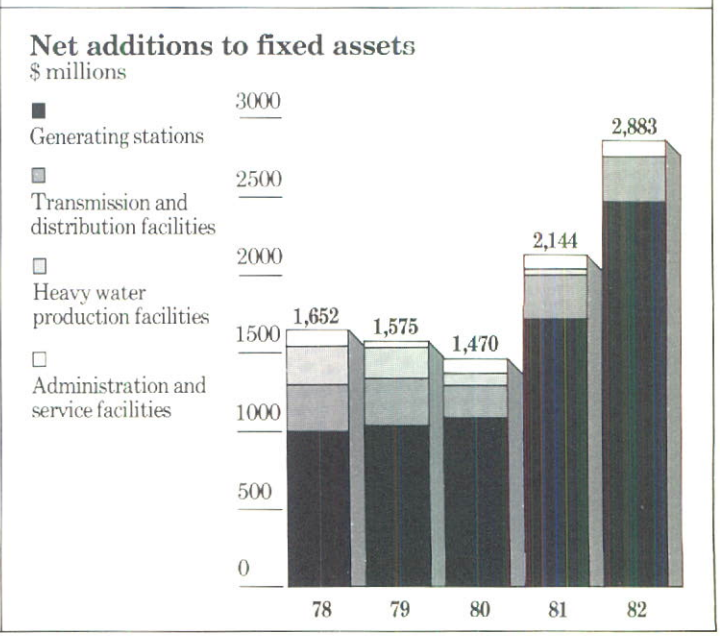
	1982	1981
	Expenditures $ millions	
Nuclear generation		
Bruce "B"	850	628
Pickering "B"	467	368
Darlington	381	196
Fossil generation		
Atikokan	178	93
Thunder Bay	29	72

During 1982, the final coal-fired unit at the Thunder Bay Generating Station was placed in service at a cost of $180 million.









Summary of Significant Accounting Policies

The accompanying financial statements have been prepared by management in accordance with generally accepted accounting principles in Canada which, except for the change in accounting policy described under "Fixed assets", have been applied on a basis consistent with that of the preceding year. In management's opinion, the financial statements have been properly prepared within reasonable limits of materiality and in the light of information available up to March 14, 1983. To assist the reader in understanding the financial statements, the Corporation's significant accounting policies are summarized below:

Rate-setting

Ontario Hydro has broad powers to generate, supply and deliver electric power throughout the Province of Ontario. The Corporation operates under the Power Corporation Act and is subject to provisions of the Ontario Energy Board Act.

Under the provisions of the Power Corporation Act, the price payable by customers for power is the cost of supplying the power. Such cost is defined in the Act to include the cost of operating and maintaining the system, depreciation, interest, and the amounts appropriated for debt retirement and stabilization of rates and contingencies. The debt retirement appropriation is the amount required under the Act to accumulate in 40 years a sum equal to the debt incurred for the cost of the fixed assets in service. The appropriation for, or withdrawal from, the stabilization of rates and contingencies reserve is an amount established to maintain a sound financial position and to stabilize the effect of cost fluctuations.

Under the provisions of the Ontario Energy Board Act, a public hearing before the Ontario Energy Board is required in respect of any changes in electricity rates proposed by Ontario Hydro which affect its municipal utilities, direct industrial customers, or, if the Minister of Energy so directs, rural retail customers. The Ontario Energy Board submits its recommendations to the Minister of Energy. After considering the recommendations of the Ontario Energy Board, the Board of Directors of Ontario Hydro under the authority of the Power Corporation Act establishes the electricity rates to be charged to customers. If the Board of Directors specifies a certain cost or gain is to be included in future electricity rates, that would otherwise be charged or credited to operations in the current year, then this cost or gain is deferred and amortized to future operations on a basis consistent with its inclusion in rates.

Fixed assets

Fixed assets are capitalized at cost which is comprised of material, labour and engineering costs, plus overheads, depreciation on service equipment and interest applicable to capital construction activities. In the case of generation facilities, cost also includes the net cost of commissioning, and for nuclear generation, the cost of heavy water. The net cost of commissioning is the cost of start-up less the value attributed to energy produced by generating units during their commissioning period. The cost of heavy water is the direct cost of production and applicable overheads, plus interest and depreciation on the heavy water production facilities. Leases which transfer the benefits and risks of ownership of assets to Ontario Hydro are capitalized.

Interest is capitalized on construction in progress at rates (1982 – 13.9% and 1981 – 11.5%) which approximate the average cost of long-term funds borrowed in the years in which expenditures have been made for fixed assets under construction. If the construction period of a project is extended and the construction activities are continued, interest is capitalized during the period of extension provided that the project has a reasonable expectation of completion. Prior to January 1, 1982, if it was decided to significantly extend the construction period of a project, interest was not capitalized on construction during the period of extension. This change has been applied on a prospective basis because of the nature of the environment in which Ontario Hydro establishes its electricity rates. The effect of this change on net income for the year ended December 31, 1982 is insignificant.

