



ELECTRICAL POWER NORTH OF 60°

Report of the
Subcommittee on the
Northern Canada
Power Commission



J
103
H7
1980/83
N65
A12

House of Commons
Keith Penner, M.P.
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Cover Graphic Design: York Advertising Ltd.

Cover Photos: Canadian Government Photo Centre, National Film Board of Canada

J
103
H7
HOUSE OF COMMONS

CHAMBRE DES COMMUNES

180/83
165
12
Issue No. 40

Fascicule n° 40

Wednesday, April 7, 1982

Le mercredi 7 avril 1982

Chairman: Mr. Keith Penner

Président: M. Keith Penner

*Minutes of Proceedings and Evidence
of the Standing Committee on*

*Procès-verbaux et témoignages
du Comité permanent des*

Indian Affairs and Northern Development

Affaires indiennes et du développement du Nord canadien

RESPECTING:

Order of Reference pertaining to study on operations of
the Northern Canada Power Commission

CONCERNANT:

Ordre de renvoi se rapportant à l'étude sur les
opérations de la Commission d'énergie du Nord
canadien

INCLUDING:

The Fourth Report to the House (Report of the
Sub-committee on the Northern Canada Power
Commission)

Y COMPRIS:

Le quatrième rapport à la Chambre (Rapport du
Sous-comité sur la Commission d'énergie du Nord
canadien)

First Session of the
Thirty-second Parliament, 1980-81-82

Première session de la
trente-deuxième législature, 1980-1981-1982

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Published under authority of the Speaker of the
House of Commons by the Queen's Printer for Canada

Available from the Canadian Government Publishing Centre, Supply and
Services Canada, Hull, Québec, Canada K1A 0S9

Publié en conformité de l'autorité de l'Orateur de la Chambre
des communes par l'Imprimeur de la Reine pour le Canada

En vente: Centre d'édition du gouvernement du Canada,
Approvisionnement et Services Canada, Hull, Québec, Canada K1A 0S9

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FOURTH REPORT

In accordance with its Order of Reference of Thursday, March 5, 1981, your Committee, as instructed, appointed a Sub-committee of seven members to study all aspects of the operations of the Northern Canada Power Commission.

The Sub-committee on the Northern Power Commission has submitted its report to the Committee. Your Committee has adopted this report, the text of which follows:

The Sub-committee on the Northern Canada Power Commission has the honour to present its

FIRST REPORT

In accordance with its Order of Reference from the Standing Committee on Indian Affairs and Northern Development of Thursday, March 12, 1981, the Sub-committee has studied all aspects of the operations of the Northern Canada Power Commission and submits the following report:

Canada. Parliament.
J House of Commons.
103 Sub-Committee on the
H7 Northern Canada Power
1980/83 Commission.

N65	DATE	Electrical power north	NAME — NOM
A12		of 60.	

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SUMMARY OF FINDINGS AND RECOMMENDATIONS

The Subcommittee on the Northern Canada Power Commission of the Standing Committee on Indian Affairs and Northern Development was appointed to study the NCPC because of northerners' concerns about electrical power costs and rate structures, as well as the NCPC's mode of operation and means of regulation. The subcommittee's hearings across the North and other investigations confirmed the validity of these concerns, and the need for action by the Government of Canada to resolve them. (Part II)

The subcommittee's findings and recommendations may be summarized as follows:

Organizational Alternatives (Part III)

In examining present organizational arrangements, the subcommittee found that:

- the territorial governments have almost no legislative and regulatory jurisdiction over the NCPC as a federal Crown corporation;
- the federal government's powers, decision making and budgetary processes do not make the NCPC fully accountable to the people it serves;
- although the NCPC is remote from its consumers and their territorial governments, relocating the NCPC in the North would give rise to some additional costs and long-term commitments; and
- any utility solely serving the North would have difficulty in obtaining all the expertise it needs.

These findings cause the subcommittee to make the following recommendations:

- 1) The federal government should enter into discussions with the territorial governments for the purpose of creating separate territorial Crown corporations to assume present NCPC responsibilities.**

- 2) **The NCPC should be relocated in the North if the alternative of complete federal devolution of the NCPC's responsibilities to the territorial governments is not quickly accepted.**
- 3) **The territorial governments should enter into discussions with the NCPC and the private utilities to determine how they can assist the territorial Crown corporations in discharging their responsibilities.**

The Need for Leadership and Co-ordination in Planning (Part IV)

In examining planning processes, the subcommittee found that:

- planning of electrical power ought to be integrated with the planning for all sources of energy required in the North;
- leadership from the federal and territorial governments needs to be strengthened; and
- the planning processes of the NCPC and the private utilities are good within the limits of their mandates, but greater co-ordination of planning is needed.

These findings cause the subcommittee to make the following recommendations:

- 4) **The federal government and the government of each territory should prepare a long-term energy policy identifying the overall energy needs of each territory and how they might be satisfied.**
- 5) **A planning council (made up of representatives from the governmental utilities, private utilities and other producers and consumers of electrical power) should be established in each territory to prepare and annually update an electrical energy plan, taking into account the long-term energy policy of the governments, and to make recommendations for government funding of feasibility and other planning studies.**

A Solution to the Regulatory Dilemma (Part V)

In examining regulatory processes, the subcommittee found that:

- rates are primarily based on cost of service;
- any rate structure has some elements of cross-subsidization within groups and between groups of customers and must be subject to effective regulation;
- existing territorial public utility boards have full jurisdiction over private utilities, but not over the NCPC; and

- devolution of the NCPC's responsibilities to territorial utilities would remove this obstacle to effective regulation.

These findings cause the subcommittee to make the following recommendation:

- 6) All electrical power utilities operating in the Yukon and the Northwest Territories should be fully subject to regulation by their respective public utility boards.**

Financing of Electrical Power North of 60° (Part VI)

In examining financing arrangements, the subcommittee found that:

- inequities, and possibly adverse effects, will result from continuing to require any northern utility to recover all costs of electrical power from charges to all northern consumers;
- without governmental assistance, the private utilities can make only a limited contribution towards lowering electrical power prices;
- any financial assistance from the federal government, whether made directly or through the territorial governments, will be treated as a budgetary expenditure of the Government of Canada, as long as consumers are unable to pay the full costs of generating, transmitting and distributing electrical power; and
- there is need to distinguish between remote locations serviced by diesel generators and those locations that can be serviced from existing or future hydro facilities.

These findings cause the subcommittee to make the following recommendations:

- 7) The existing debt of the NCPC to the Government of Canada should be written off in the accounts of Canada.**
- 8) The Government of Canada, in consultation with the territorial governments, should annually establish maximum prices for purposes of subsidization of electrical power in the North.**
- 9) Private capital should be considered as a source of financing when the costs of a power facility can be fully recovered within the maximum prices.**
- 10) Flexible financing arrangements, calling for the debt charges to be deferred for a period of time whenever costs exceed the maximum prices, should be established for loans to finance hydro facilities that are ultimately, but not immediately, expected to generate electrical power at costs less than the maximum prices.**

- 11) The capital costs of all other electrical power facilities should be financed through capital grants.
- 12) If the foregoing measures are not adequate, operating grants should be provided to reduce rates in those areas where costs exceed the maximum prices.

As long as territorial resources are used principally in the development of the entire Canadian economy, the financing of the basic infrastructure for electrical power north of 60° cannot rest with users in the North alone, but must be borne to some extent by all Canadians through their federal government. (Part VII)

Part I

THE SUBCOMMITTEE MANDATE

In 1974, the Minister of Indian Affairs and Northern Development stated that the Northern Canada Power Commission (NCPC) should be responsible for the generation and transmission of all major electrical power north of 60°, while distribution could be a local option. Since that time, the cost of electrical power has risen sharply. This has weighed so heavily on the people living north of 60° that it has become a matter of concern to governments, both federal and territorial, and to the Standing Committee on Indian Affairs and Northern Development. In 1976, the Minister of Indian Affairs and Northern Development appointed a Task Force on Electrical Costs in the North. While this task force found that electricity rates at that time were not inconsistent with those in other parts of Canada, it did recommend a deferral of the NCPC's payments of interest and debt to later years to keep rate increases to approximately 10% per annum. This recommendation was not accepted by the federal government at the time.

The federal government's response to the task force's recommendations first came in November 1978 when the Federal Power Support Program inaugurated an improved subsidy program for electrical power. This program assisted eligible domestic consumers in the two territories by reducing the cost of the first 700 kWh of consumption per month to the average rate for similar consumption in the territorial capitals of Whitehorse and Yellowknife. In 1980 a comparable equalization subsidy applied to small businesses for the first 1000 kWh per month.

In November 1980, at a public hearing before the House of Commons Standing Committee on Indian Affairs and Northern Development, it became apparent that costs and rate structures were still prime issues of controversy; that the mode of operation and regulation of the NCPC were causing great concern to the NCPC's customers; and that the role of the NCPC in providing electricity to northerners, especially in light of the federal

government's National Energy Program, needed further clarification. The standing committee was instructed to appoint a subcommittee to study the situation. This decision was reflected in two orders of reference. The first, from the House of Commons on March 5, 1981, was as follows:

ORDERED—That the Standing Committee on Indian Affairs and Northern Development be empowered to study any aspects of the operations of the Northern Canada Power Commission;

- That it be an instruction to the Committee that it appoint a Sub-committee for the aforementioned purpose;
- That the Sub-committee be empowered to adjourn from place to place within Canada; and
- That the Sub-committee be empowered to employ expert and technical staff that shall be authorized to accompany the Sub-committee.

A follow-up reference by the Standing Committee on Indian Affairs and Northern Development took place on March 12, 1981, and read as follows:

ORDERED—That a Sub-committee on the Northern Canada Power Commission be appointed, consisting of the Chairman, Vice-Chairman, 2 Members of the Liberal Party, 2 Members of the Progressive Conservative Party and 1 Member of the New Democratic Party to be appointed after the usual consultations with the Whips of the different parties;

- That the Sub-committee on the Northern Canada Power Commission be empowered to study any aspects of the operations of the Northern Canada Power Commission, and that the same powers contained in the Order of Reference from the House be referred to the Sub-committee;
- That the Sub-committee be empowered to send for persons, papers and records, to sit while the House is sitting, to sit during periods when the House stands adjourned, to print from day to day such papers and evidence as may be ordered by it and to authorize the Chairman to hold meetings to receive and authorize the printing of evidence when a quorum is not present; and
- That researchers from the Library of Parliament be attached to the Sub-committee.

Between May 29 and June 6, the subcommittee travelled to several communities in the western Arctic and, from August 31 to September 3, visited Frobisher Bay and Rankin Inlet in the eastern Arctic. In these communities the subcommittee listened to concerns expressed by government, elected representatives, industry, business and the public. Between September 20 and 22, the subcommittee held public meetings with the NCPC and the private utilities in Yellowknife and Whitehorse. The subcommittee also consulted with the governments of both territories.

On November 24, with the assistance of Mr. Peter Dobell from the Parliamentary Centre, the services of the firm of Coopers & Lybrand, chartered accountants, were retained to assist the subcommittee in its work. The firm was asked to undertake a study on the feasibility of various organizational and financial arrangements for the supply of electrical energy in each territory.

The subcommittee wishes to express appreciation to the Northern Canada Power Commission, the Minister and the staff of the Department of Indian Affairs and Northern Development, the territorial governments and legislatures, the private utilities, the mining industry and members of the public for their assistance and co-operation (See Appendix A for a list of witnesses). It is hoped that this report will contribute to resolving some of the problems related to a secure supply of electricity and reasonable costs to all residents in the Yukon and the Northwest Territories. By so doing, the subcommittee will have aided the larger task, presently underway within the Department of Indian Affairs and Northern Development, of developing a strategy on all forms of energy.

The members of the subcommittee wish to express their gratitude to the Clerk, Mr. François Prigent, who co-ordinated the administrative and logistical work of the subcommittee, and to Mrs. Sonya Dakers, Research Co-ordinator, who so ably headed the group of research officers from the Library of Parliament, namely Mr. Joe Gatner, Mrs. Katharine Dunkley, Mr. André Morin, Mr. David Chefeitz and Mr. Marion Wrobel. Special thanks are in order to Mr. Glenn Ross of Coopers & Lybrand and to Mrs. Dakers, who under the Chairman's guidance wrote the subcommittee's draft report. They were assisted in the drafting by Mr. Robin Ghosh, also of Coopers & Lybrand. The members of the subcommittee appreciate the contribution of the above-mentioned individuals to the report.

Part II

CONCERNS OF NORTHERN RESIDENTS

A. The Uniqueness of the North

Together, the two territories comprise approximately 40% of the total area of Canada, covering 536,000 square kilometres in the Yukon Territory and 3,245,000 square kilometres in the Northwest Territories. Thus the NCPC operations are spread over a service area of close to 4 million square kilometres, and yet in terms of sales it is one of the smallest utilities in Canada. (Figure 1)

According to the 1981 census, more than 80% of the 23,000 inhabitants of the Yukon live in eight communities, 15,000 of whom live in Whitehorse. Even though larger centres such as Dawson City and Watson Lake are now remote from the existing electrical grid, by the end of the century most of these inhabitants are expected to be serviced by such a grid.

In the Northwest Territories, the population of 46,000 is more scattered. About 50% of the population live in Yellowknife and population centres located just north of the Alberta border in the southern Mackenzie region. The rest of the population resides in small communities widely dispersed throughout the territory. Over 60% of the population live in centres not connected to an electrical grid. This includes three large population centres: Inuvik (3,100), Hay River (2,800) and Frobisher Bay (2,300), all three of which are supplied by diesel-generated electrical power. Only five additional NWT communities are projected to be connected to a grid by the year 2000.

While experience has shown that the Yukon and the Mackenzie Basin can be efficiently supplied with electrical power, the realities of geography and climate make the area above the tree-line unique. In the Yukon and in the southern Mackenzie region, the NCPC

operates under climatic and social conditions that are comparable to the situation found in the northern parts of the provinces. Above the tree-line, however, the harsh environmental conditions pose problems different in kind and degree from those experienced by the electrical power industry in southern Canada. In the words of the Chairman of the NCPC, James Smith, before the Subcommittee on the NCPC in Whitehorse on September 22:

It is when you go beyond the tree-line that the operational problems take on an entirely different parameter . . . the whole method of operation, the means of recruiting and retaining staff, the means of doing work, getting in equipment, putting capital projects in place, fuel supply, it is a whole different world . . . the *modus operandi* there presents an entirely different set of problems than what generally exists in the Mackenzie and the Yukon. (Issue No. 2, p. 2:113)

Yet, in this region, the supply of electrical power is vital to small isolated communities during the long winters of the Arctic. The NCPC must keep diesel units operating continuously under severe weather conditions and make provision for standby facilities in the event of a breakdown. Transportation and storage make fuel for these units particularly costly. In the eastern Arctic, the shortness of the marine transport season requires such places as Frobisher Bay to store a year's supply of fuel. When supplies run short, fuel must be replenished by air from Montreal or Churchill, a very costly alternative.

While road and water transportation systems provide more accessibility to the western Arctic region, the permafrost prevalent in most of the Mackenzie delta presents particular physical problems for any extended electrical grid system.

The differences in the type of operations required to provide a suitable electrical power system north of 60° have led the subcommittee to consider the application of different approaches within the territories.

B. Electrical Power Supply in the Territories

1. Yukon Territory

The NCPC and the Yukon Electrical Company Limited (Yukon Electrical) share responsibility for providing and distributing power in the Yukon. The following table shows how the power the NCPC produces is distributed:

Table 1: Yukon Electricity Sales Year Ended March 31, 1981

	(million kWh)
Wholesale (Supplied to Yukon Electrical)	178.6
Industrial	127.2
Residential	11.8
Commercial	11.0
Street lighting	0.2
Total	<u>328.8</u>

Source: NCPC, *33rd Annual Review* for the year ended 31 March, 1981.

In addition, Yukon Electrical generated and sold approximately 22 million kWh of electricity.

Over 80% of all electrical power is generated and sold within the Whitehorse-Aishihik-Faro system, an interconnected system where the NCPC produces most but not all of the electrical power and Yukon Electrical distributes most but not all of the electricity sold to non-industrial customers. Elsewhere, in remote locations, one company both generates and distributes power, with Yukon Electrical serving most of these locations. A few mines consume a major portion of the electricity generated in the Yukon.