If a project is deferred and construction activities are halted, interest is not capitalized during the period of deferral. If a project is cancelled, or deferred indefinitely with a low probability of construction being resumed in the future, all costs, including the costs of cancellation, are written off to operations unless, in accordance with its rate-setting authority, the Board of Directors of Ontaro Hydro specifies such costs be amortized as a cost of operations in future years for recovery through future electricity rates. If fixed assets are mothballed for future use, the associated mothballing costs are charged to operations.

Depreciation

Fixed assets in service are depreciated on a straight-line basis. Depreciation rates for the various classes of assets are based on their estimated service lives, which are subject to periodic review. Changes in service life estimates are implemented on a remaining service life basis from the year the change is reflected in electricity rates. The estimated service lives of assets in the major classes are:

Generation	
hydraulic	65 to 100 yrs.
fossil	25 to 35 yrs. (1981–30 yrs.)
nuclear	40 yrs. (1981–30 yrs.)
Heavy water	over the period ending in the year 2040 (1981–2030)
Transmission and distribution	20 to 55 yrs.
Administration and service	5 to 60 yrs.
Heavy water production facilities	11 to 20 yrs. (1981–20 yrs.)

Summary of significant accounting policies continued

In accordance with group depreciation practices, for normal retirements the cost of fixed assets retired is charged to accumulated depreciation with no gain or loss being reflected in operations. However, gains and losses on sales of fixed assets, and losses on premature retirements are charged to operations in the year incurred as adjustments to depreciation expense.

When the costs of removal less proceeds on retirement of fixed assets can be reasonably estimated and are significant, the amounts are charged to operations over the remaining service life of the fixed assets; otherwise the amounts are charged to operations in the year incurred as adjustments to depreciation expense. As a result of studies on the estimated costs of removal and expected proceeds on retirement of nuclear generating stations, commencing January 1, 1982, the estimated costs of decommissioning nuclear stations are charged to operations over their remaining service lives on an annuity basis. Changes in these estimated costs arising from periodic reviews are implemented on the remaining service life basis from the year the changes are reflected in electricity rates.

Fixed assets removed from service and mothballed for future use are amortized so that any estimated loss in value is charged to operations on a straight-line basis over their expected non-operating period.

Deferred construction projects are amortized so that any estimated loss in value is charged to operations on a straight-line basis over their expected deferral period. On disposal of component parts during the deferral period, the cost of fixed assets less proceeds on disposal are normally charged to accumulated amortization with no gain or loss being reflected in operations.

Unamortized advances for fuel supplies

As part of its program to ensure the adequate supply of fuels for its generating stations, Ontario Hydro has entered into long-term fuel supply contracts. Where these contracts require Ontario Hydro to make payments for pre-production costs to suppliers in advance of product delivery, these payments and associated costs, including interest, are carried in the accounts as unamortized advances for fuel supplies. The advances are amortized to fuel inventory as the fuels are delivered.

Fuel for electric generation

Fuel used for electric generation is comprised of the average inventory costs of fuel consumed, charges for commissioning energy produced, and provisions for disposal of nuclear fuel irradiated during the period. The inventory cost of fuel consumed is comprised of fuel purchases, transportation and handling costs, and the amortization of advances for fuel supplies. Transportation costs include charges for interest and depreciation on railway equipment owned by Ontario Hydro. The charges for commissioning energy produced during the period represent the incremental operating and fuel costs of producing the same quantity of energy at generating units displaced because of the commissioning activity. As a result of studies on the estimated costs of disposal of irradiated nuclear fuel, commencing January 1, 1982, the estimated costs for disposal of nuclear fuel irradiated in each period are charged to operations on an annuity basis. The estimated costs for disposal of fuel irradiated prior to January 1, 1982, are amortized to operations on an annuity basis over a ten year period. Changes in estimated costs resulting from periodic reviews are implemented from the year the changes are reflected in electricity rates.

Unamortized debt discount

Debt discounts or premiums arising on the issuance of debt are amortized over the period to maturity of the debt. In addition, redemption discounts or premiums on debt acquired prior to the date of maturity are amortized over the period from the acquisition date to the original maturity date of the debt.

Nuclear agreement – Pickering units 1 and 2

Ontario Hydro, Atomic Energy of Canada Limited and the Province of Ontario are parties to a joint undertaking for the construction and operation of units 1 and 2 of Pickering Nuclear Generating Station, with ownership of these units being vested in Ontario Hydro. Contributions to the capital cost by Atomic Energy of Canada Limited and the Province of Ontario amounted to $258 million and these have been deducted in arriving at the value of fixed assets in service in respect of Pickering units 1 and 2. Ontario Hydro is required to make monthly payments until the year 2001 to each of the parties in proportion to their capital contributions. These payments, termed "payback", represent in a broad sense the net operational advantage of having the power generated by Pickering units 1 and 2 as compared with coal-fired units similar to Lambton units 1 and 2.

Foreign currency translation

Long-term debt payable in foreign currencies is translated to Canadian currency at rates of exchange at the time of issue. Current monetary assets and liabilities, including long-term debt payable within one year, are translated to Canadian currency at year-end rates of exchange and the resulting gains or losses, together with realized exchange gains or losses, are credited or charged to operations.

Pension plan

The pension plan is a contributory, defined benefit plan covering all regular employees of Ontario Hydro. The pension costs, as actuarially determined, include current service costs and amounts required to amortize any surpluses or unfunded liabilities. Pension plan surpluses or unfunded liabilities are amortized over a fifteen year period.

Research and development

Research and development costs are charged to operations in the year incurred, except for those related directly to the design or construction of a specific capital facility.

Statement of Operations

for the year ended December 31, 1982

	1982	1981
	$'000	$'000
Revenues		
Primary power and energy (note 1)		
Municipal utilities	**1,997,752**	1,800,129
Rural retail customers	**575,784**	545,760
Direct industrial customers	**395,250**	391,038
	2,968,786	2,736,927
Secondary power and energy (note 2)	**418,844**	424,581
	3,387,630	3,161,508
Costs		
Operation, maintenance and administration	**853,569**	764,712
Fuel used for electric generation	**902,089**	765,429
Power purchased	**127,519**	127,919
Nuclear agreement – payback	**65,334**	62,801
Depreciation (note 3)	**347,779**	324,596
	2,296,290	2,045,457
Income before financing charges	**1,091,340**	1,116,051
Interest (note 4)	**672,503**	657,490
Foreign exchange (note 5)	**70,418**	51,743
	742,921	709,233
Net income	**348,419**	406,818
Appropriation for:		
Debt retirement as required by the Power Corporation Act	**168,015**	152,766
Stabilization of rates and contingencies	**180,404**	254,052
	348,419	406,818

See accompanying summary of significant accounting policies and notes to financial statements.

Statement of Financial Position

as at December 31, 1982

Assets	1982	1981
	$'000	$'000
Fixed assets		
Fixed assets in service (note 6)	**13,073,735**	12,489,659
Less accumulated depreciation	**3,186,729**	2,787,400
	9,887,006	9,702,259
Construction in progress (note 6)	**7,712,599**	5,381,265
Deferred construction projects (note 10)	**–**	364,001
	17,599,605	15,447,525
Current assets		
Cash and short-term investments (note 7)	**452,200**	408,441
Accounts receivable	**364,277**	373,309
Fuel for electric generation (note 8)	**801,842**	681,320
Materials and supplies, at cost	**199,489**	157,421
	1,817,808	1,620,491
Other assets		
Unamortized advances for fuel supplies (note 9)	**758,823**	596,824
Unamortized deferred costs (note 10)	**394,793**	–
Unamortized debt discount	**58,893**	72,785
Long-term accounts receivable and other assets	**90,910**	91,996
	1,303,419	761,605
	20,720,832	17,829,621

See accompanying summary of significant accounting policies and notes to financial statements.

Liabilities	1982	1981
	$'000	$'000
Long-term debt		
Bonds and notes payable (note 11)	**16,089,328**	13,840,051
Other long-term debt (note 12)	**241,159**	260,300
	16,330,487	14,100,351
Less payable within one year	**448,537**	437,769
	15,881,950	13,662,582
Current liabilities		
Accounts payable and accrued charges	**562,223**	475,292
Short-term notes payable	**112,949**	97,200
Accrued interest	**521,094**	400,639
Long-term debt payable within one year	**448,537**	437,769
	1,644,803	1,410,900
Other liabilities		
Long-term accounts payable and accrued charges	**80,753**	66,486
Accrued irradiated fuel disposal and plant decommissioning costs (note 13)	**75,644**	–
	156,397	66,486
Contingencies (notes 6 and 14)		
Equity		
Equities accumulated through debt retirement appropriations	**1,971,458**	1,803,662
Reserve for stabilization of rates and contingencies	**939,529**	759,296
Contributions from the Province of Ontario as assistance for rural construction	**126,695**	126,695
	3,037,682	2,689,653
	20,720,832	17,829,621

On behalf of the Board

Hugh Macaulay M. Nastich

Chairman President

Toronto, Canada,
March 14, 1983.