Although the Yukon greatly benefited in the early 1970s from the relatively cheap power produced by the NCPC from the Whitehorse hydro system, the costs of hydro-generated power have risen since then for two reasons: first, the Aishihik project commissioned in 1975 cost considerably more than estimated; second, low water conditions have prevented it from generating power at full capacity. The system therefore has had to be supplemented by increasingly expensive diesel-generated power.

The NCPC has recently called tenders for construction of a fourth generating facility at Whitehorse (the 4th Wheel). When completed, this will reduce, but not eliminate, the amount of power being generated by diesel within the Whitehorse-Aishihik-Faro system. This hydro facility is now expected to cost considerably more than originally estimated, but it is still expected to result in costs lower than those of diesel-generated power.

Yukon Electrical also has plans for adding to its present generating capacity. It has conducted pre-feasibility and feasibility studies which indicate that additional power can be economically provided by a third facility on the McIntyre Creek where Yukon Electrical now generates power. It has approached the Government of Yukon with a view to sharing the costs and revenues of this new facility.

Because of the 1974 government policy denying private utilities a major role in any future generation and transmission of electrical power, Yukon Electrical decided in 1976 to

offer to sell its assets and operations to the NCPC. The breakdown of these negotiations, as well as ongoing competition at the distribution level, has created a climate unfavourable to continuing co-operation between the two utilities. Both believe that there should be a single utility generating, transmitting and distributing power in the Yukon, and each would like to be that utility. The report later examines the Yukon Electrical proposal to take over the NCPC operations in the Yukon and the NCPC's counter-proposal that it take over the operations of the private utility.

2. Northwest Territories

The NCPC is the dominant utility in the Northwest Territories, generating most electrical power and being responsible for distribution in all locations other than Yellowknife, Hay River and some adjacent communities. The NCPC supplies electricity in approximately 50 communities, also supplying heat and water services in one or two of them. Alberta Power Limited generates and distributes power in Hay River and the adjacent areas, and ICG Utilities (Plains-Western) Ltd. distributes in Yellowknife power purchased from the NCPC. The following table shows how electrical power generated by the NCPC is distributed:

Table 2: NWT Electricity Sales Year Ended March 31, 1981

	(million kWh)
Wholesale (Supplied to Plains-Western)	79.9
Industrial	147.9
Residential	67.3
Commercial	65.6
Street Lighting.....	1.7
Total	362.4

Source: NCPC, *33rd Annual Review* for the year ended 31 March, 1981.

In addition, Alberta Power Limited generated and sold 23.7 million kWh of power in the same period.

There is some interconnection of systems around the Great Slave Lake and Inuvik. As in the Yukon, additional capacity introduced in the Snare-Yellowknife system in 1976 suffered from cost overruns. Low water levels here have also led to increasing reliance on diesel-generated power. At most other locations, electricity is generated from diesel sources at the location where it is sold. Because of the remoteness of most communities in the NWT, it is unlikely that this pattern will soon change.

Several years ago, Alberta Power sought approval to build a transmission line from Hay River to connect with its power grid in northern Alberta. This project was cancelled because of delays in getting approvals and, according to Alberta Power, may now be uneconomic. Neither the NCPC nor the private utilities have any immediate plans to construct generating facilities that would significantly lessen the demand for diesel-generated power.

As in the Yukon, the mining industry is a major consumer of power in the NWT. Its growth or decline can be expected to have a major impact on power demand and prices. Most other consumers in the NWT are either governments or persons supported by governments. In many of the smaller settlements, the electrical power business in NWT is more of a common service for governments than a public service. The impact of increasing power rates is blunted for many consumers in these communities by allowances or assistance they receive from the public purse.

C. A Profile of the NCPC Rates

Electricity rates in the North are generally characterized as relatively high, compared with those of the rest of Canada, and escalating faster than in the south. In addition, rates vary widely from community to community. This variation can be demonstrated by reference to Table 3, which provides a cross-section view of the NCPC rates on the basis of

Table 3: NCPC 1982/83 RATE PATTERNS⁽¹⁾

Community/ System	Sales ⁽²⁾ (million kWh)	Average Rate (¢ per kWh)
NWT Rate Zone		
Fort Simpson	6.07	20.26
Frobisher Bay	18.41	25.90
Inuvik	25.26	19.23
Rankin Inlet	5.73	30.63
Snare-Yellowknife	125.02	10.79 ⁽³⁾
Taltson	141.58	8.61
Tuktoyaktuk	7.50	27.26
All Others	52.75	34.30
Subtotal	382.32	15.28
Yukon Rate Zone		
Dawson	5.55	16.65
Johnsons Crossing	0.03	32.98
Mayo	32.36	4.49
Whitehorse-Aishihik-Faro	363.55	7.73 ⁽³⁾⁽⁴⁾
Subtotal	401.49	7.59
Total	783.81	11.34

⁽¹⁾ Based upon proposed 1982-83 rates and 1982 fuel adjustment clause.

⁽²⁾ Projected 1982-83 figures.

⁽³⁾ Including wholesale prices.

⁽⁴⁾ Fuel clause adjustment is calculated on the basis of 1980-81 sales of hydro and diesel power.

Sources: NCPC, *Proposed Rate Adjustments Effective April, 1982—Yukon Territory Rate Zone*; and NCPC, *Proposed Rate Adjustments Effective April, 1982—Northwest Territories Rate Zone*.

its 1982-83 proposals. These figures point out that, on average, electricity charges in the Northwest Territories rate zone will be double the charges in the Yukon rate zone. Within each territory, rates vary more widely than indicated by the table. Within the residual category "All Others", there are six communities in which proposed 1982-83 rates exceed 50¢ per kWh.

In the Northwest Territories, based on figures from the NCPC's 1982-83 rate submission, 85% of electricity consumption in 1982-83 will be at rates below 11¢ per kWh. The average rate for the remaining 15% will be in excess of 28¢ per kWh. In the Yukon, a lower percentage of electricity consumption will be at very high rates, just over 1% being at an average rate of 16.7¢ per kWh. The average rate for the remainder of the Yukon will be less than 8¢ per kWh. These average rates are understated from the consumer's point of view because the costs and mark-ups of the private utilities would have to be added in arriving at rates where the NCPC sells wholesale.

As a general rule, the very high rates are found in small and isolated communities where electricity is generated by diesel power. Not only is diesel-generated electricity more expensive than hydro power, but many of these isolated communities suffer from the high cost of transporting the fuel.

Table 4 and Chart 1 present an historical profile of average NCPC rates since 1969. These statistics show that in the latter half of the 1970s, electricity rate increases accelerated. If the recently proposed rate schedules come into effect, the rate of increase will be even higher. Overall, the 1982-83 rate will be 58% above the average 1980-81 rate. In the Northwest Territories, the increase over two years exceeds 54%, while it is about 85% in the Yukon.

This set of figures also points out the differential between rates in the Yukon and those in the Northwest Territories. Since 1977, rates in the NWT have always been double those in the Yukon. This differential has tended to widen over the past five years, although the most recent rate proposal will reduce it again to a 2:1 ratio.

Lastly, Table 5 provides some statistics in order to put northern electricity rates into context with the rest of Canada. As is evident, there is no such thing as a southern Canada rate; rates in the south also vary widely. In many parts of Canada, electricity prices are significantly lower than in the North. However, in 1981 the NCPC rates, on average, were not the highest in Canada. Consumers in Prince Edward Island, who are served by Maritime Electric Company, currently pay the highest rates because they also use thermally generated electrical power.

Just as there is no southern Canada rate, it may also be misleading to look at the NCPC average rate. There are many customers who pay significantly above the average and for whom the use of electricity is very expensive. However, average electrical power rates in the NWT are clearly higher than those in any province in Canada. (See Appendix B for a history of the NCPC and Appendix C for a description of its facilities.)

Table 4: NCPC HISTORICAL RATE PATTERNS

Average Rates (¢ per kWh)

Year Ended March 31	Entire System	NWT Zone	Yukon Zone
1983 (proposed)	11.34	15.28	7.59
1982 (projected)	9.60	13.96	5.16
1981	7.16	9.90	4.10
1980	6.45	8.76	3.80
1979	5.89	7.93	3.50
1978	5.06	6.74	3.15
1977	4.35	5.61	2.67
1976	3.08		
1975	2.76		
1974	2.54		
1973	2.45		
1972	2.10		
1971	1.74		
1970	1.93		
1969	1.75		

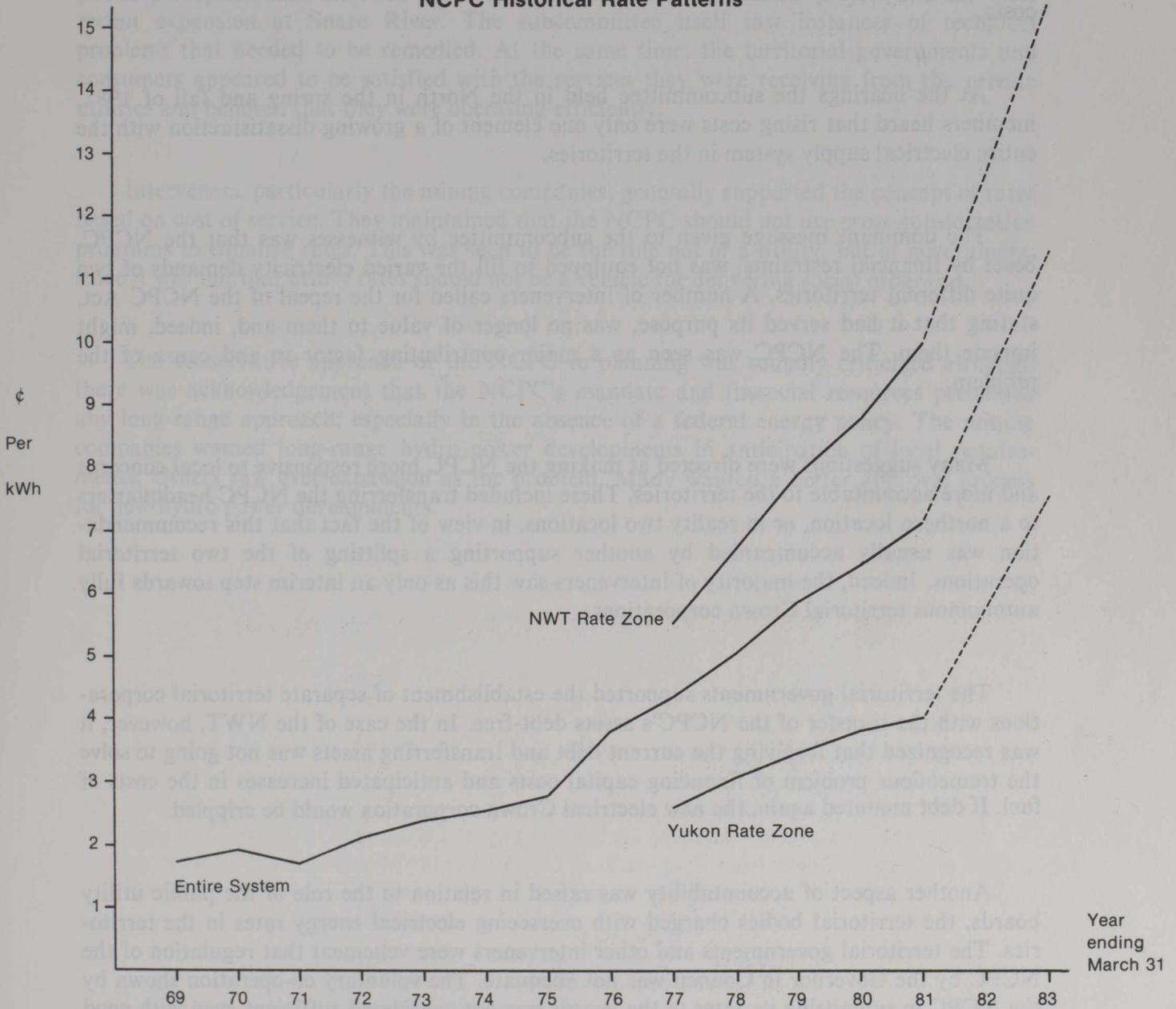
Sources: NCPC, *Annual Review*, various issues; and NCPC, *Proposed Rate Adjustments Effective April, 1982—Yukon Territory Rate Zone*; and NCPC, *Proposed Rate Adjustments Effective April, 1982—Northwest Territories Rate Zone*.

Table 5: RESIDENTIAL ELECTRICITY RATES IN CANADA, 1981

	Rural	Urban
	(¢ per kWh)	
B.C. Hydro	3.87	3.87
Trans Alta Utilities.....	4.70	4.93
Alberta Power	6.49	6.46 to 7.12
Saskatchewan Power	4.16	4.06
Manitoba Hydro	3.32	4.14
Ontario Hydro.....	7.01	7.80
Hydro Quebec	3.28	3.28
Nfld. Light and Power	4.94	4.94
New Brunswick Electric Power Commission	5.28	5.38
Nova Scotia Power Corpora- tion	4.96	4.96
Maritime Electric Company	9.44	9.72

Source: EMR, *Electricity Rates in Canada*, November 1981.

Chart I
NCCPC Historical Rate Patterns



D. The Issues

Until the mid-1970s, the NCPC was able to fulfil a major requirement of its act: namely, to recover its costs, with only modest rate increases. After that time, however, as costs escalated rapidly, the NCPC found that it had to raise its rates significantly to cover costs.

At the hearings the subcommittee held in the North in the spring and fall of 1981, members heard that rising costs were only one element of a growing dissatisfaction with the entire electrical supply system in the territories.

The dominant message given to the subcommittee by witnesses was that the NCPC, beset by financial restraints, was not equipped to fill the varied electricity demands of two quite different territories. A number of interveners called for the repeal of the NCPC Act, stating that it had served its purpose, was no longer of value to them and, indeed, might impede them. The NCPC was seen as a major contributing factor to and cause of the problem.

Many suggestions were directed at making the NCPC more responsive to local concerns and more accountable to the territories. These included transferring the NCPC headquarters to a northern location, or in reality two locations, in view of the fact that this recommendation was usually accompanied by another supporting a splitting of the two territorial operations. Indeed, the majority of interveners saw this as only an interim step towards fully autonomous territorial Crown corporations.

The territorial governments supported the establishment of separate territorial corporations with the transfer of the NCPC's assets debt-free. In the case of the NWT, however, it was recognized that forgiving the current debt and transferring assets was not going to solve the tremendous problem of financing capital costs and anticipated increases in the costs of fuel. If debt mounted again, the new electrical Crown corporation would be crippled.

Another aspect of accountability was raised in relation to the role of the public utility boards, the territorial bodies charged with overseeing electrical energy rates in the territories. The territorial governments and other interveners were vehement that regulation of the NCPC by the Governor in Council was not adequate. The voluntary co-operation shown by the NCPC in submitting its rates to the boards was not considered sufficient even with good faith on both sides. It was felt the NCPC should come before the boards as an applicant in the same way as the private utilities. The public hearing process, where rate complaints could be aired, was considered to serve the public interest better than review by cabinet.

The financial and legal constraints under which the NCPC operated were mentioned in terms of their effect on both long-range planning and cost of service. Northern consumers

resented paying for past deficits in current rates, a requirement of the rather stringent loan provisions under which the NCPC operates. They argued that all existing debt charges should be cancelled or the federal government should take equity in the corporation.

Presentations expressed concern about the NCPC's operations in the North. It was the public perception that the NCPC poorly managed both the Aishihik project and the most recent expansion at Snare River. The subcommittee itself saw instances of technical problems that needed to be remedied. At the same time, the territorial governments and consumers appeared to be satisfied with the services they were receiving from the private utilities and believed that they were operating efficiently.

Intervenors, particularly the mining companies, generally supported the concept of rates based on cost of service. They maintained that the NCPC should not use cross-subsidization programs to equalize rates. This was seen to be the role not of a utility, but of government, since it was felt that utility rates should not be a vehicle for delivering social programs.

The conservative approach of the NCPC to planning was soundly criticized although there was acknowledgement that the NCPC's mandate and financial resources precluded any long-range approach, especially in the absence of a federal energy policy. The mining companies wanted long-range hydro power developments in anticipation of local requirements. Others saw over-expansion as the problem. Many wanted a better approval process for new hydro power developments.

Part III

ORGANIZATIONAL ALTERNATIVES

A. Origin, Powers and Responsibilities of the NCPC

The Northern Canada Power Commission (NCPC) is the principal agency generating and transmitting electrical power in the territories. As the federal government's agent, it derives its responsibilities for the planning, management and operation of electrical utilities from the Northern Canada Power Commission Act (See Appendix F). The act neither requires the NCPC to supply electrical power services everywhere in the North nor gives the commission the exclusive right to do so. It is only government policy that states that NCPC should be responsible for the generation and transmission of all major power north of 60°.