Statement of Equities Accumulated through Debt Retirement Appropriations for the year ended December 31, 1982

	Municipal Utilities	Power District (Rural Retail and Direct Industrial Customers)	Totals	
			1982	1981
	$'000	$'000	$'000	$'000
Balances at beginning of year	1,265,705	537,957	1,803,662	1,651,937
Debt retirement appropriation	114,501	53,514	168,015	152,766
Transfers and refunds on annexations by municipal utilities	1,367	(1,586)	(219)	(1,041)
Balances at end of year	1,381,573	589,885	1,971,458	1,803,662

Statement of Reserve for Stabilization of Rates and Contingencies

for the year ended December 31, 1982

	Held for the benefit of all customers	Held for the benefit of (or recoverable from) certain groups of customers			Totals	
		Municipal Utilities	Rural Retail Customers	Direct Industrial Customers	1982	1981
	$'000	$'000	$'000	$'000	$'000	$'000
Balances at beginning of year	761,463	1,144	(1,375)	(1,936)	759,296	505,645
Appropriation	186,709	127	(8,191)	1,759	180,404	254,052
Transfers and recoveries on annexations by municipal utilities	(45)	–	1	–	(44)	(288)
Payment to Ontario Municipal Electric Association (note 15)	–	(127)	–	–	(127)	(113)
Balances at end of year	948,127	1,144	(9,565)	(177)	939,529	759,296

See accompanying summary of significant accounting policies and notes to financial statements.

Statement of Changes in Financial Position

for the year ended December 31, 1982

	1982	1981
	$'000	$'000
Source of Funds		
Operations		
Net income	**348,419**	406,818
Charges not requiring funds in the current year:		
Depreciation	**347,779**	324,596
Provision for irradiated fuel disposal costs	**56,708**	–
Other	**28,225**	19,605
	781,131	751,019
Financing		
Long-term debt		
Bonds and notes payable and other long-term debt issued	**2,845,624**	2,246,160
Less retirements	**631,490**	529,956
	2,214,134	1,716,204
Short-term notes payable – increase (decrease)	**15,749**	(47,325)
Cash and short-term investments – (increase)	**(43,759)**	(169,323)
	2,186,124	1,499,556
Accounts payable and accrued interest – increase	**207,386**	136,752
Long-term accounts payable and accrued charges – increase	**14,267**	16,824
Accounts receivable and other assets – decrease (increase)	**16,333**	(3,188)
	3,205,241	2,400,963
Application of funds		
Net additions to fixed assets (note 16)	**2,883,039**	2,144,210
Unamortized advances for fuel supplies – increase	**161,999**	182,719
Fuel, materials and supplies – increase	**160,203**	74,034
	3,205,241	2,400, 963

See accompanying summary of significant accounting policies and notes to financial statements.

Notes to Financial Statements

1. Primary power and energy

Under an amendment to the Power Corporation Act, commencing in 1982, Ontario Hydro is required to reduce the expected differential in each year between rural retail and municipal utility residential rates to 15 per cent. In 1982, discounts amounting to $33 million were provided to rural residential customers and recovered from primary customers. In 1981, discounts amounting to $20 million were recovered from the Province of Ontario and included in rural retail revenues.

2. Secondary power and energy

Secondary power and energy is comprised mainly of revenues of $418 million in 1982 (1981 – $423 million) from sales of electricity to United States utilities.

3. Depreciation

	1982	1981
	$'000	$'000
Depreciation of fixed assets in service	452,189	382, 475
Amortization of deferred construction projects	15,508	16,323
Provision for plant decommissioning costs	14,000	–
Costs of removal less salvage proceeds on retirements	7,508	4,054
	489,205	402,852
Less:		
Depreciation charged to – heavy water production	108,754	50,672
– construction in progress	23,733	21,308
– fuel for electric generation	2,387	2,266
Net gains on sales of fixed assets	6,552	4,010
	141,426	78,256
	347,779	324,596

Depreciation of fixed assets in service includes $15 million (1981 – $13 million) for the amortization of non-operating generating units which have been mothballed. (See note 6.)

4. Interest

	1982	1981
	$'000	$'000
Interest on bonds, notes, and other debt	1,702,607	1,369,933
Interest on accrued irradiated fuel disposal and plant decommissioning costs	4,936	–
	1,707,543	1,369,933
Less:		
Interest charged to – construction in progress	758,622	472,596
– heavy water production	127,042	96,537
– unamortized advances for fuel supplies	53,792	43,429
– fuel for electric generation	28,116	15,196
Interest earned on investments	67,468	84,685
	1,035,040	712,443
	672,503	657,490

5. Foreign exchange

	1982	1981
	$'000	$'000
Exchange loss on redemption and translation of foreign long-term debt	66,317	40,742
Net exchange loss on other foreign transactions	4,101	11,001
	70,418	51,743