The commission was established in 1948 as the Northwest Territories Power Commission, a Crown corporation set up to provide electrical power to assist in the successful operation of mines. Its service area of operations was extended to the Yukon in 1950 to fulfil the same objective. In 1956, amendments to the act changed the name to the Northern Canada Power Commission. At the same time, the mandate of the commission was extended to empower it to supply "public utilities", defined as electrical and thermal energy, water, sewerage and telephone services.

The next, and most recent, changes to the act were made in 1975. The amendments added territorial representatives to the commission and permitted some measure of rate relief in high-cost locations by establishing rate zones and rate schedules for the whole of each territory, rather than on a plant-by-plant basis as was the case previously.

The act gives the NCPC authority to enter into agreements for the supply of electrical power, to investigate electrical projects and to build or acquire facilities to suit its purposes.

Under its act, the commission must comply with any directions given to it by the Governor in Council or the minister respecting the exercise of its powers. More specifically, it requires Governor in Council approval for expropriating lands; for schedules or ranges of rates, including contingency allowances contained therein; and for terms and conditions of loans to it as authorized by the Minister of Finance.

In fulfilling the terms of its mandate, the commission is not legally subject to territorial legislation or regulatory processes. In using certain of its powers, however, the NCPC is subject to the federal regulatory process. If its work will affect waters in either territory, the NCPC must comply with the provisions of the Northern Inland Waters Act. It is also subject to federal land-use regulations established under the Territorial Lands Act and may need to acquire permits for construction or operation of such facilities as power plants, substations and transmission and distribution lines. In addition, as a federal Crown corporation, the NCPC is expected to prepare an environmental impact statement in conformity with the federal environmental assessment review process.

The commission is classified as a Schedule C corporation in the schedules to the Financial Administration Act. All Crown corporations are required to obtain Governor in Council approval of their capital budgets, but Schedule C classification means that the commission must also submit an operating budget for approval of its minister and the President of the Treasury Board. The Schedule C classification is somewhat surprising in that the commission, as a supplier of goods to the public, and being ordinarily able to conduct its operations without appropriations, qualifies under the terms of the act to be a Schedule D corporation. The present classification is advantageous in exempting the commission from paying income taxes, but it is disadvantageous in requiring federal government approval before it can enter into certain contracts and other arrangements. The subcommittee is not aware of how the government intends to classify the commission under new legislation pending for Crown corporations, or what significance this might have for the commission.

In summary, the significant implications of the NCPC's present powers and responsibilities for purposes of the subcommittee's review are as follows:

- the commission is not legally subject to the legislative or regulatory jurisdiction of the territorial governments;
- it must comply with any Governor in Council or ministerial directions given to it by the federal government;
- as a Schedule C corporation, it must submit both operating and capital budgets for federal government review, and it receives no compensation for activities serving national rather than its corporate objectives; and
- its decision-making processes are slowed, and accountability is diffused, because of the need to obtain federal government approval for many of its decisions.

B. Organization, Management and Administration of the NCPC

The Northern Canada Power Commission Act establishes the NCPC as a Crown corporation consisting of a chairman and four additional members to be appointed by the Governor in Council, one on the recommendation of the Commissioner in Council of the Northwest Territories and one on the recommendation of the Commissioner in Council of the Yukon Territory. This power to recommend a member of the commission is the total extent of the territorial governments' jurisdiction over the NCPC. Neither of these territorial members may be chairman. All five members are appointed by cabinet "during pleasure"—that is, with no fixed term of office.

The NCPC is accountable to Parliament through the Minister of Indian Affairs and Northern Development, who exercises general jurisdiction over the Northwest Territories and the Yukon. That department has consistently viewed the commission as a significant agency for the economic development of the North in view of its importance in the supply of energy to the territories. Until March 1975, the chairman of the NCPC was the deputy minister of the department. Although the present deputy minister remains a member of the commission, the remaining members of the commission are northern residents.

The chairman is the chief executive officer of the commission. Other officers include the general manager, two assistant general managers and a comptroller. The chairman is located in Whitehorse and all other officers are located in Edmonton. One assistant general manager is responsible for corporate and public affairs, including rate setting. The other assistant general manager is responsible for operations and engineering.

During the early 1970s, the NCPC rapidly accelerated its operations so that between 1970 and 1976 the number of plants acquired or constructed grew from 21 to 56, the present complement. Regional offices were opened in Whitehorse in 1970 and in Yellowknife in June 1971 to improve internal communication, customer service and technical expertise. The heads of the regional offices report to the assistant general manager in charge of operations.

Corporate, public-affairs and engineering responsibilities are now centralized in the Edmonton headquarters. Operational responsibilities are decentralized to regional administrators in Whitehorse and Yellowknife and to area supervisors located throughout the territories at locations having reasonable access to the various localities that are serviced by the NCPC.

In fiscal year 1980-81, the workforce complement totalled 330, made up of 304 permanent employees and 26 contract operators at the smaller unmanned plants. The northern staff complement was 251, of which 50 were native northerners.

The commission makes extensive use of consultants to assist its headquarters staff. Consultants are regularly used to conduct demand forecasting and facilities planning, and to

help establish the commission's position for presentation to various public bodies. Generally, these consultants have a continuing relationship with the commission, although more recently a variety of consulting firms has been used for facilities-planning purposes. Through using consultants, the commission seeks to obtain the same expertise as large utilities elsewhere in Canada provide with their own staffs.

In summary, the significant implications of the NCPC's present organization and management practices for purposes of the subcommittee's review are as follows:

- although the commission is operationally decentralized, many functions of major significance to consumers and territorial governments, such as planning and rate setting, are centralized in Edmonton; and
- the commission is relatively small in relation to most Canadian utilities and has to use consultants to obtain certain services that the larger utilities provide internally.

C. Relocation of the NCPC Headquarters to the North

Until 1973, the NCPC headquarters was located in Ottawa. In the expansionist period of the early 1970s, the addition of over 30 plants and the accelerated demands from the mining industry, particularly in the Yukon, caused the NCPC to consider moving the headquarters to a more convenient location. A debate arose over an appropriate site. Each territorial capital was considered, but in the end Edmonton was chosen as a compromise location.

The move to Edmonton improved proximity to customers and territorial governments by cutting travel time. Also, since regional offices had already been set up in Yellowknife and Whitehorse, it was felt that liaison with these two field offices would be easier from Edmonton. The result, however, was a head office in Edmonton remote both from decision-making authorities in Ottawa and from those it services in the northern marketplace.

The lack of physical proximity of the NCPC headquarters assumed increasing importance as concerns about the NCPC's accountability to northern consumers grew. Northerners, who are perturbed over rapidly rising rates, have focused on the location of the head office as a cause of the perceived failure to give adequate attention to the needs of the northern service area. While the Ottawa image was diminished, it was not replaced in northerners' minds by simply improving travel time between the NCPC and its consumers in the North. Rather than commencing the first stage of a northernization process, the move to Edmonton exacerbated existing problems. There is now a growing consensus in both territories that the NCPC headquarters should be located north of 60°.

The commission's 1981 report stated that one of its prime objectives was to relocate its head office to the North. The commission has examined the various locations to which it

could move and has considered the impact of the move on the communities, its customers, its employees and the administration of the NCPC. It has also examined the cost of relocating and the effect this would have on power rates.

As a result of these studies, the commission concluded that it should relocate on a phased basis with the operations and engineering staff moving in the first instance to the regional offices in Whitehorse and Yellowknife, with the corporate, financial and administrative staff staying in Edmonton for the time being. The decision was reached only after it was concluded that the ultimate objective—namely, complete devolution to each territory—was not appropriate at this time.

The NCPC estimates the number of employees to be moved and the one-time and recurring costs of their moves as follows:

Phase 1	Yukon	NWT
Number of employees	13	30
One-time costs	\$459,550	\$1,054,950
Recurring costs	\$210,460	\$ 488,020
<u>Future Phases</u>		
Number of employees	11	45
One-time costs	\$809,250	\$2,477,493
Recurring costs		
—first year	\$366,612	\$ 975,930
—second year	\$402,276	\$1,236,075

These amounts exclude a 10% contingency estimated by the NCPC for unforeseen costs. This phased move assumes that a corporate group of 10 persons will remain located in Edmonton to provide for secretarial services, information systems, certain financial functions and internal audit.

The costs of Phase 1 have been computed in detail. These cover:

- recruitment costs estimated at \$16,000 for each of the 34 employees expected to be recruited from the south and \$1,000 for each of the nine employees expected to be recruited in the North;
- retention bonuses for those employees not intending to relocate in the North;
- relocation expenses of approximately \$20,000 for each of the five employees expected to relocate from Edmonton;
- salary differentials of \$10,420 to match salaries and allowances paid to employees of other organizations in the North;
- additional costs of recruitment and relocation based on the higher turnover of employees expected in the North;

- the cost of office space, furniture and equipment (no compensating cost reduction is included for the Edmonton office, on the assumption that it will continue to be needed until later phases of the move); and
- the cost of one additional employee for the Yukon and two additional employees for the NWT.

The costs assume that future phases of the move will take place over several years. The proportionately greater costs per employee reflect the fact that certain costs—for example, retention bonuses—may have to be paid for the full period. Thus, certain extra costs arise from a phased move.

In view of the financial consequences of relocating and the possible impact of the subcommittee's report and of other reports being prepared by the department, the minister deferred approving the commission's proposal for a phased move to the North.

The subcommittee favours locating in the North any utility providing electrical power there, but believes that it would be unfortunate to incur the additional costs of relocating the NCPC in the North, along with the significant commitments to employees and for permanent facilities that this would involve, if questions about future organizational arrangements can be quickly resolved. Now is the time to decide whether the territorial governments and the private utilities should be involved in the future delivery of power in the North. Real economies can be achieved and damage to staff careers can be avoided if the longer-term organizational decisions are made before relocation commences. However, if the NCPC's responsibilities are not now devolved upon the territorial governments, the NCPC staff should be relocated in the North as soon as possible.

D. Replacing the NCPC with Territorial Crown Corporations

The NCPC's submission to the Minister of Indian Affairs and Northern Development, proposing relocation in the North, states that relocation was being proposed only because the ultimate objective—namely, complete devolution to each territory—was not appropriate at the time. No reasons were given other than the continued dependence on the federal purse of any utility operating in the North. The subcommittee believes that this option requires further consideration.

Although many northerners support relocation of the NCPC in the North, they see it as only the beginning of full devolution of the federal government's existing responsibilities for electrical power to the territories. The Government of Yukon opposes a move of the NCPC headquarters at this time, favouring instead immediate devolution of its responsibilities to the territorial governments. The government of NWT's brief to the subcommittee, while supporting the NCPC's relocation, also favours the eventual creation of a territorial Crown corporation.

The subcommittee believes that the utility serving the North needs to be more closely identified with the geographical areas it services, the consumers who pay its costs and the political jurisdictions within which it operates. The NCPC now has the worst of all worlds. Having its headquarters located in Edmonton, it is far from the decision-making processes in Ottawa, not being near enough to draw its problems to the attention of Ottawa decision makers, and not being easily able to influence the decisions they make. Furthermore, as an agent of the federal government, it makes it all too easy for northerners to blame Ottawa for any real or perceived deficiencies.

The subcommittee questions the main argument put forward for retaining the Edmonton location—namely, enhancement of the commission's ability to attract staff—for the following reasons:

- the staff in Edmonton are leaving anyway, in view of the opportunities available to them in Alberta and because of the obvious impermanence of the present location of the headquarters;
- some technical and operational skills now located in Edmonton were at one time located at the regional level;
- accounting, information, and administrative-staffing needs could be satisfied in Whitehorse and Yellowknife; and
- certain of the existing functions may not be needed once relocation takes place.

Another less compelling argument for retaining the Edmonton headquarters location is the fear that a move to the North will result in two rather than one headquarters, leading either to duplication of activities or to lower-level skills as the jobs are fragmented. The subcommittee believes, however, that the needs of the two territories are sufficiently different to require them to be addressed separately.

The briefs and the hearings clearly show that both territories want the NCPC split, with each component being managed by persons located within each territory and subject to the legislative and regulatory jurisdiction of each government. The following convincing arguments are put forward:

- devolution to the territories is in keeping with the evolution to full provincial status;
- electrical power is a major tool for economic development, and without it the territories control only part of their destiny;
- electrical power is only one source of energy, and its development must be co-ordinated with other sources of energy;
- consumers of electrical power within the territories are disenfranchised as long as territorial regulatory bodies have no real authority over the NCPC.

The federal government may wish to treat the two territories similarly—one advantage of a single utility—but the subcommittee's investigations show that this may be contrary to their real needs. Some readily apparent differences that affect the electrical power needs of the two territories are as follows:

- the geography and demography of the Yukon significantly enhance its ability to have a unified, interconnected power system, as compared to the NWT where many areas have little chance of an integrated power system;
- the eastern portion of the NWT, unlike the rest of the North, is likely always to rely on some type of thermally generated power;
- governments and persons they financially support are likely to continue to consume a proportionately greater share of the electrical power generated in the eastern NWT than in the Yukon; and
- private utilities now play a proportionately greater role in the Yukon than in the NWT.

For all these reasons, the subcommittee prefers an organizational alternative to the NCPC that would permit each territorial government to ensure that electrical power is delivered in a way that conforms to each territory's unique needs and current state of development.

Having concluded that primary responsibility for electrical power within the territories should rest with the territorial governments, the subcommittee also recognizes that the federal government has certain constitutional and national responsibilities to satisfy in the North and that both territories need some federal financial support. Until full provincial status is conferred upon the territories, the federal government continues to have residual responsibilities it cannot avoid. Furthermore, the federal government is still directly involved in managing such resources as water, and it has obligations to the native people of Canada that have yet to be settled. Northern oil and gas resources also have an important role to play in the National Energy Program, and the federal government sees them as satisfying national as well as territorial needs. In addition, within the foreseeable future, the federal government's support, in one way or another, will be essential to the financing of any major power development in the North. Finally, the federal government's own programs consume a significant amount of power in the North, and just as any other consumer, it must protect its own interests. For all these reasons, the subcommittee acknowledges that any organizational solution must provide for a continuing federal presence.

This does not, however, require the federal government to be directly involved in delivering power in the North. The federal government has progressively devolved upon the territorial governments more responsibility for providing for their own needs, although financing a large proportion of the costs of the services they require. Through its review of territorial spending proposals, it retains a very effective means of influencing the decisions they make. In the subcommittee's opinion, no convincing reasons have been advanced for delaying full devolution of operational responsibilities for electrical power in the North. The

federal government can safeguard its own responsibilities through its involvement in the planning and financing of major new developments, topics dealt with in later parts of this report.

E. Contribution of Private Utilities

Before examining the cost of devolving the NCPC's responsibilities fully on the territories at this time, it is appropriate to consider the role of the private utilities now operating in the North. As stated previously, subsidiaries of Alberta Power Limited are involved in providing electricity to residents of the Yukon. Alberta Power Limited is a major generator and distributor of electrical power in Alberta, particularly in northern Alberta; another subsidiary of its parent, Canadian Utilities Limited, a publicly traded company, is involved in the distribution of gas in Alberta. Alberta Power also generates and distributes power in the Northwest Territories at Hay River and some small adjacent communities.

Another private utility, ICG Utilities (Plains-Western) Ltd., distributes most of the power in the Yellowknife area. This company and other subsidiaries of its parent company, Inter-City Gas Corporation, are active in gas distribution throughout most of Canada. The Yellowknife area, however, is the only place where they distribute electrical power.

Certain natural resource companies also generate electrical power in the territories for their own use. Normally, they use small diesel facilities similar to those of the public and private utilities, but one mining company, Cominco Ltd., has its own hydro facility near Yellowknife. These companies generally provide their own power because electrical power was not available to them, the utilities were unwilling to service them or they encountered delays in obtaining the necessary services.

The private utilities, like the NCPC, provide many services out of Edmonton. These include the normal head-office management functions; specialized technical supervision and advice; planning, rate administration and budgeting; customer billing, accounting and cash management; and purchasing, personnel and public relations. These services are provided by the staff and systems used to service their Alberta operations.

Both the public and private utilities have journeymen electricians or diesel operators with a high degree of practical experience operating their facilities in the territories. Both use part-time contractors to operate their facilities in remote locations. Administrative staff located in the territories are mainly concerned with customer service and collections.

The increasing size and sophistication of the means chosen to supply energy in the North require a high level of technical resources. Any utility operating in the North is likely to be a dwarf in relation to the giants that supply power in the rest of Canada. For any

northern utility to seek to be self-sufficient is likely to be both expensive and risky: expensive in that skilled resources cannot be continuously used; risky in that unused skills soon deteriorate. Many believe that the North ought to move from fairly small, simple sources of electrical power supply to more complex, interconnected systems. In the 1970s, the NCPC staffed to increase its capability to undertake more complex hydro facilities, but the controversy surrounding its efforts at Aishihik and at the latest Snare River addition suggests that this approach was not too successful. It is now making extensive use of outside consultants, but it is too soon to assess the results. An alternative, not yet properly tried, is to make greater use of the resources of the private utilities operating in or near the North.

There is another reason for turning to the private sector for help. Power utilities deliver a service crucial to their consumers. Thus, individual needs of a consumer may often conflict with the overall needs of the system. Governments can legitimately protect the interests of their citizens without becoming directly involved in operations where government procedures, emphasizing as they do universality, equity and prudence, may unduly delay decisions and lead to inefficiencies.

Finally, duplication obviously increases costs. The dividing line between the NCPC and the private utilities in the North has been determined by history, not operational considerations. The NCPC produces and wholesales power, but so does Yukon Electrical. The NCPC distributes power at the retail level, one of the primary roles of the private utilities. Thus, both need many of the same skills and equipment. Although they co-operate at the operating level, this overlapping obviously leads to inefficiencies.

Although the subcommittee sees benefits from continued involvement of private utilities in the North, as well as opportunities for reducing present duplication, the exact arrangements between a territorial Crown corporation and a private utility are not so clear. Among the possibilities to be considered are the following:

- transferring all distribution of electrical power to the private utilities;
- allowing the private utilities to participate as partners in small, economically justified electrical power installations where no subsidy from the public purse is involved; and
- using the private utilities to operate territorially owned power facilities, compensating them through a management fee or target price arrangement.

The private utilities, as explained in Part VI, are primarily in the business of investing capital, not managing facilities on a fee-for-service basis. Nevertheless, the private utilities believe that they can provide electrical power in the North more economically than the NCPC. A territorial Crown corporation should be able to negotiate an arrangement that gives the private utilities the incentive they need to realize economies while at the same time compensating them fairly for their efforts.

In examining present organizational arrangements, the subcommittee found that:

- the territorial governments have almost no legislative and regulatory jurisdiction over the NCPC as a federal Crown corporation;**
- the federal government’s powers, decision making and budgetary processes do not make the NCPC fully accountable to the people it serves;**
- although the NCPC is remote from its consumers and their territorial governments, relocating the NCPC in the North would give rise to some additional costs and long-term commitments; and**
- any utility solely serving the North would have difficulty in obtaining all the expertise it needs.**

These findings cause the subcommittee to make the following recommendations:

- 1) The federal government should enter into discussions with the territorial governments for the purpose of creating separate territorial Crown corporations to assume the present NCPC responsibilities.
- 2) The NCPC should be relocated in the North if the alternative of complete federal devolution of the NCPC’s responsibilities to the territorial governments is not quickly accepted.
- 3) The territorial governments should enter into discussions with the NCPC and the private utilities to determine how they can assist the territorial Crown corporations in discharging their responsibilities.

Part IV

THE NEED FOR LEADERSHIP AND CO-ORDINATION IN PLANNING

A. The Problem

The goal of electrical power planning is to provide a safe, reliable and financially viable service. Electrical power planning begins with an electricity load forecast, which is an estimate of the future demand for electricity. Load forecasting has become increasingly important in times of rising energy prices and other inflationary costs. Increasing emphasis is being given to fuel substitution, conservation and efficient utilization. With an economy based on natural resources, the North is vulnerable to uncertain demand patterns that are likely to be exacerbated by these new complexities.

The other variable in the equation, supply, should be able to compensate for any uncertainty in demand by building facilities in anticipation of demand, thereby providing the flexibility needed to match capacity to demand. Where load forecasts are uncertain, the system must be able to react quickly and provide the needed increments to the system. In the North, however, conditions of isolation and climate strain the ability of the electrical power system to meet special energy exigencies without tying up excessive capital or incurring extra expense through emergency actions.

Lack of mandate and finances, as well as some project setbacks, has encouraged a cautious attitude on the part of the NCPC towards planning, at a time when the ability of the electrical power system to respond to northern electrical energy needs is becoming most crucial. The government policy limiting the role of private utilities in the supply of power North of 60° has prevented them from responding any more effectively to the need.

During the subcommittee's hearings, many persons blamed the high cost of power on the past lack of adequate planning. The NCPC defended itself by pointing to the lack of the

funding required to do proper site investigations and feasibility studies. The private utilities stated that, despite their closeness to their customers, the NCPC seldom asked their views on the future electrical power needs of the North. Industrial customers complained about delays in satisfying their needs. Finally, the territorial governments pointed to the importance of electrical power to their economic development and objected to placing their destinies in the hands of a federal agency. They also said that their public utilities boards were ineffective unless they had some control over the future facilities of the utilities.

Placing blame in this way will not solve the problem. In fact, all participants in the planning process are doing an acceptable job. The problem is that they are planning in a vacuum without the direction they need from the federal and territorial governments.

The subcommittee's hearings also indicated that the responsibilities of the NCPC and the private utilities are too narrow for proper planning. Many appearing before the subcommittee stated that greater attention should be devoted to such alternative sources of energy as coal, wind, wood, natural gas, propane and nuclear fission. Some of these alternative energy systems will require large infusions of capital and should be properly planned. The subcommittee has not fully studied the possibility of alternative energy sources, since this would be beyond its mandate. Nevertheless, it is clear that future planning of electrical power north of 60° must take into account all sources of energy. The federal and territorial governments are now investigating such alternatives. Planning of this order should continue to be conducted by these governments, as well as by the utilities.

Planning should also consider opportunities for tying into the grids of British Columbia and Alberta, as well as the possibility of large-scale projects for exporting power to the south. All these matters demand governmental involvement.

B. Existing Processes

The following sections outline the present approach to electrical power planning in the North.

1. Demand Forecasting

The NCPC now uses an economic research consulting firm to conduct an annual update of the electrical energy requirements of each territory for the next 20 years. This firm interviews various customers and analyzes available data with a view to forecasting electrical power demand for various components of the system, particularly those that might need hydro systems where planning horizons must be longer. Forecasts are made annually for the first five years and by five-year blocks thereafter.

The NCPC also makes its own internal forecast of demand. Using both the external and internal forecasts, the NCPC assesses the adequacy of its existing plant in the light of forecast demand. In deciding whether an additional plant is required, it establishes certain reserve criteria for various sizes of plant, based on a factoring of peak load and the size of the units required to service the location. It then identifies the additional capacity required at each location and compares that with units coming on stream during the period. In this way it plans the generating capacity it needs to satisfy future demand.

Although this process should make electrical power available when needed, the small base load in most communities and the lack of interconnection of the systems servicing them mean that the NCPC can be significantly affected by the decision of any major industrial user to open or close. For example, Whitehorse Copper and Giant Yellowknife mines are considering closing. At the same time, other mines could open depending on future metal prices. The NCPC cannot plan major hydro facilities with any certainty, because of the long-term planning horizon needed and the major blocks of power involved.

Because of their smaller size and quicker availability, diesel units may be the more economic means of satisfying uncertain demand. Unfortunately, when increased demand leads to higher costs than would have occurred if hydro facilities had been developed, it is considered evidence of poor planning on the part of the NCPC. Because the NCPC lacks the means of financing excess capacity, it is unable to take the entrepreneurial risks that might have prevented the currently high cost of electrical power in the North.

2. Facilities Planning

The NCPC Act, pursuant to Section 14(1), authorizes a payment out of the Consolidated Revenue Fund of \$50,000 to investigate a project and estimate the capital required and the rates that would need to be charged. Such costs are to be included in the costs of projects that proceed and are to be written off as a budgetary charge of the federal government if the project does not proceed.

More realistic funding has recently been authorized through the Estimates for this purpose in the Yukon. The NCPC has been granted \$3,150,000 for studies to be conducted before September 30, 1983, such funds being repayable if the projects proceed. These funds are being used to conduct pre-feasibility studies of two large-scale hydro sites (the Mid-Yukon and Granite Canyon projects), three mid-sized sites (the Hoole Canyon, Ross Canyon and False Canyon projects) and some lesser-sized sites. The objective of these studies is to identify hydro sites that might be required under various growth scenarios, recognizing that full feasibility, environmental studies, regulatory processes and detailed design would still take several years before construction could start.

The NCPC requested further funding for this purpose in both the Yukon and Northwest Territories. The commission was told that its requests would have to be ranked

under the envelope system, with other spending proposals of departments coming within that envelope, and that it would be imperative to link the proposed investigations with expected energy requirements.

The NCPC has established a large project advisory board to oversee all aspects of project construction, reporting directly to the commission. Board members have extensive qualifications in finance and in the utility development field. In addition, in 1980 a strategic planning committee composed of senior management was formed to discuss and make decisions on long-term projects.

3. Financial Planning

As a Schedule C Crown corporation, the NCPC must submit an operating as well as a capital budget to Treasury Board through its minister. This is true even though it does not normally receive funding through budgetary appropriations. Non-budgetary appropriations authorizing loans for various capital projects are individually approved and listed in the federal Estimates.

More detailed planning takes place through the processes necessary to prepare the rate submissions to the public utility boards of the territories. Expenditures are identified by each location and compared with revenue at existing rates, and rates are proposed that will generate sufficient review to cover all costs, on aggregate for each territory.

The rate submissions are based on full distribution of all costs. The same information is compiled on a direct accountability basis—that is, without distributing costs to managers for which they cannot be held accountable. This provides information for purposes of budgetary control and financial reporting within the fiscal year.

4. Planning Processes of Private Utilities

The planning processes of the private utilities are not unlike those of the NCPC. All prepare multi-year plans in which they estimate their expenses, revenues and capital requirements. The private utilities make rate submissions to the public utility boards on an irregular basis since they are allowed to pass through energy charges approved for the NCPC without further justification.

Expenditures for site investigations are approached cautiously since expenditures on projects that are not proceeded with are not allowed as part of their rate base. Budgetary control and reporting processes are similar to those of the NCPC.

C. A Means for Co-ordination

Planning in the North must obviously take place at various levels. As the first stage in the planning process, there is a need for a clear energy policy. In the territories, energy policy is principally the responsibility of the federal government because of its present jurisdiction over territorial lands and resources. Nevertheless, involvement of the respective territorial governments is essential so that priorities are not only geared to meeting the federal government's off-oil objectives, but can be suited to regional energy sources and needs. In the past, the absence of a comprehensive and effective northern energy policy has encouraged the NCPC in the ad hoc planning of facilities for generating electrical power. How can it plan major projects with long lead-times in the absence of government priorities?

At the next level of planning, that of electrical energy, the NCPC has prime responsibility, but not the final decisions. Both the territorial governments and the private utilities believe that they have been denied a prime role in this process. Because federal funds are involved, the federal government has the final say before any large projects are undertaken.

The planning process must involve careful and rational exploration of all options, not only the need for new facilities, but their type, capacity, and location. Proper planning would identify land and sites needed for hydro-electrical developments and would avoid future land-use conflicts. Such a complex task demands not only the skills of persons with background in operating electrical utilities, but also knowledge of federal and territorial government energy priorities.

The subcommittee believes that a formal planning mechanism in each territory would encourage inclusion of all relevant factors in planning electrical energy. Lack of consultation has contributed to the dissatisfaction with the current planning process.

In Alberta, where several utilities share responsibility for providing electrical power, an Electric Utility Planning Council has been formed by the utilities themselves, with several provincial bodies participating as observers. This council projects the province's need for electrical energy, examines present plans for satisfying this need over the shorter term and identifies possible options for satisfying needs beyond that time. It seems clear that the need for a planning council of the type used in Alberta is a direct consequence of more than one electrical utility supplying power to the public and the extent to which the production and transmission facilities of the various utilities are interconnected through the provincial grid system. The formation of a planning body like Alberta's, modified to suit territorial needs, would allay concerns that electrical power planning north of 60° is being carried out in isolation. Within each territory, governments, industry, utilities and members of the public could advise on the development of electrical power.

If such a council were created, it would provide a forum for exchange of ideas, for all those knowledgeable to agree on the likely future demand for electrical power within the

territory, for each utility to expose its plans for satisfying this demand, and for all to suggest studies needed in the short term to prepare for future electrical power developments.

Because the governments will have to participate in financing most major developments, decisions on subsidies and on capital and operating grants cannot be delegated to a voluntary agency representing many interests. Part VI of this report suggests that such funding should be integrated with the resource-allocation processes of both the federal and territorial governments. This means that the same group of representatives from the departments of Indian Affairs and Northern Development, Treasury Board and Finance as now reviews the territorial Estimates would review such proposals. The subcommittee believes that the Department of Energy, Mines and Resources should be consulted by this group in making financial decisions. This group should be represented by observers when the planning councils meet. It would also be involved in setting maximum power rates for purposes of subsidization, as suggested in Part VI, in recommending project funding and in overseeing the planning processes of the utilities.

In examining planning processes, the subcommittee found that:

- planning of electrical power ought to be integrated with the planning for all sources of energy required in the North;**
- leadership from the federal and territorial governments needs to be strengthened; and**
- the planning processes of the NCPC and the private utilities are good within the limits of their mandates, but greater co-ordination of planning is needed.**

These findings cause the subcommittee to make the following recommendations:

- 4) The federal government and the government of each territory should prepare a long-term energy policy identifying the overall energy needs of each territory and how they might be satisfied.
- 5) A planning council (made up of representatives from the governmental utilities, private utilities and other producers and consumers of electrical power) should be established in each territory to prepare and annually update an electrical energy plan, taking into account the long-term energy policy of the governments, and to make recommendations for government funding of feasibility and other planning studies.

Part V

A SOLUTION TO THE REGULATORY DILEMMA

A. Present Rate-Setting Processes

The rate-setting processes determine the manner in which any utility will recover its costs and, where applicable, earn a rate of return on its investment. Both the NCPC and the private utilities begin the process with demand forecasts based on surveys of customers and on internal forecasting; the NCPC uses a five-year period, compared with the two-year period of the private utilities.

The second part of the process involves costing. Costs are distributed on a grid network basis or on an individual location basis, depending on the type of service. Costs are next broken down into demand (facilities), energy (supply costs) and customer costs (consumer service). The three groups are then subdivided by rate groups such as domestic, commercial, general service, street lighting, wholesale and specific large industrial customers. Demand costs are allocated to the rate groups based on the relative demand of each group; energy is allocated based on relative consumption; and customer costs are allocated based on the relative number of customers in each rate group.

Based on the forecast peak demand, consumption, and number of customers for each rate group, revenues at existing rates are estimated. Individual rates for each group at each location are then tried out until a set of rates is reached which results in full recovery of all costs for the territory, though not necessarily for each separate location or rate group. This set of rates is then further refined to ensure that the relative rate increases to each rate group and location are fair.

The new rate structure, cost-of-service studies and other analyses are compiled in a separate document for each territory, which the NCPC entitles *Proposed Rate Adjustments*.

On its understanding, the NCPC appears as a witness, and not as an applicant, before the territorial public utility boards to discuss its proposed adjustments. The NCPC sets its rates pursuant to Section 10(3) of the NCPC Act and obtains approval of its rates from the Governor in Council. The range of rates approved by the Governor in Council is quite broad, an approach endorsed by the NCPC in view of the need for flexibility in adjusting rates to meet rapidly escalating costs.

The private utilities operating in the North also generally set their rates on the basis of fully distributed cost-of-service studies. Cost-of-service studies are submitted to the public utility boards as part of their submissions entitled *Support of Rate Revisions*. To recover all costs, including income tax, and earn a rate of return on their rate bases, rates are generally determined in a manner similar to that used by the NCPC.

The rate base upon which the desired return is determined represents the investment of the organizations in their utility operations. The rate of return required is based upon the capital structures of the parent organizations of the utilities. It is determined by blending the relative amounts and cost rates of long-term debt, preferred shares, common equity, and no-cost capital.