6. Fixed assets

	1982			1981		
		$'000			$'000	
	Assets in Service	Accumulated Depreciation	Construction in Progress	Assets in Service	Accumulated Depreciation	Construction in Progress
Generation – hydraulic	1,755,915	452,953	26,404	1,747,545	421,769	8,454
– fossil	2,797,302	804,473	392,697	2,579,429	717,339	407,132
– nuclear	1,950,220	366,665	5,878,047	1,902,932	309,839	4,059,144
Heavy water	594,007	85,984	1,028,890	590,670	77,264	564,022
Transmission and distribution	3,953,425	932,118	297,825	3,680,004	852,513	302,254
Administration and service	667,011	268,271	65,384	602,988	234,781	40,259
Heavy water production facilities	1,355,855	276,265	23,352	1,386,091	173,895	–
	13,073,735	3,186,729	7,712,599	12,489,659	2,787,400	5,381,265

Five units at the R. L. Hearn Generating Station and four units (1981 – two units) at the Lennox Generating Station are mothballed. The capital cost and accumulated depreciation of these non-operating units, amounting to $562 million and $162 million, respectively (1981 – $268 million and $89 million, respectively), are included in fossil generation assets in service. At this time it is uncertain if, or when, these units will resume operation.

Construction in progress at December 31, 1982 is comprised of:

	Remaining Number of Units Scheduled	Planned In-Service Dates	Dependable Capacity to be Placed in Service	Costs Incurred to December 31, 1982	Estimated Costs to Complete (Excluding Escalation and Interest)
			MW	$ millions	$ millions
Nuclear generating stations (including heavy water)					
Pickering "B"	4	1983-85	2,064	2,812	330
Bruce "B"	4	1984-87	3,000	3,045	1,200
Darlington	4	1988-92	3,524	771	4,120
Fossil generating station					
Atikokan	1	1984	206	361	170
All other construction in progress	–	–	–	724	–
				7,713	

The above estimates are the most recent forecasts as of March 14, 1983. These estimates exclude cost escalation and interest which are forecast to average 10.0% and 14.2% per year, respectively, over the period 1983 to 1992. Because of the uncertainties associated with long construction lead times and planned in-service dates, these costs to complete are subject to change.

7. Cash and short-term investments

	1982	1981
	$'000	$'000
Cash and interest bearing deposits with banks and trust companies	431,459	293,059
Corporate notes	5,278	76,285
Government and government-guaranteed securities	15,463	39,097
	452,200	408,441

Corporate notes were recorded at cost which approximates market value. Government and government-guaranteed securities were recorded at the lower of cost or market value; market value as at December 31, 1982 was $17 million (1981 – $39 million).

8. Fuel for electric generation	1982	1981
	$'000	$'000
Inventories – coal	590,268	488,048
– uranium	200,177	154,977
– oil	11,397	38,295
	801,842	681,320

9. Unamortized advances for fuel supplies	1982	1981
	$'000	$'000
Coal	113,010	111,576
Uranium	645,813	485,248
	758,823	596,824

Based on present commitments, additional advance payments for fuel supplies will total approximately $149 million over the next five years, including approximately $95 million in 1983.

10. Unamortized deferred costs	1982	1981
	$'000	$'000
Bruce Heavy Water Plant "D"	353,393	–
Wesleyville Generating Station	41,400	–
	394,793	–

Bruce Heavy Water Plant "D"
As a result of recent forecasts projecting reduced heavy water production requirements, the Board of Directors decided that effective December 31, 1982, Bruce Heavy Water Plant "D" be considered an indefinitely deferred project with a low probability of construction being resumed in the future. Furthermore, the Board specified that the amortization of the capital cost of this project continue at an annual rate of 4% in 1983, and the unamortized cost as at January 1, 1984 be amortized for recovery through rates at an annual rate of 10% over the period 1984 to 1993. This unamortized cost was included in deferred construction projects as at December 31, 1981.

Wesleyville Generating Station
As a result of a recent review, the estimated value of the remaining assets of the Wesleyville Generating Station project was reduced by $41 million, effective December 31, 1982. Furthermore, the Board of Directors specified that the $41 million be amortized for recovery through rates at an annual rate of 10% over the period 1984 to 1993. This unamortized cost was included in construction in progress as at December 31, 1981.

11. Bonds and notes payable

Bonds and notes payable, expressed in Canadian dollars, are summarized by years of maturity and by the currency in which they are payable in the following table:

	1982				1981	
Years of Maturity		Principal Outstanding $'000		Weighted Average Coupon Rate	Principal Outstanding $'000	Weighted Average Coupon Rate
	Canadian	Foreign	Total		Total	
1982	—	—	—		419,561	
1983	178,399	250,248	428,647		372,949	
1984	99,277	111,697	210,974		214,173	
1985	564,117	290,978	855,095		858,143	
1986	—	145,982	145,982		148,118	
1987	721,411	199,287	920,698		—	
1 - 5 years	1,563,204	998,192	2,561,396	10.8%	2,012,944	9.0%
6 - 10 years	424,823	2,384,875	2,809,698	12.9	1,438,805	11.7
11 - 15 years	670,074	373,247	1,043,321	8.1	890,081	8.3
16 - 20 years	2,542,616	559,828	3,102,444	11.3	2,957,761	10.7
21 - 25 years	1,407,807	1,307,806	2,715,613	9.5	2,454,611	9.6
26 - 30 years	1,706,000	2,150,856	3,856,856	11.5	4,085,849	10.8
	8,314,524	7,774,804	16,089,328	11.0	13,840,051	10.3
Currency in which payable:						
Canadian dollars			8,314,524		7,522,271	
United States dollars			7,653,712		6,185,064	
West German Deutsche marks			64,368		75,992	
Swiss francs			56,724		56,724	
			16,089,328		13,840,051	