The cost rate on common equity granted to the private utilities in 1981-82 in both territories was 15.5%. This represents the return the utilities believe is necessary to satisfy their shareholders that their investment has an appropriate continuing value in light of current economic and stockmarket conditions. The return is determined through reference to the stockmarket, through analyses of the returns of other utilities of all types and through reference to regulatory decisions elsewhere. This determination is performed on behalf of the utilities by external consultants. The consultants testify before the boards on the appropriateness of the rate of return. The private utilities attempt to obtain full recovery from all rate groups and do not engage in redistribution of income.

The private utilities obtain much of their electrical power from the NCPC. They can be caught in a squeeze when the NCPC increases its rates to them, if regulatory boards do not allow them to pass on the rate increases to the consumer. However, the public utility boards usually allow the NCPC increases due to fuel clause surcharges to be passed on to the consumer.

The private utilities are required to submit all proposed rate increases to the boards for approval. However, if, through cutting down on costs, the utility can earn its desired rate of return, or an excess over that rate, a submission is not required. As a result, for several years ICG Utilities (Plains-Western) Ltd. has not applied for rate increases, other than those related to increased charges by the NCPC. Any excess earnings over the required rate of return may be kept by the private utilities without refund to consumers or a reduction in power rates.

B. Rate Rationalization

It is not possible to recover all service costs on an individual customer basis. Rates are determined by grouping customers by types of consumption or types of services provided. Whenever consumers are grouped, certain of them suspect that they are, in effect, subsidizing the other members of the group. Additionally, it is often felt that industrial or commercial consumers can better bear the costs of electrical power and should pay higher rates than residential consumers. A converse argument states that industrial consumers should receive lower rates because of their higher volume demands and the more stable relationship of their total demand to peak demand.

The above issues, and many others, are of great concern in the North; with the small population base, the allocation of costs among consumer categories and locations can significantly affect the rates charged. Such concerns inevitably cause the utilities operating in the North, especially the NCPC, to become involved as vehicles of social engineering, a role to which they vehemently object as not being within their mandate.

Although the initial determination of electrical power demand and forecast of costs can be determined with relative accuracy, the application of social, political, and ability-to-pay concerns causes rate setting to move away from a full cost-recovery approach so that forms of cross-subsidization are bound to occur. Otherwise, a strictly applied user-pay approach would mean inequality of burden for isolated communities with different fuel sources and varying transportation charges.

Over the past few years, the NCPC has been trying to develop a rate rationalization scheme that would introduce a uniform approach in each territory so that classes of customers receiving comparable treatment would be accorded equal costs. This approach has met with resistance from the territories, who view it as another form of internal subsidization and would prefer to see any financial assistance come directly from government. Rate setting is not just a mechanistic costing process, but involves exercising a high degree of judgement. As long as this is true, consumers will want some regulatory process to protect their interests.

C. Removing Limits to Territorial Jurisdiction

Because power distribution is by necessity a monopoly of the public or private body granted the right to provide electrical power, some means of regulating their investments, costs and rates is necessary if the interests of the consumers are to be protected. In provinces where large public corporations supply electrical power, the trend is to subject these corporations to regulation by an independent regulatory body that determines whether the rate structure desired by the corporation should be approved. The three private utilities operating in the territories are subject to external review, in this case, by the public utility boards created to regulate the production, transmission and delivery of electricity in the territories.

The private utilities are subject to the authority of the boards and must comply with their rulings. As an agent of the Crown, the NCPC is not legally subject to their authority, although it has voluntarily agreed to submit the same information and comply with board rulings, provided the rulings are not in conflict with its own act. However, since its act requires the NCPC to recover all of its costs, this qualification is very important. Although the boards can suggest alterations in the distribution of the NCPC's costs among consumers, the NCPC has generally argued that the boards cannot challenge the NCPC's right to recover its costs. Thus, the boards and the territorial governments believe that the NCPC has the best of all worlds: an apparent endorsement of its rates, but without any effective control over the costs that give rise to them.

A question of the accountability of the NCPC to the territories arose during discussion of the 1975 amendments to the NCPC Act. The then Minister of Indian Affairs and Northern Development, Mr. Judd Buchanan, provided the following response before the Standing Committee on Indian Affairs and Northern Development on February 11, 1975:

It has been suggested repeatedly that the Northern Canada Power Commission be answerable to the respective Territorial public utilities boards. There are two questions, in my opinion, of practicability involved here.

From a jurisdictional viewpoint, we find that it has not been the practice to require federal agencies to report to boards appointed by a junior level of government, such as a province or a territory.

The second problem derives from the very purpose of the public utilities boards. These are normally established to control private enterprise utility operations in order to ensure that the rates charged produce no more than reasonable rates of return on capital invested. Since the Commission is prohibited by law from making a profit, this form of control is not required.

The Commission, wishing to take the fullest possible account of the views of the Territorial utilities boards, has initiated the practice of seeking counsel and advice on pending rate changes and on the extent of equalization within the proposed rate zones.

At the request of the Yukon board, the Commission has made available its complete records. It has also received specific suggestions which it intends to implement. It is hoped that similar feedback will be derived from the Northwest Territories utilities board. Thus the Commission has initiated, and will continue, an effective process of consultation with the two Territorial utilities boards. (Issue No. 16, pp. 16:6 and 16:7)

This approach was reinforced in 1976 when the NCPC's board of directors decided to provide the fullest co-operation and support to public utility boards and abide by their rate recommendations as long as they do not conflict with the NCPC Act. Guidelines were established by the NCPC for administrative direction pertaining to this co-operation.

The territorial public utility boards believe that the NCPC's guidelines governing the commission's liaison with the boards demonstrate the NCPC's willingness to co-operate in the regulatory process, but they are concerned about the limits the NCPC imposes. They believe that this is not consistent with the stated intention of fullest co-operation with the public utility boards. The boards further believe that their official releases regarding the NCPC are decisions, not recommendations, and that legislation should be enacted to make the NCPC legally subject to their decisions.

In its hearings, the subcommittee heard territorial governments, legislators, companies and individuals all speak in favour of an independent review of the NCPC's rates. The consensus supported the performance of this task by territorial regulatory bodies, since rate review, franchise approval, and enforcement of standards of service are already within the purview of these bodies in the territories. It is the view of the territorial governments that, although the NCPC has generally co-operated with the boards, some means are needed to make the corporation fully subject to the jurisdiction of a regulatory body that gives consumers in the North an effective opportunity of challenging their electrical power charges.

Under the present system of regulation, two sets of rules govern the public and private agencies, even though they provide the same types of service. The establishment of territorial Crown corporations would end this dichotomy, since they would be fully subject to regulation by the respective board and accountable to territorial residents through the public hearing process.

Even though the traditional role of the public utility boards in Canada has been to establish rates of return on investment and thereby to control the profits of private utilities, there is a growing trend to submit provincial Crown corporations to public scrutiny to counteract the power of these monopolies. In the subcommittee's view, without such regulation the territorial Crown corporations would tend to run into the same sort of criticism with regard to accountability as was formerly directed at the NCPC.

The subcommittee recognizes the importance of proper regulatory review of rates, both from the point of view of territorial input into decisions on rates and for purposes of accountability.

In examining regulatory processes, the subcommittee found that:

- rates are primarily based on cost of service;**
- any rate structure has some elements of cross-subsidization within groups and between groups of customers and must be subject to effective regulation;**
- existing territorial public utility boards have full jurisdiction over private utilities, but not over the NCPC; and**

—devolution of the NCP's responsibilities to territorial utilities would remove this obstacle to effective regulation.

These findings cause the subcommittee to make the following recommendation:

- 6) All electrical power utilities operating in the Yukon and the Northwest Territories should be fully subject to regulation by their respective public utility boards.

Part VI

FINANCING OF ELECTRICAL POWER NORTH OF 60°

A. Present Financing of the NCPC

The Northern Canada Power Commission Act requires the NCPC to treat the Yukon Territory and the Northwest Territories (as well as Field, B.C., an area it also services) as separate rate zones and to establish rates for each zone that are not less than the estimated costs of supplying power in the zone. Costs include interest and principal on loans; operating, maintenance, repair and other expenses of facilities; and the cost of administration and all other expenses as attributed by the commission to operations in each rate zone, including such contingency allowances as the Governor in Council approves.

Before the sharp increases in oil prices and before the Anti-Inflation Program, the NCPC was usually able to recover all of its costs. As of March 31, 1974, the commission had retained earnings of over \$6 million. Since then the following profits and losses (indicated below in brackets) have eliminated the surplus and produced a deficit:

	\$
1974-75	(1,187,000)
1975-76	(3,566,000)
1976-77	(6,155,000)
1977-78	377,000
1978-79	(64,000)
1979-80	9,000
1980-81	(400,000)

As a result, the commission's deficit as of March 31, 1981, was \$4,608,000.

The NCPC includes a contingency provision in its determination of costs to be recovered. Over a period of time, this is intended to eliminate the deficit and accumulate a surplus of \$10 million. This means that the consumers of electrical power in the North now not only pay for current costs, but also pay for past costs and provide a contingency for future unforeseen costs of the NCPC.

In the past, the commission has not been able to realize its budgeted contingency provision because of high unscheduled maintenance costs. Therefore, in 1981-82 the commission budgeted for the first time for unscheduled maintenance rather than assuming that the contingency provision would cover such unforeseen costs. The commission also increased its rates to cover the additional costs caused by low water. Thus, chances of realizing the planned contingency are enhanced in the current year.

One other factor affects the financing of the commission. The commission recognizes depreciation on property and equipment in service as an amount equivalent to the principal repaid on the associated loans. Prior to 1977, loans were repaid on the annuity basis so that combined principal and interest payments were constant. Debts incurred for assets placed in service since then are repaid on a straight-line basis. As a result of the higher interest in the earlier years, the NCPC now has to recover more in financing costs in the earlier years of the life of a new asset than in the later years when demand builds up. This has increased the commission's difficulties in financing new facilities.

The NCPC is unique among federal agencies in the North in that the Government of Canada bears almost none of the costs of its activities. Where the government does bear some costs of the NCPC, it is often only a deferral in the timing of the recovery. Specifically, working capital deficiencies resulting from its deficit position caused the commission to default in 1976-77 on principal and interest payments due to Canada totalling \$9.2 million. In 1978-79, the commission obtained an interest-free working capital loan of \$7.5 million from Canada—one of the few instances of subsidization—and has since paid interest on loan payments in default. Both the defaulted payments and the working capital advance remain owing to the Government of Canada and will have to be repaid. Similarly, the commission received \$3.15 million to perform hydro investigation studies in Yukon, which will have to be repaid if the studies lead to construction of hydro facilities.

The subcommittee recognizes that the commission is doing its best to comply with its legislative mandate, budgeting to cover all current costs as well as recovering past deficits through the contingency provision. This, together with increases in costs that are beyond the commission's control, has led to significant increases in electrical power rates. Both territorial governments and northern consumers demand action to reduce the rates.

B. Financing of Private Utilities

The private utilities operating in the North differ fundamentally in how they determine the rates to be charged to consumers. Like the NCPC, they pass through all their

operational costs. However, in lieu of passing on the cost of servicing debt, they include an amount sufficient to give them an approved return on their rate base.

The rate base is composed of the mid-year average of the net book value of their fixed assets, plus an amount calculated for working capital requirements. The earnings of the private utilities will improve in any year the rate base is increased through additions exceeding booked depreciation, or when the regulatory authority allows a higher rate of return. The private utilities are in the business of investing money, and not solely in the business of recovering their costs and earning a fee for services provided.

In the two territories, the rate of return on rate base received by the private utilities is based not on their own capital structure, but on that of their parent companies. This is logical because the utilities operate as divisions and the parent companies raise the funds. Because the private utilities operating in the North are small compared to their parents, their financing requirements have only a minor effect on rates. Therefore, the rate of return they seek represents, in large part, the rate required to finance operations elsewhere in Canada, mainly in Alberta. To the extent that this rate of return is higher than historical costs of government borrowing, the private utilities pass on an added cost to consumers of electrical power.

The private utilities have one other cost that the NCPC does not incur. To the extent that their rate base is not financed by debt instruments, they must pay income taxes on the earnings applicable to their shareholders' equity. Such taxes are included as an expense to be recovered in their rates, but under the Public Utilities Income Tax Transfer Act, 95% of taxes paid are refunded to the territorial governments. The Government of Yukon has generally used this income to subsidize the electrical power costs of consumers in the higher cost areas of the territory. The Government of NWT returns this income to the private utilities, who in turn pass it on to their customers in Yellowknife, Hay River and the other communities they serve. Unless the federal government, as has been proposed, reduces this rebate from 95% to 50%, the net effect is to leave the territories in approximately the same position as if non-taxable public utilities were providing the power.

Both the NCPC and the private utilities set rates sufficient to cover estimated operating costs, including the costs of financing. If the NCPC recovers more or less than its actual costs, consumers benefit or suffer in future years. When private utilities earn more or less than the approved amount, this has no effect on future electrical rates because excesses or shortfalls in earnings are absorbed by their shareholders. Thus, while the NCPC has no direct incentive to control costs, the private utilities continually seek to improve their efficiency and reduce costs from those projected.

Although private utility operations may help contain the costs of providing electrical power in the North, the subcommittee recognizes that they cannot finance capital facilities in locations where electrical power rates would be beyond the ability of the northern consumers to pay. Private financing might lighten the Government of Canada's borrowing

requirements and induce private utilities to provide management services, but private-sector financing of all costs would likely result in power rates as unacceptable as those of the NCPC. Some more radical solution is required.

C. Territorial Government Financing

The territorial governments now rely on the federal government to grant them funds to cover the substantial portion of their expenditures not met out of their own revenues. These grants cover not only operating requirements, but also most capital requirements. As such, both are budgetary charges in the accounts of Canada, and the territories have no obligation to repay them. This explains the relatively debt-free status of the territorial governments, since only self-amortizing capital grants are treated as loans.

The territorial governments now have few Crown corporations. Where they do, they make operating grants to them to cover their net expenditures and capital grants to cover their capital requirements. Thus, if the territories should make any debt or equity investment in electrical power utilities, under present practices the funds would come from the federal government in the form of capital grants. The territories can borrow in the private sector if they have order-in-council approval from the federal government, or a case could probably be made for a loan, instead of a grant, from the federal government, but in both cases the lenders would want to know that the loan is repayable from other than federal government funding.

Because the federal government's operating and capital grants to the territories are accounted for as expenditures, any assistance provided by the territorial governments would be expenditures of the federal government in the same way as if made directly. By contrast, advances to the NCPC are treated as loans, or non-budgetary expenditures, on the assumption, and indeed requirement of its act, that they be fully recoverable from charges to power users.

Therefore, unless all costs of electrical power are to be recovered from consumers, any participation by territorial governments will ultimately be accounted for as federal government expenditures. Under the federal government's present accounting rules, an organization must be able to repay out of internally generated funds any investment of the government in it, as well as pay a return for the use of the capital roughly equal to the federal government's current borrowing costs, before any financing by the Government of Canada can be treated a loan—that is, as a non-budgetary expenditure.

D. Existing Subsidization of Electrical Power Costs

Although the NCPC and the private utilities have been remarkably successful in recovering their costs from consumers, costs to consumers in the North have been subsidized

in the past in several ways. The subcommittee believes that, concurrent with organizational changes, changes must inevitably be made to the amount and method of subsidizing power costs in the North.

As stated earlier, amounts refunded to the territorial government under the Public Utilities Income Tax Transfer Act were used by the Government of Yukon to subsidize consumers paying higher than average rates. As a result of recommendations of the Task Force on Electrical Costs in the North, the Government of Canada inaugurated the Federal Power Support Program in November 1978. This program is administered by the territorial governments, with the various utilities billing the governments directly for the differences between the subsidized rates chargeable to consumers and the approved rates for those locations.

Other less direct subsidies have affected power rates in the North. Traditionally, electrical power rates to government customers have been higher than comparable rates for other customers, and thus the governments affected have been subsidizing other users. Currently, the NCPC is seeking to eliminate this form of subsidization because of the administrative difficulties inherent in the system.

Other cross-subsidization occurs within each territory—and not between them because of the requirements of the NCPC Act—whenever some consumers pay less than the strict cost of service and others pay more.

The NCPC has recently commissioned a study of the factors that should be considered in rationalizing the rates in the NWT. This study suggested a number of alternative rate philosophies. These range from treating the entire NWT as a single rate zone to taking account of types of generation and areas serviced.

The subcommittee supports making a distinction between those areas, such as the Yukon and the area around the Great Slave Lake, where electrical power could be generated from low-cost, interconnected hydro sources and those remote areas where high-cost diesels are likely to be the main source of power supply. The state of economic development in the latter areas precludes consumers' paying the strict cost of services.

E. Alternative Method of Subsidization of Electrical Power

The cost of electrical power can either advance or hinder northern development. The NCPC is now by law required to recover not less than its cost of supplying power within each of the Yukon and Northwest Territories. It has options as to how it distributes these costs among various consumers, but on average it must recover its costs.

As set forth earlier in this report, until recently the NCPC recovered its costs from charges to customers that were reasonable in relation to rates elsewhere in Canada. The capital costs of new hydro facilities and the increasing cost of fuel for diesel plants, however, have led to rapidly escalating electrical power costs, and rates are now clearly out of line with most of the rest of Canada.

In determining how electrical power should be financed in the future, the subcommittee has been conscious of its present high cost and the potentially adverse effect that this may have on northern development. The Canadian tradition has been to subsidize such services as transportation that are vital to national development. Many other services in the North are subsidized from public funds. The northern practice is to write off capital expenditures, limiting any user-pay philosophy to the incremental costs of current operations. The subcommittee believes that electrical power should not be singled out as one of the few services where northern residents pay the full cost.

Currently, the NCPC has great difficulty financing capital projects because the NCPC Act requires it to recover all costs. The NCPC either has to build facilities exactly equal to current demand or has to charge customers for generating capacity in excess of their current consumption. Under these circumstances, the NCPC is almost forced to build hydro facilities only after the demand has already built up, servicing such demand in the intervening period by diesel-generated power, which is less capital intensive.

The federal government has been much more flexible in its financing arrangements in support of the construction and operation of the Point Lepreau nuclear power facility in New Brunswick. First, interest is to be forgiven completely for a fixed period of time. This lowers the capital cost of the project and helps during the early period when demand does not equal capacity. Second, the federal government is providing performance-related loans whereby funds are advanced if power generated is less than a target amount, and such loans are repaid when it exceeds this amount.

The Office of the Auditor General suggested in 1981 that the commission examine with Treasury Board the possibility of changing the capitalization of the commission to make it a more viable enterprise. In the past few years, the Government of Canada has taken action to make a number of other Crown corporations more financially viable. In some cases, such as that of Atomic Energy of Canada Limited, substantial loans have been written off to recognize that assets were overvalued in relation to their income-generating capabilities and that they could only be repaid out of appropriations from the federal government. In cases such as that of the the St. Lawrence Seaway, substantial amounts of debt have been converted to equity, thereby relieving these corporations of substantial interest charges. The former arrangement is more favourable in that it relieves the Crown corporation of both depreciation and interest charges, whereas the debt-to-equity conversion only reduces interest charges. The subcommittee understands, however, that the government's current policy is to convert debt to equity only if the Crown corporation can earn a rate of return on the resulting equity equal to or better than the current costs of money to the federal government.

There are several reasons why the Government of Canada should write off the existing NCPC debt. The government has already forgiven almost all the other debts of the two territorial governments. Some of the NCPC's debt results from past deficits, from cost overruns on major hydro projects and from high-cost diesel facilities that can never be self-financing. The Government of Canada should take immediate action to write off the existing debt of approximately \$200 million owing by the NCPC and adopt more flexible means of financing future capital requirements of the electrical power utilities proposed for the territories.

The subcommittee considered the alternative of writing off only a portion of the existing debt. This alternative was rejected because, as shown in the next part of this report, average electrical power rates, even with full debt write-off, would still exceed those of most provinces. If less debt were to be forgiven, only the Whitehorse-Aishihik-Faro system and the Mayo system in the Yukon and the Taltson system in the NWT would have average rates of less than 10¢ per kWh. The debt of these systems totalled approximately \$82 million as of March 31, 1980. The subcommittee believes that, at the very least, rates above this level should warrant subsidization by the federal government.

The appropriate level for power rates in the North is a matter of government policy. Complete forgiveness of existing debt would give each of the new territorial Crown corporations a chance of providing electrical power at rates comparable to those paid in most provinces. Writing off existing debt will adversely affect the federal government's deficit in the year in which it is done, just as it did when territorial government debts were forgiven, but it will not add to the cash requirements of the federal government in any way.

Future financing, however, should face much stiffer tests. The calculations included in the last part of this report show that the Yukon consumers, if current debt is forgiven, can probably finance the cost of future capital facilities while still paying reasonable prices for electrical power. NWT consumers in remote locations of the Arctic have no hope of rates comparable to the rest of Canada, even with capital grants given for all planned capital additions. The southern Mackenzie region, however, is quite comparable to the Yukon and should be able to finance the cost of new hydro facilities. Each case, therefore, should be judged on its own merits, and capital grants should be made only in those remote locations where rates would otherwise be excessive in comparison with the rest of Canada. Operating grants might also be required in these locations to bring power rates to reasonable levels. Where there is some uncertainty about the ability to recover costs for some period of time, such facilities should be financed through loans where interest is deferred or forgiven until the facility becomes economically viable.

The subcommittee estimates that the 1982-83 cost of providing capital grants in the NWT, if this policy were in effect, would be \$11.5 million in operating grants and \$4.3 million in capital grants, assuming 10¢ per kWh as a reasonable maximum price. In the Yukon, such a policy would cost about \$0.6 million in capital grants and a similar amount in operating grants. The cost, of course, would increase if a lower maximum price were adopted as a matter of government policy.

In examining financing arrangements, the subcommittee found that:

- inequities, and possibly adverse effects, will result from continuing to require any northern utility to recover all costs of electrical power from charges to all northern consumers;**
- without governmental assistance, the private utilities can make only a limited contribution towards lowering electrical power prices;**
- any financial assistance from the federal government, whether made directly or through the territorial governments, will be treated as a budgetary expenditure of the Government of Canada, as long as consumers are unable to pay the full costs of generating, transmitting and distributing electrical power; and**
- there is need to distinguish between remote locations serviced by diesel generators and those locations that can be serviced from existing or future hydro facilities.**

These findings cause the subcommittee to make the following recommendations:

- 7) The existing debt of the NCPC to the Government of Canada should be written off in the accounts of Canada.
- 8) The Government of Canada, in consultation with the territorial governments, should annually establish maximum prices for purposes of subsidization of electrical power in the North.
- 9) Private capital should be considered as a source of financing when the costs of a power facility can be fully recovered within the maximum prices.
- 10) Flexible financing arrangements, calling for debt charges to be deferred for a period of time whenever costs exceed the maximum prices, should be established for loans to finance hydro facilities that are ultimately, but not immediately, expected to generate electrical power at costs less than the maximum prices.
- 11) The capital costs of all other electrical power facilities should be financed through capital grants.
- 12) If the foregoing measures are not adequate, operating grants should be provided to reduce rates in those areas where costs exceed the maximum prices.

Part VII

FINANCIAL IMPACT OF RECOMMENDATIONS

A. Forecasts of Electrical Power Rates Without Additional Financial Assistance from the Federal Government

The foregoing parts of this report recommend a number of organizational and financing changes. Appendix D of this report analyzes the costs of a Yukon Electrical Company Limited proposal to take over the assets and operations of the NCPC, and a counter-proposal of the NCPC to take over the assets and operations of Yukon Electrical. Appendix E contains a number of projections, made for the subcommittee, of the effect on electrical power rates if no changes are made at this time or if certain organizational changes are made. Estimated power rates under these various options are now examined, first for the Yukon and then for NWT.

1. Yukon Territory

The following projections of the selling prices of electrical power in the Yukon have been made in the above-mentioned submissions to the subcommittee or in the subcommittee's own projections.

	1983	1984	1985	1986	1987
	(Average selling price ¢ per kWh)				
Yukon Electrical Forecast.....	8.27	8.98	9.10	9.71	11.00
<u>NCPC Forecasts</u>					
Yukon Electrical Assumptions	7.34	8.12	7.93	8.61	9.89
NCPC Assumptions.....	10.82	10.53	9.77	10.49	11.30

(Cont'd)	1983	1984	1985	1986	1987
	(Average selling price ¢ per kWh)				
<u>Subcommittee Forecasts</u>					
Present arrangements	10.68	10.69	11.09	12.08	12.71
Present arrangements except for relocating NCPC in North	10.85	10.95	11.32	12.22	12.86
Selling NCPC assets to private utilities at book value	9.93	9.89	10.35	11.26	12.04
Creating territorial Crown corporations with public operation and management	10.59	10.57	10.94	11.59	12.30
Creating territorial Crown corporations with operation and management by private utilities	10.16	10.10	10.42	11.14	11.83

These projections show that organizational changes alone will not significantly reduce power rates in the Yukon Territory. Yukon Electrical's proposal produces lower electrical power rates only because of a \$30 million write-off of debt. All other forecasts show similar results: namely, electrical power rates in the Yukon in excess of almost all rates in the rest of Canada.

2. Northwest Territories

Since no projections on the NWT were made by the NCPC or the private utilities, only the forecasts made for the subcommittee are available. These show the following electrical power rates for the next five years:

	1983	1984	1985	1986	1987
	(Average selling price ¢ per kWh)				
<u>NWT</u>					
Present arrangements	17.63	19.01	21.38	22.03	23.66
Present arrangements except for relocating NCPC in North	18.03	19.71	21.95	22.30	24.02
Selling NCPC assets to private utilities at book value	16.21	17.48	19.85	20.67	22.62
Creating territorial Crown corporations with public operation and management	17.77	19.41	21.69	21.81	23.66
Creating territorial Crown corporations with operation and management by private utilities	16.57	17.88	20.36	20.90	22.45

These projections show that, regardless of organizational changes, rates in the NWT will be significantly higher than in the Yukon and the rest of Canada.

B. Effect of Debt Forgiveness and Financing by Capital Grants on Rates

Full federal forgiveness of the NCPC's existing debt and financing of future capital requirements through capital grants would result in the following impact on the Yukon:

	1983	1984	1985	1986	1987
<u>Impact on Yukon</u>	(Average selling price ¢ per kWh)				
Saving	(2.00)	(2.27)	(5.40)	(5.43)	(5.21)
Effect on highest cost option (present arrangements except for relocating NCPC in the North)	8.85	8.68	5.92	6.79	7.65
Effect on lowest cost option (creating territorial Crown corporation with operation and management by private utilities)	8.16	7.83	5.02	5.71	6.62

The increased benefit to the Yukon in the later years reflects the savings it would realize by receiving capital grants to cover the costs of the 4th Wheel at Whitehorse. On a debt-free basis this would reduce the cost of hydro-generated power significantly below that for diesel-generated power. If only existing debt were forgiven and the 4th Wheel were financed through federal government loans, the comparable rates would be:

	1983	1984	1985	1986	1987
	(Average selling price ¢ per kWh)				
	8.10	7.96	8.34	9.13	9.81

These are still among the higher rates in Canada.

Full federal forgiveness of the NCPC's existing debt and financing of future capital requirements through capital grants would result in the following impact on the Northwest Territories:

	1983	1984	1985	1986	1987
<u>Impact on NWT</u>	(Average selling price ¢ per kWh)				
Saving	(3.89)	(4.45)	(4.90)	(3.73)	(3.65)
Effect on highest cost option (present arrangements except for relocating NCPC in the North)	14.14	15.26	17.05	18.57	21.37
Effect on lowest cost option (creating territorial Crown corporation with operation and management by private utilities)	12.68	13.43	15.46	17.17	18.80

These comparisons show that, even under the lowest cost option, electrical power rates in the NWT would be far higher than those elsewhere in Canada.

C. Rate Setting after Implementation of the Subcommittee's Recommendations

The foregoing calculations demonstrate that the average rates for electrical power in the Yukon and NWT exceed those in most Canadian provinces. The territorial governments, as well as many northern consumers, believe that equity is achieved if average rates in their territories are comparable to average rates in individual provinces elsewhere in Canada. Since 1975, the provisions of the NCPC Act support treating the whole of each territory as a single rate zone.

Before 1975, the NCPC Act required a different approach; namely, to treat each location or system as a separate rate zone. The cost of electrical power in areas served primarily by hydro-generated power closely approximates rates in the rest of Canada. The higher cost of diesel-generated power causes the excessive rates in more remote locations. If still in existence, this approach would have resulted in most locations having rates significantly different from the average.

Should the federal government provide assistance on a scale that reduces rates on average in each territory to a desirable level, or should it subsidize only those areas where the rates are truly excessive? The subcommittee has opted for assistance in both respects.

The subcommittee has suggested debt-free transfer of the existing assets of the NCPC to the new territorial Crown corporations. For many areas this would still leave rates extremely high; in other areas, the resulting rates might be lower than in many places elsewhere in Canada.

Where rates are excessive, even after writing off all existing debt, the subcommittee has proposed that future capital requirements be financed by capital grants from the federal government and that operating grants be given if this is not sufficient. This selective assistance benefits only the higher cost areas.

Where rates are reasonable in comparison to those in the rest of Canada, forgiveness of existing debt could result in costs lower than rates elsewhere in Canada. This would give the territorial public utility boards the option of approving rates for consumers in these locations that:

- gives them the full benefit of the debt forgiveness; or
- requires them to pay rates sufficient to cover original costs even though no debt is repayable.

In the latter case, the revenue generated in excess of actual expenditures could be used to further the rate philosophy considered appropriate for the territory. This might involve

equalizing rates throughout the territory—that is, giving additional help to the high-cost areas—or it could lead to using such revenues to develop major new power facilities designed to benefit the territory as a whole through the export of power or by attracting new industries.

The subcommittee favours, wherever possible, exposing new power facilities to a true test of economic feasibility. This is why it has suggested using private capital to finance new facilities, as well as only deferring debt charges, not forgiving them, when future economic viability is a strong possibility.

Forgiveness of all existing debt, together with future capital and operating grants for higher-cost locations, will give the new territorial Crown corporations an opportunity of providing a portion of the capital required for ventures where full cost recovery is highly probable.

As stated before, the subcommittee has no magic formula for deciding what rates are fair in the North. These rates must be settled through negotiation between the federal government and territorial governments. Existing debt having been written off, the subcommittee sees this process taking the following form:

- the federal and territorial governments through negotiation will establish maximum prices for electrical power rates in each of the territories taking into account rates elsewhere in Canada;
- the territorial Crown corporations will prepare budgets, like the present rate submissions, showing by location or system the operating and capital grants they will require to keep electrical power rates within these maximums and what they propose to do with excess revenue generated in other areas;
- the territorial governments will incorporate these grants in their own Estimates, reassessing the impact of the maximum rates on resources available for allocation elsewhere after taking into account the reference levels given by the federal government;
- the federal government will re-examine the maximum rates when reviewing the territorial Estimates in the light of its own budget priorities;
- federal capital and operating grants will be confirmed, or else the maximum prices will have to be revised;
- the public utility boards will review the maximum rates used for determining subsidies, decide whether higher-cost locations should be further subsidized out of excess revenues generated in lower-cost locations, whether rates should be reduced in the lower-cost locations, or whether the excess revenues should be used to establish reserves to help finance major new projects.

Thus, the maximum rates for electrical power will be settled within the overall resource allocation processes of both governments, removing the very unrealistic assumption under which the NCPG now operates—namely, that full cost recovery from users is feasible for electrical power in all northern locations. Where reasonable rates are feasible, forgiveness of existing debt will be Canada's contribution towards helping the territories establish the electrical power infrastructure needed for economic development.

As long as territorial resources are used principally in the development of the entire Canadian economy, the financing of the basic infrastructure for electrical power north of 60° cannot rest with users in the North alone, but must be borne to some extent by all Canadians through their federal government.

APPENDIX A

LIST OF WITNESSES

The following is a list of witnesses who appeared before the subcommittee during its travel to the North in May, June, August and September 1981:

YELLOWKNIFE, NWT, May 30, 1981:

From the Government of the Northwest Territories:

The Honourable George Braden,
Minister of the Department of Justice and Public Services;

The Honourable Richard Nerysoo,
Minister of Energy;

Mr. W.G. Stephen,
Consultant to the Public Utilities Board.

From the Northwest Territories Association of Municipalities:

Mr. Walter Kudelik,
President.

From Cominco/Pine Point Mines Ltd.:

Mr. James R. Greenhalgh,
Manager, Con Operations, Cominco Ltd.;

Mr. David P. Henry,
Superintendent, Shops and Services, Pine Point Mines Limited;

Mr. Eric N. Wright, Accountant.