The bonds and notes payable in United States dollars include $5,108 million (1981 — $4,502 million) of Ontario Hydro bonds held by the Province of Ontario and having terms identical with Province of Ontario issues sold in the United States on behalf of Ontario Hydro. Except for these bonds and $1,000 million (1981 — $1,000 million) of bonds issued to the Province of Ontario with respect to Canada Pension Plan funds advanced to Ontario Hydro, all bonds and notes payable are guaranteed as to principal and interest by the Province of Ontario.

The long-term bonds and notes payable in foreign currencies are translated into Canadian currency at rates of exchange at time of issue. If translated at year-end rates of exchange, the total amount of these liabilities would have to be increased by $848 million at December 31, 1982 (1981 — $681 million).

12. Other long-term debt

	1982	1981
	$'000	$'000
The balance due to Atomic Energy of Canada Limited for the purchase of Bruce Heavy Water Plant "A". Under the purchase agreement, Ontario Hydro pays equal monthly instalments of blended principal and interest to December 28, 1992, with interest at the rate of 7.795%.	175,835	187,107
Capitalized lease obligation for the head office building at 700 University Avenue, Toronto. The lease obligation is for the 30-year period ending September 30, 2005, payable in United States dollars at an effective interest rate of 8%.	41,310	41,889
Capitalized lease obligations for transport and service equipment. Under these agreements, monthly instalments of blended principal and interest will be paid to 1988, at effective interest rates ranging from 6.8% to 18.25%.	24,014	31,304
	241,159	260,300

Payments required on the above debt, excluding interest, will total $99 million over the next five years. The amount payable within one year is $20 million (1981 – $18 million).

13. Accrued irradiated fuel disposal and plant decommissioning costs

	1982	1981
	$'000	$'000
Accrued irradiated fuel disposal costs	60,669	–
Accrued plant decommissioning costs	14,975	–
	75,644	–

Irradiated fuel disposal costs
Studies have been carried out to estimate the costs to be incurred for the disposal of irradiated nuclear fuel. The significant assumptions used in estimating the future irradiated fuel disposal costs were:
- an in-service date of the year 2000 for irradiated nuclear fuel disposal facilities;
- a transportation distance of 1,600 kilometres from nuclear generating facilities to disposal facilities; and
- interest and escalation rates through to the disposal date averaging 9.2% and 7.3%, respectively.

Because of the uncertainties associated with the technology of disposal and the above factors, these costs are subject to change.

Plant decommissioning costs
Studies have been carried out to estimate the costs of decommissioning a nuclear generating station. The significant assumptions used in estimating the future decommissioning costs were:
- decommissioning on the deferred dismantlement basis (dismantlement following storage with surveillance for a 30-year period after shutdown of the reactors);
- a transportation distance of 1,600 kilometres from nuclear generating facilities to disposal facilities; and
- interest and escalation rates through to the completion of decommissioning averaging 8.0% and 6.6%, respectively.

Because of the uncertainties associated with the technology of decommissioning and the above factors, these costs are subject to change.

14. Fuel used for electric generation

Ontario Hydro has contracted with Petrosar Limited for the purchase of 20,000 barrels of residual fuel oil per day through to April 1992. Deliveries in 1982 were 2% (1981 – 6%) of the contract quantities. Amounts have been charged to the costs of operations to provide for settlement with respect to reduced deliveries to date. Petrosar has commenced actions claiming damages for failure to take the contract quantities in 1981 and claiming compensation payments in respect of the failure to take the contract quantities in 1982. Ontario Hydro is defending these actions.

15. Payment to Ontario Municipal Electric Association

The amount of this payment is equivalent to interest on the balance held for the benefit of Municipal Utilities in the Reserve for Stabilization of Rates and Contingencies.

16. Net additions to fixed assets

Net additions to fixed assets are capital construction expenditures less the proceeds on sales of fixed assets. The proceeds on sales of fixed assets in 1982 and 1981 were insignificant. For 1983, net additions to fixed assets are estimated to be $3,176 million.

17. Pension plan

The most recent actuarial valuation of Ontario Hydro's pension plan as at December 31, 1981 reported a surplus of approximately $28 million (December 31, 1980 – $17 million).