From the Hay River Chamber of Commerce, the Town of Hay River and the Hay River and Area Economic Development Corporation:

Ms Frances Hasey,
Spokesperson;

Mr. Jim May,
Division Manager, Alberta Power Limited.

From ICG Utilities (Plains-Western) Ltd.:

Mr. Gary Hoffman,
Vice-President, Rate Administration;

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Mr. R.B. Callow,
Vice-President and General Manager;

Mr. John Carstairs,
Legal Secretary.

From the Northwest Territories Chamber of Mines:

Mr. Terry Daniels,
General Manager.

From the Northwest Territories Legislative Assembly:

Mrs. Lynda Sorensen,
M.L.A. for Yellowknife South.

From the City of Yellowknife:

Mr. Michael Ballantyne,
Mayor.

From the Consumers' Association of Canada, Yellowknife Branch:

Mrs. Lynda Sorensen,
Board Member.

From the Northwest Territories Federation of Labour:

Mr. Phil Molloy,
President;

Mr. Cliff Reid,
Vice-President.

INUVIK, NWT, June 1, 1981:

From the Town of Inuvik:

Mr. Doug Billingsley,
Councillor;

Mr. Tom Zubko,
Councillor.

From the Northwest Territories Legislative Assembly:

Mr. Tom Butters,
M.L.A. for Inuvik.

TUKTOYAKTUK, NWT, June 1, 1981:

From the Incorporated Hamlet of Tuktoyaktuk:

Mr. Vince Steen,
Mayor;

Mr. Emmanuel Felix Sr.,
Deputy Mayor;

Mr. John Steen,
Councillor;

Mr. William Nasogaluak,
Councillor;

Mrs. Linda Cockney;

Mr. Doug Pow;

Mrs. Sarah Anderson.

From the Northwest Territories Legislative Assembly:

Ms Nellie Cournoyea,
M.L.A. for Western Arctic.

FARO, Yukon, June 3, 1981:

From Cyprus Anvil Mining Corporation:

Mr. A.H. Von Kursell,
Vice-President;

Miss Laurie Patham,
Manager, Corporate Administration;

Mr. Syd Taylor,
Project Engineering Specialist.

From the Yukon Legislative Assembly:

Mr. Maurice Byblow, M.L.A. for Faro.

From the Town of Faro:

Mr. Rennie Mitchell,
Mayor.

WHITEHORSE, Yukon, June 4, 1981:

From the Yukon Conservation Society:

Mr. Max Fraser,
Acting President;

Mr. Tom Munson,
Member of the Board;

Mr. Tony Hodge,
Member of the Board;

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Mr. Doug Craig,
Member of the Board;

Ms Nancy MacPherson,
Member of the Board;

Mr. Rob McCandless,
Member of the Board.

From the University of British Columbia:

Professor Irving K. Fox.

From the City of Dawson:

Mr. Peter Jenkins,
Mayor.

From the Yukon Territorial Progressive Conservative Party:

Mr. Bruce Willis,
President;

Mr. Charlie Friday,
Director.

From the Whitehorse Chamber of Commerce:

Mr. Jack Hogan,
President;

Mr. George Privett,
Manager.

From the Government of Yukon:

The Honourable Dan Lang,
Minister for Tourism
and Economic Development.

From the Yukon Electrical Company Limited:

Mr. Gary K. Bauer,
Manager.

From the Alberta Power Limited:

Mr. R.H. Choate,
Vice-President.

From the Council for Yukon Indians:

Mr. Joe Jack,
Vice-Chairman.

From the Yukon Historical and Museums Association:

Ms Pat McCormack,
President.

From the Yukon Chamber of Mines:

Mr. David H. Waugh,
 Manager;

Mr. David Tenney,
 Director.

From the Yukon Wood Services:

Mr. Irwin R. Armstrong.

FROBISHER BAY, NWT, September 1, 1981:

From the Kamotiq Inn:

Mr. Marcel Mahé,
 Proprietor.

From the Frobisher Inn:

Mr. Deszo Miklos,
 Proprietor.

RANKIN INLET, NWT, September 2, 1981:

From the Anaka Restaurant:

Mr. O. Ittinuar,
 Proprietor.

From Yvo Airut Enterprises:

Mr. Yvo Airut,
 Co-proprietor;

Mr. Celestino Maktah,
 Co-proprietor.

YELLOWKNIFE, NWT, September 21, 1981:

From ICG Utilities (Plains-Western) Ltd.:

Mr. R.B. Callow,
 Vice-President and General Manager;

Mr. Garry M. Hoffman,
 Vice-President, Rate Administration.

From the Alberta Power Limited:

Mr. C.O. Twa,
 Vice-President;

APPENDIX A

Dr. J.R. Frey,
Manager of Planning.

From the Northern Canada Power Commission:

Mr. James Smith,
Chairman;

Mr. Joseph Long,
General Manager;

Mr. John D. Allan,
Assistant General Manager,
Operations and Engineering.

WHITEHORSE, Yukon, September 22, 1981:

From the Yukon Electrical Company Limited:

Mr. R.H. Choate,
Vice-President;

Mr. Gary Bauer,
General Manager.

From the Alberta Power Limited:

Mr. C.O. Twa,
Vice-President;

Dr. J.R. Frey,
Manager of Planning.

From the Northern Canada Power Commission:

Mr. James Smith,
Chairman;

Mr. Joseph Long,
General Manager;

Mr. John D. Allan,
Assistant General Manager,
Operations and Engineering.

The following submitted written briefs but did not appear at public hearing:

Mr. R.W. Spence,
Professional Engineer, Yellowknife, NWT;

Mr. W.A. Case,
Professional Engineer, Yellowknife, NWT;

Mr. John Zigarlick,
President, Echo Bay Mines Ltd., Edmonton, Alberta;

Mr. G.M. Furnival,
Executive Vice-President and General Manager,
Mining Division, Westmin Resources Limited, Vancouver, B.C.

Note: The subcommittee held meetings in Ottawa with officials from the Department of Indian and Northern Affairs on May 12, 1981, and with Dr. Omand Solandt, Chairman of the Northwest Territories Science Advisory Board on June 30, 1981. Members of the subcommittee also met with officials from the NCPC in Edmonton on May 13, 1981.

APPENDIX B

A HISTORY OF THE NCPC OPERATIONS

Electrical power development in the territories evolved as an offshoot of resource extraction and production. In the Yukon, large-scale placer mining was prominent in the early 1900s. Large private firms provided electrical power for these capital-intensive dredging and hydraulic mining operations. In the early 1920s, the silver-lead-zinc deposits on the Keno Hill properties near Mayo constituted the other significant mining development in the Yukon. Transportation difficulties, not provision of power, formed the underlying obstacle to full-scale development of the territory.

In the Northwest Territories, opportunities for industrial development of the Mackenzie District were first recognized with the discovery of lead and zinc at Pine Point in 1898, oil at Norman Wells in 1920, radium near Great Bear Lake in 1932 and gold in the Yellowknife region in 1934. The power-supply problem for the Great Bear Lake, when subsequently developed, was solved by means of diesel-electrical generation with fuel supplies barged in from the small refinery operating at Norman Wells.

The free-enterprise economy, with its governing criterion of commercial feasibility, predominated until World War II. Firms were largely left to provide for themselves all the services required for resource operations. After the World War II, government took a more active role in the economic and social development of the North. This meant that development in the North became more and more closely controlled by public policy. The federal government provided transportation and power facilities where these could not be justified on grounds of commercial feasibility alone.

The initial involvement of the federal government in electrical power production north of 60° occurred in 1946 when the Department of Mines and Resources undertook construction of a 7-megawatt hydro-electrical plant at Snare Rapids on the Snare River. The plant was designed primarily for the purpose of supplying the Giant Yellowknife Gold Mines at Yellowknife, NWT. With the completion of the project in 1948, Parliament passed legislation creating the Northwest Territories Power Commission, a Crown corporation to administer the plant and to provide electrical power to points in the NWT. The following year, the commission expanded its service by connecting the Yellowknife townsite and the adjacent Consolidated Mining and Smelting Company Ltd. operations to the power plant.

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At the time of the passage of the Northern Canada Power Commission Act, provision of power was seen to be one of the great needs for the successful operation of mines, whether in the development or production stage. Thus, when the commission became involved in the investigation of a hydro-electrical development in the Yukon to service the community of Mayo and the United Keno Hill Mines at Elsa, the act was amended in 1950 to allow for similar services to be extended to the Yukon Territory. A 5.4-megawatt plant at Mayo was completed in 1952 and was extended in 1957 to 5.8 megawatts, at which time the NCPC assumed responsibility for retail distribution from the Mayo Light and Power Company, the retail supplier until then.

By the end of 1958, the 11.4-megawatt Whitehorse Rapids hydro plant was commissioned to supply electrical power to Whitehorse.

From 1956 to 1959, the commission designed and constructed utility systems to service the newly created settlement of Inuvik with electricity, central heating, water and sewer services, all of which continue to this day.

Hydro capacity in the Yellowknife area was expanded in 1960 with the construction of the Snare Falls development, a second hydro development of 7 megawatts on the Snare River, 16 kilometres downstream from Snare Rapids.

In 1964, the commission completed a new plant at Frobisher Bay to replace Department of Transport facilities, which the NCPC had been leasing for several years. The new plant has provided both electricity and central heat production to the community since that time. Five years later, an expansion was completed to service the new townsite complex built on Astral Hill.

To provide service to the Pine Point Mine on the south shore of Great Slave Lake, an 18-megawatt facility was built on the Taltson River in 1965 at a cost of \$9.3 million. Fort Smith, Fort Resolution and Pine Point were also served by this hydro development. Prior to this development, except for the Yellowknife area, electricity needs in the NWT had been met from diesel sources.

The closure of the Yukon Consolidated Gold Corporation dredging operation brought the commission to Dawson City, Yukon, in 1966. The commission not only supplied electricity, but also assumed responsibility for water and sewer services in the town until the late 1970s.

The Whitehorse No. 3 unit was completed in 1969 to serve the new Anvil mine at Vangorda Creek, Yukon. This brought the Whitehorse hydro capacity to 23.2 megawatts.

Between the mid-1960s and the mid-1970s, the commission gradually assumed responsibility for various isolated diesel plants from the Department of Transport and the Government of the Northwest Territories. The early 1970s, in fact, marked a notable acceleration of the NCPC activities. Regional offices were opened in Whitehorse in November 1970 and in Yellowknife in June 1971 to improve internal communication, customer service and technical expertise. The head office was moved from Ottawa to Edmonton in 1973. Between 1970 and 1976, the most expansionist period of the NCPC's history, the number of operations grew from 21 to 56. The expansion of the Mackenzie Highway and the movement of government administrative offices from Churchill, Manitoba, to Rankin Inlet, NWT, helped add to the NCPC responsibilities in the NWT at this time.

Between 1971 and 1975, the commission was involved in its largest hydro project, the Aishihik River hydro development. The project, located 130 kilometres northwest of Whitehorse, was commissioned in the summer of 1975. The initial cost estimate was \$17 million for the 33-megawatt plant, but project expenses actually totalled \$45.9 million. The project enabled the commission to reduce diesel generation on the Whitehorse grid.

Growth in demand for electricity at Yellowknife necessitated a third hydro development on the Snare River. This development suffered a number of setbacks between its inception in 1971 and the summer of 1976 when the 9.6-megawatt plant was finally commissioned. As a consequence, the final cost of the project was \$29.5 million, more than double the original cost estimate of \$14 million.

By 1976, the number of operations of the commission had reached 56. Since that time, the number of installations has remained constant although thermal capacity has continued to increase at a rate equivalent to an annual augmentation in former years. The decision in July 1977 not to proceed with the Mackenzie Valley Pipeline contributed to reduced growth in the NWT, partially offset by the anticipated acceleration of power requirements of the proposed Alaska Highway Pipeline in the Yukon.

The commission's head office was reorganized in 1979. Engineering and operations functions were combined into a single department to improve project co-ordination. A Department of Corporate and Public Affairs was established to co-ordinate and administer the commission's marketing and customer-service programs.

In 1980, Treasury Board gave approval to proceed with the installation of a fourth hydro-electrical generating facility, Whitehorse No. 4 unit. This unit, estimated to cost \$24 million in current dollars, was scheduled for commissioning in November 1983. Revised cost estimates in 1981, bringing total cost to \$41 million, were rejected by Treasury Board, who asked for a detailed accounting of the new figures. By 1982, costs had risen to \$61 million, including capitalized interest. In March 1982, the federal government approved a loan of \$58 million for construction of the 20-megawatt facility at Whitehorse.

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Other potential sites in the Yukon are being investigated on the Pelly, Ross and Francis Rivers. In the NWT, because of reduced demand, a large-scale investigation program has not been implemented. Instead, the NCPC is studying the economics of displacing diesel-generated power by diverting water to the Snare system to increase hydro generation.

APPENDIX C

THE NCPC FACILITIES

The operations service area of the NCPC north of 60° encompasses 3.9 million square kilometres from Dawson in the north central Yukon as far eastward as Baffin Island. To the north, there are approximately 15 communities serviced on the Arctic archipelago, the most northern of which is Grise Fiord, located 1,524 kilometres from the North Pole.

In the Yukon, there are three approaches to generation and distribution of power. In four communities—Dawson City, Faro, Johnsons Crossing and Mayo (and at Field, B.C.)—the NCPC generates and distributes the power. In some other communities, the NCPC generates the power and Yukon Electrical distributes it. This group includes Carcross, Carmacks, Haines Junction, Keno City, Ross River and Whitehorse. In the other communities, Yukon Electrical Company Limited is both generator and distributor: Beaver Creek, Burwash Landing, Destruction Bay, Old Crow, Pelly Crossing, Stewart Crossing, Swift River, Tagish, Teslin, Upper Laird, Watson Lake (and Lower Post in northern B.C.).

The NCPC has four systems operating in the Yukon. The Whitehorse system, which includes the Whitehorse Rapids hydro facilities and the Aishihik hydro development, generates electricity for distribution by Yukon Electrical to Carcross, Carmacks, Haines Junction, Ross River and Whitehorse. Faro and the Cyprus Anvil Mining Corporation are also serviced by the Whitehorse grid. Total capacity of the Whitehorse system is 81.3 megawatts.

The NCPC's Mayo hydro system provides retail service to Mayo; however, while NCPC generates the power for Elsa and Keno City, United Keno Hill Mines Limited is the distributor at Elsa, and Yukon Electrical Company Limited distributes power to Keno City. The Mayo system, including two standby diesel units, has a total of 6.2 megawatts.

The other two systems in the Yukon serviced directly by the NCPC are Johnsons Creek and Dawson, with 2 megawatts and 9 kilowatts of diesel power respectively. A NCPC diesel plant of 70 kilowatts services Field, B.C.

In the Northwest Territories, the commission generates and distributes electricity to all communities, with certain exceptions. The NCPC provides retail electrical utility service to 49 communities; Alberta Power Limited services Dory Point, Enterprise, Fort Providence

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and Hay River. In Yellowknife, NCPC supplies wholesale electrical supply to ICG Utilities (Plains-Western) Ltd., which distributes it.

There are 46 separate power systems in the NWT operated by NCPC. The Snare-Yellowknife system has a total capacity of 35.7 megawatts, including standby diesel capacity at Rae-Edzo. The system supplies wholesale electricity to Yellowknife, Giant Yellowknife Mines Limited, the Whitehorse Copper Mine, part of the CON Mine's needs, and also directly to the community of Rae-Edzo.

The Fort Smith-Pine Point system services Pine Point, Pine Point Mines, Fort Resolution and Fort Smith. Hydro capacity on the system is 20.8 megawatts while diesel capacity is 17 megawatts, making a total of 37.8 megawatts.

The remaining communities in the NWT are serviced by their own diesel plants; the smallest, at 61 kilowatts, is located at Jean Marie River and the largest, at 15.6 megawatts, is at Inuvik. The commission also supplies retail central heat, water and sewage service to Inuvik, as well as wholesale central heat utility service to the Government of the NWT for distribution at Frobisher Bay.