The significant actuarial assumptions used in the 1981 valuation (1980 valuation) were:
- rate used to discount future investment income 8.5% (1980 – 8.5%) and future benefits 8% (1980 – 8%);
- salary escalation rate 8% (1980 – 8%);
- average retirement age for males 61.4 (1980 – 61.8) and for females 61.3 (1980 – 60.8); and
- common stocks valuation 5 year average (1980 – 5 year average).

The experience surplus for 1981 of approximately $34 million, partially offset by an additional unfunded liability of approximately $23 million for plan improvements, increased the pension plan surplus by $11 million.

The pension plan costs for 1982 were $70 million (1981 – $60 million).

18. Research and development

In 1982, approximately $61 million of research and development costs were charged to operations and $5 million were capitalized (1981 – $50 million and $5 million, respectively).

19. Comparative figures

Certain of the 1981 comparative figures have been reclassified to conform with the 1982 financial statement presentation.

Auditors' Report

We have examined the statement of financial position of Ontario Hydro as at December 31, 1982 and the statements of operations, equities accumulated through debt retirement appropriations, reserve for stabilization of rates and contingencies and changes in financial position for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests and other procedures as we considered necessary in the circumstances.

In our opinion, these financial statements present fairly the financial position of Ontario Hydro as at December 31, 1982 and the results of its operations and the changes in its financial position for the year then ended in accordance with generally accepted accounting principles. Further, in our opinion, such principles, except for the change in accounting for interest capitalized when a construction project is extended as described in the summary of significant accounting policies, have been applied on a basis consistent with that of the preceding year.

Toronto, Canada,
March 14, 1983.

CLARKSON GORDON
Chartered Accountants

Five Year Summary of Financial Statistics

	1978	1979	1980	1981	1982
Revenues			(in thousands of dollars)		
Primary power and energy					
Municipal utilities	1,275,107	1,441,557	1,603,072	1,800,129	1,997,752
Rural retail customers	442,224	474,795	513,616	545,760	575,784
Direct industrial customers	261,816	305,210	341,785	391,038	395,250
	1,979,147	2,221,562	2,458,473	2,736,927	2,968,786
Secondary power and energy	288,533	346,558	360,742	424,581	418,844
	2,267,680	2,568,120	2,819,215	3,161,508	3,387,630
Less excess revenues[1]	130,292	—	—	—	—
	2,137,388	2,568,120	2,819,215	3,161,508	3,387,630
Operating costs					
Operation, maintenance and administration	501,800	601,422	639,572	764,712	853,569
Fuel used for electric generation[2]	508,903	608,615	674,085	765,429	902,089
Depreciation	265,060	284,610	305,967	324,596	347,779
Other[2]	144,885	151,651	148,528	190,720	192,853
	1,420,648	1,646,298	1,768,152	2,045,457	2,296,290
Income before financing charges and extraordinary item	716,740	921,822	1,051,063	1,116,051	1,091,340
Financing charges					
Interest on bonds, notes and other debt	899,817	1,029,568	1,165,921	1,369,933	1,707,543
Capitalized interest	(304,119)	(341,073)	(401,254)	(627,758)	(967,572)
Investment income	(76,249)	(105,163)	(109,268)	(84,685)	(67,468)
	519,449	583,332	655,399	657,490	672,503
Foreign exchange	29,346	70,875	19,238	51,743	70,418
	548,795	654,207	674,637	709,233	742,921
Income before extraordinary item	167,945	267,615	376,426	406,818	348,419
Extraordinary item	20,500	—	160,000	—	—
Net income	147,445	267,615	216,426	406,818	348,419
Financial position			(in thousands of dollars)		
Total assets	13,162,506	14,513,729	15,593,347	17,829,621	20,720,832
Fixed assets	11,340,961	12,628,842	13,630,177	15,447,525	17,599,605
Long-term debt	10,226,763	11,134,185	12,005,058	13,662,582	15,881,950
Equity	1,802,793	2,069,538	2,284,277	2,689,653	3,037,682
Major sources of funds			(in thousands of dollars)		
Operations[2]	444,575	582,424	692,377	751,019	781,131
Bonds and notes payable and other long-term debt — net increase[2]	1,488,239	1,098,025	862,249	1,716,204	2,214,134
Major application of funds					
Net additions to fixed assets	1,652,043	1,574,716	1,469,550	2,144,210	2,883,039
Unamortized advances for fuel supplies — net increase	45,626	126,680	146,722	182,719	161,999
Financial indicators					
Interest coverage[5]	1.19	1.26	1.32	1.30	1.20
Debt ratio[6]	.853	.848	.846	.841	.845
Return on average rate base (%)[7]	9.4	10.1	10.8	11.3	11.4

	1978	1979	1980	1981	1982
Average revenue per kilowatt-hour[1] [3]		(in mills per kilowatt-hour of total energy sales)			
Primary power and energy					
Municipal utilities	20.81	22.76	24.70	27.10	29.81
Rural retail customers	34.21	36.49	39.70	42.69	44.82
Direct industrial customers	17.72	19.37	20.80	22.90	26.14
Secondary power and energy	27.76	29.72	33.63	38.38	38.95
All classifications combined	22.82	24.75	26.85	29.45	32.04
			(expressed as a %)		
Average rate increases[1]					
Municipal utilities	9.4	9.8	8.6	9.3	9.6
Rural retail customers	9.8	7.0	6.2	11.2	8.7
Direct industrial customers	10.3	10.1	7.1	9.6	10.0
Average cost per kilowatt-hour[3] [4]		(in mills per kilowatt-hour of energy generated)			
Hydraulic					
Operation, maintenance and administration	.86	.98	1.09	1.49	1.68
Fuel - water rentals	.48	.52	.58	.66	.73
Depreciation and financing charges	3.39	3.26	3.24	3.51	3.60
	4.73	4.76	4.91	5.66	6.01
Nuclear					
Operation, maintenance and administration	3.12	3.32	3.49	4.11	4.87
Fuel – uranium	1.61	1.94	2.39	2.32	3.84
Depreciation and financing charges	8.69	9.26	7.65	8.07	8.83
	13.42	14.52	13.53	14.50	17.54
Fossil					
Operation, maintenance and administration	2.98	3.27	3.42	3.74	4.03
Fuel – coal, gas and oil	15.42	17.08	18.56	20.97	23.29
Depreciation and financing charges	6.90	7.15	6.45	6.11	6.84
	25.30	27.50	28.43	30.82	34.16

Footnotes

(1) Ontario Hydro was required by the Province of Ontario to conform with the spirit and intent of the Federal Anti-Inflation program as it applied to net income for the year 1978. Excess revenues were applied to reduce customers' bills in 1979 and 1980. Figures for 1978 are before deduction of excess revenues.

(2) Figures for 1978-1981 have been reclassified to conform with 1982 financial statement presentation.

(3) Figures for 1982 are preliminary.

(4) Average cost per kilowatt-hour represents the costs attributable to generation but excludes the costs related to transmission, distribution and corporate administrative activities. These figures reflect the historical accounting costs of operating facilities and the actual energy generated by these facilities during the year.

(5) Interest coverage represents income before extraordinary item plus gross interest (interest on bonds and notes payable, short-term notes payable, other long-term debt, and accrued irradiated fuel disposal and plant decommissioning costs) less interest on other accrued costs, divided by gross interest.

(6) Debt ratio represents debt (bonds and notes payable, short-term notes payable, other long-term debt, and accrued irradiated fuel disposal and plant decommissioning costs) divided by debt plus equity.

(7) Return on average rate base represents income before extraordinary item plus gross interest (interest on bonds, notes and other debt, and other accrued costs) divided by average rate base (total assets less long-term and current accounts payable and accrued charges, accrued interest, and contributions from the Province of Ontario as assistance for rural construction).

Comparative Statistics

	1978	1979	1980	1981	1982
Customer Statistics (1)		(in millions of kilowatt-hours)			
Primary energy sales					
Municipal utilities	61,285	63,349	64,899	66,416	67,019
Rural retail	12,927	13,011	12,936	12,783	12,848
Direct industrial	14,775	15,757	16,432	17,077	15,119
	88,987	92,117	94,267	96,276	94,986
Secondary energy sales	10,393	11,662	10,727	11,063	10,753
		(in thousands)			
Total Ontario customers:					
Residential	2,411	2,449	2,493	2,528	2,570
Farm	115	113	112	110	110
Commercial and industrial	307	316	322	329	329
	2,833	2,878	2,927	2,967	3,009
		(in kilowatt-hours per customer)			
Average annual use:					
Residential	9,797	9,839	9,821	9,852	9,900
Farm	18,279	19,225	19,978	20,731	21,134
Commercial and industrial	200,601	204,113	202,582	204,575	195,900
		(in cents per kilowatt-hour)			
Average revenue:					
Residential	2.98	3.22	3.60	3.96	4.34
Farm	3.21	3.42	3.74	4.11	4.48
Commercial and industrial	2.17	2.35	2.66	2.92	3.22
Operating Statistics (2)					
Dependable peak capacity ('000 kW)	22,845	24,429	24,457	24,595	24,906
December primary peak demand ('000 kW)	15,722	16,365	16,808	16,600	16,872
Primary energy made available ('000,000 kW•h)	95,373	98,127	100,174	101,659	100,836
Total Staff, average for year	27,850	28,385	28,902	30,850	32,654

Footnotes

(1) Figures for 1982 are preliminary.

(2) Includes mothballed generation: 1979 – 550,000 kW; 1980 – 1,704,000 kW; 1981 – 1,913,000 kW and 1982 – 3,034,200 kW.

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