APPENDIX D

ANALYSIS OF YUKON ELECTRICAL'S JOINT VENTURE PROPOSAL AND THE NCPC'S COUNTER PROPOSAL

The private utilities operating in the North, in appearing before the subcommittee, argued against the federal government's policy of denying them participation in power generation and transmission in the North. At the request of the subcommittee, the Yukon Electrical Company Limited on November 2, 1981, provided details on its own proposal to establish a jointly owned energy corporation that would take over its assets and operations in the Yukon, as well as those of the NCPC. It proposed that the equity in the new company would be initially held 50% by Yukon Electrical and 50% by the federal government, although the latter's interest could be transferred to the Government of Yukon. The proposal also suggested that the corporation might raise additional capital in the future through sale of equity to other interested parties, but this was not part of the proposal put forward. The terms and conditions proposed by Yukon Electrical were as follows:

- plants in service, construction work in progress and inventories of Yukon Electrical Company Limited, Yukon Hydro Company Limited and Northern Canada Power Commission would be transferred to the new company at original cost less accumulated depreciation—that is, the amounts now allowed to enter into rate base calculations;
- the Aishihik hydro facility would be written down by \$30 million;
- the consideration for the assets acquired would be assumption of the NCPC's debt (less the \$30 million writedown) in the case of the NCPC, and issue of equity shares in the case of Yukon Electrical;
- the federal government would contribute an amount of cash equivalent to Yukon Electrical's equity in return for its 50% equity (This would be necessary because the federal government has no debt-free equity in the NCPC);
- the company would earn a return of 20% on common stock and would pay out dividends equal to 50% of the profits of the new company.

Yukon Electrical's proposal also made certain operating, financing, accounting and inflation assumptions concerning such factors as power load, operating costs and costs and timing of completion of the 4th Wheel on the Whitehorse system. Yukon Electrical based its estimates on its own 1982 budget and on figures filed by the NCPC for the 1981-82 fiscal year, and assumed inflation of approximately 12% for each of the five years covered by its forecast.

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The proposal stated that all employees of the NCPC now based in the Yukon would be employed by the new company, but that all activities performed by the NCPC in Edmonton would be assumed by the parent companies of Yukon Electrical. It stated the percentage of these costs now borne by Yukon Electrical and marginally increased the percentages to reflect the added burden of the enlarged operations of the new company.

The NCPC, in a letter dated January 13, 1982, responded to the Yukon Electrical proposal and proposed an alternative arrangement involving its takeover of the assets and operations of the private utility.

The NCPC's main concerns about the Yukon Electrical proposal were reflected in its opposition to the following:

- the \$30 million writedown of the Aishihik hydro facility (The NCPC contends that this facility is economically viable, taking into account pending prices for diesel fuel);
- the 50-50 equity arrangement in view of Yukon Electrical's considerably smaller contribution of assets;
- the lack of any buy-back provisions to protect the positions of the federal and territorial governments if the joint public-private utility should be only a temporary arrangement; and
- the return of 20% on common stock, which it believed to be excessive.

The NCPC also pointed out the failure to discuss in a realistic manner how the new corporation might finance major new capital needs.

The NCPC also differed with many of the operating, financing and accounting assumptions made by Yukon Electrical, such as the following:

- the cost and target date for completion of the Whitehorse 4th Wheel;
- the re-scheduling of the NCPC debt payable to the federal government;
- the projected hydro-electrical generating capacity; and
- the inflation rates used.

In its counter-proposal, the NCPC made two projections of the revenues and expenses of a single utility in the Yukon, both based on 100% public ownership as opposed to the public-private partnership proposed by Yukon Electrical. One projection used Yukon

Electrical's market forecast and estimate of available hydro capacity, and the other used its own estimate and forecast. The latter eliminates the writedown of the Ashihik facility and uses more conservative estimates of inflation.

The forecast contained in the Yukon Electrical proposal and the projections of the NCPC may be compared as follows:

	1983	1984	1985	1986	1987
	(Average selling price ¢ per kWh)				
<u>Yukon Electrical Forecast</u>	8.27	8.98	9.10	9.71	11.00
<u>NCPC Forecasts</u>					
Yukon Electrical Assumptions	7.34	8.12	7.93	8.61	9.89
NCPC Assumptions.....	10.82	10.53	9.77	10.49	11.30

The Yukon Electrical proposal results in higher selling prices than the NCPC's projection, using the same assumptions as to volume and hydro capacity, because:

- the Yukon Electrical proposal calls for a 20% return on all equity contributed, both that contributed by the private utility and that contributed by the federal government, and no return is required for the proposed public utility; and
- the NCPC does not incur any liability for federal and territorial income taxes.

It is unwise to give too much weight to these apparent savings, because the added costs to the utility are added revenue to the governments that they can use to subsidize in some form either the consumers or the utilities. The only real cost difference in the two proposals is the higher rate of return assumed by Yukon Electrical on its present assets and on additions during the forecast period. Yukon Electrical has since stated that it would be willing to earn a lower rate of return—for example, the rate it is now allowed of 15.5%.

A very unrealistic assumption is contained in the same NCPC forecast. It assumes that Alberta Power would provide administrative services on a cost basis for a transitional period of five years. Elsewhere in its submission, the NCPC has challenged the desirability of such an arrangement on the grounds that:

- the NWT rate zone would have to bear the full costs of the NCPC's Edmonton head office; and

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—extraterritorial provision of service is contrary to the policy and interests of the territorial governments.

In the subcommittee's opinion, the NCPC should have assumed that its own administrative costs would continue, enhanced by the added costs of relocating in the North. Whereas the territorial governments might agree to a private utility providing these services from Edmonton, because of the savings to territorial consumers, the NCPC could not justify continuing to provide fully dedicated services from a southern location.

APPENDIX E

ANALYSIS OF ELECTRICAL POWER RATES UNDER VARIOUS ORGANIZATIONAL OPTIONS

Part III of this report recommended a number of organizational and financing options. This appendix examines the cost of the following options:

- maintaining present arrangements;
- maintaining present arrangements except for relocating the NCPC in the North;
- selling all of the NCPC's assets to private utilities at their book value;
- establishing territorial Crown corporations managed by the NCPC's staff or their successors; and
- establishing territorial Crown corporations managed by private utilities.

Because the Yukon Electrical proposal and the NCPC counter-proposal, as analyzed in Appendix D, are difficult to compare, the firm of Coopers & Lybrand made projections on behalf of the subcommittee in a way that better isolates the decisions that are within the federal government's control. It also used up-to-date information on the costs of the Whitehorse 4th Wheel. These projections also cover the NWT, neither Yukon Electrical nor the NCPC having made similar projections for the NWT.

In general, Coopers & Lybrand uses assumptions in regard to generating capacity, sales volumes and cost that are quite close to those of the NCPC. Although these assumptions have significant effect on the prices per kWh to consumers, they have the same effect regardless of the organizational or financing options selected.

The following calculations project the prices of power in each of the Yukon and Northwest Territories under a variety of organizational options. It is assumed that the NCPC will be split into basically two organizations, even if some corporate functions might be maintained on a combined basis. The figures for the two territories could be aggregated with relatively few changes to arrive at the costs under a single organizational entity for both

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territories, because the savings and added costs of a combined operation would be very marginal. However, this was not done in the interest of simplifying the presentation of the various options.

1. Rates if NCPC and Private Utilities are to Continue under Present Arrangements

Although the subcommittee believes that the federal government cannot fail to take some action to reduce the present and future cost of electrical power in the North, the consequences of making no major organizational or financial changes must be considered. This provides a base case against which the benefits and costs of various options can be compared. The more significant assumptions made in arriving at the base case are as follows:

- electrical power generating capacity assumes completion of the Whitehorse 4th Wheel project of the NCPC and the McIntyre Creek proposal of Yukon Electrical, continuation of low water conditions in the Whitehorse-Aishihik-Faro system and limited improvement in the Snare-Yellowknife system;
- electrical power requirements are assumed to increase in NWT to provide for expansion of the Norman Wells refinery and for exploration needs elsewhere;
- no significant mine openings or closings are forecast except for the possible closing of Whitehorse Copper Mine in the Yukon and Giant Yellowknife Mines Limited closing in the NWT in September 1983;
- fuel prices are based on National Energy Program prices adjusted for cost of delivery to the territorial capitals;
- the rate of return to the private utilities is based on their existing rates of return, not the return proposed in the Yukon Electrical submission;
- the NCPC contingency of \$10 million is divided, \$4 million to the Yukon and \$6 million to NWT.

These calculations are based on the 1982-83 NCPC rate submissions and the latest strategic plans of the private utilities. Yukon Electrical's estimate of inflation rates was used.

Impact on the Yukon Territory

The subcommittee's projection based on these assumptions may be compared with the Yukon Electrical and the NCPC projections as follows:

	1983	1984	1985	1986	1987
	(Average selling price ¢ per kWh)				
<u>Yukon Electrical Forecast</u>	8.27	8.98	9.10	9.71	11.00
<u>NCPC Forecast</u>					
Yukon Electrical Assumptions	7.34	8.12	7.93	8.61	9.89
NCPC Assumptions.....	10.82	10.53	9.77	10.49	11.30
<u>The Subcommittee's Forecast</u>	10.68	10.69	11.09	12.08	12.71

The major reason for the subcommittee's forecast exceeding the NCPC forecast, based on its own assumptions, is the significantly greater cost of the Whitehorse 4th Wheel. The NCPC assumed completion in December 1983 at a cost of \$46.6 million. The latest cost estimate is \$61 million, including capitalized interest.

Impact on the Northwest Territories

Because neither the public nor private utilities have made any forecasts of power costs in the NWT, comparisons can only be made with rates contained in the NCPC's rate submission for 1982-83. The average rate for the whole of the territory is 15.28¢ per kWh for the 1982-83 fiscal year, including the current fuel price adjustments:

	1983	1984	1985	1986	1987
	(Average selling price ¢ per kWh)				
<u>The Subcommittee's Forecast</u>	17.63	19.01	21.38	22.03	23.66

The rising cost of diesel fuel under the National Energy Program has major impact on these prices because no major hydro projects are planned to reduce diesel fuel consumption. Although there will be some reduction in demand if Giant Yellowknife Mines closes, this is more than offset by the rising demand elsewhere.

2. Rates under Present Arrangements Except for Relocating NCPC Head Office in North

The NCPC proposed that it relocate its operational and engineering staff in Whitehorse and Yellowknife and that the balance of the staff located in Edmonton be relocated over the following few years, except for a small corporate staff that might remain in Edmonton. The

APPENDIX E

minister deferred approving this proposal, pending release of the subcommittee's report and conclusion of certain government studies. This option shows the financial impact of that move, assuming no other organizational or financing changes are made.

In the financial projections for this option, the subcommittee has used the figures contained in the NCPC's submission to the minister, except for the following:

- deleting the 10% amount included as a contingency;
- using figures prepared by the NCPC, but not used in the submission, to show the cost in the second and third years of the phased move; and
- inflating the figures on the same basis as in the other projections.

The forecast costs under this option also assume continuation of all existing functions, without contracting out or using private utility services as a means of reducing costs. The figures also do not reflect any savings in accommodation costs or capital gains that might arise as a result of closing the Edmonton office; nor do they provide for any contribution towards such costs by the federal government, as requested by the NCPC in its submission.

Relocation costs will change depending on whether the move is accelerated or spread out. The latter results in significant additional costs in terms of duplication of staff and facilities and the payment of retention bonuses while the move is taking place. The ultimate costs may be quite different from those forecast, depending on how the move is made and how the new utility is structured. Since such variables cannot be known at this time, the NCPC's forecasts of what the costs are likely to be have been used with the modifications described above.

	1983	1984	1985	1986	1987
	(Average selling price ¢ per kWh)				
<u>Impact on Yukon Territory</u>					
Present Arrangements	10.68	10.69	11.09	12.08	12.71
Present Arrangements Except for Relocation	10.85	10.95	11.32	12.22	12.86
Increase17	.26	.23	.14	.15
<u>Impact on NWT</u>					
Present Arrangements	17.63	19.01	21.38	22.03	23.66
Present Arrangements Except for Relocation	18.03	19.71	21.95	22.30	24.02
Increase40	.70	.57	.27	.37

Arguments will no doubt be put forward claiming that operating from two locations will add to costs. The NCPC's calculation, however, shows that, except for the duplication necessary during the period of the move, the added costs will be minimal.

3. Rates if NCPC Assets Sold to Private Utilities at Book Value

Transfer of the NCPC assets and operations to the private utilities is not attractive because:

- the federal government is unlikely to lend money or make capital grants to a private utility;
- private utility financing costs are higher than those at which the federal government makes loans to Crown corporations and territorial governments;
- the private utility is subject to property and income taxes that a public utility may be spared; and
- the private utility wants to earn a return for its shareholders that is at least as good as alternative opportunities for them to place their capital.

It is necessary to compute the effect over the next five years of the federal government transferring the NCPC's assets to the private utilities at book value. This calculation assumes that the private utilities would not be expected to re-finance existing debt, although they would be denied future access to federal government financing. It assumes that private-sector financing would be 1.75% higher in the Yukon and 1.25% higher in the Northwest Territories than public-sector financing. This percentage is based on the cumulative effect of past financing. Although these rates may be affected by the timing of past investments, they best illustrate the effect of both interest differentials and management's ability to take advantage of opportunities offered by fluctuating interest rates.

Under this option, as compared to present arrangements, rates would benefit from the elimination of the NCPC's administrative costs but would suffer from the higher financing costs of the private sector. The latter has limited effect in the following projections because the additional cost of private-sector financing of the Whitehorse 4th wheel is offset by the contingency provision now required by the NCPC and included in the calculations of prices under present arrangements.

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	1983	1984	1985	1986	1987
	(Average selling price ¢ per kWh)				
<u>Impact on Yukon</u>					
Present arrangements	10.68	10.69	11.09	12.08	12.71
After eliminating NCPC administration and contingency and adjusting for higher financing costs	9.93	9.89	10.35	11.26	12.04
(Saving)	(.75)	(.80)	(.74)	(.82)	(.67)
<u>Impact on NWT</u>					
Present arrangements	17.63	19.01	21.38	22.03	23.66
After eliminating NCPC administration and contingency and adjusting for higher financing costs	16.21	17.48	19.85	20.67	22.62
(Saving)	(1.42)	(1.53)	(1.53)	(1.36)	(1.04)

This option would apply not only under completely private ownership of the territorial utility, but also if a portion of the ownership were to be acquired by the territorial governments as an income earning investment. The subsequent territorial Crown corporation options assume that the utility would break even. The above option assumes that a government owner would expect the same return as a private-sector owner.

The apparent saving is illusory because as time passes the cumulative effect of private-sector, rather than public-sector, financing would undoubtedly lead to higher prices for electrical power, unless economies could be realized through other means.

4. Rates if Territorial Crown Corporations are Created with Management by NCPC Staff or their Successors

This option assumes that the federal government will devolve upon the territorial governments full responsibility for generating, transmitting and distributing electrical power within their territorial boundaries, although continuing to finance them through loans, capital or operating grants, as the case may be. This would be consistent with the approach adopted by the federal government for most other services provided by governments for the primary benefit of those living in the territories. This option assumes that the territorial governments would create territorial Crown corporations to operate the utilities and they would be managed in much the same fashion as under the NCPC. Staff now located in the

North, whether working for the NCPC or the private utilities, would not change; other staff would be obtained from those now working for the NCPC in Edmonton or by recruiting them in the same way as if the NCPC were to relocate.

Thus, under this option the same relocation expenses would be incurred, but there would be a saving by eliminating the administrative costs of the private utilities, which now partly duplicate those of the NCPC, as well as the income taxes and rate of return that the private utilities now recover through their rates.

	1983	1984	1985	1986	1987
	(Average selling price ¢ per kWh)				
<u>Impact on Yukon</u>					
Present arrangements	10.68	10.69	11.09	12.08	12.71
After relocation and acquisition of private utilities	10.59	10.57	10.94	11.59	12.30
(Saving)	(.09)	(.12)	(.15)	(.49)	(.41)
<u>Impact on NWT</u>					
Present arrangements	17.63	19.01	21.38	22.03	23.66
After relocation and acquisition of private utilities	17.77	19.41	21.69	21.81	23.66
(Saving)	(.14)	(.40)	(.31)	(.22)	(.—)

Again, arguments will be put forward claiming that costs will go up if there are separate territorial Crown corporations instead of two offices of a single federal Crown corporation. No doubt there will be some added costs, but there will also be opportunities for economies by using existing territorial government or private services in the territorial capitals. On balance these costs will not significantly affect the decision in either way.

5. Rates if Territorial Crown Corporations are Managed by Private Utilities

This option is similar to the previous option, calling for the federal government to devolve to the territorial governments full responsibility for generating, transmitting and distributing electrical power within the territories. However, it differs because it assumes that the territorial Crown corporations would use the private utilities to operate the generating and transmission systems, as well as continuing to use them for distribution.

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Under this option the present administrative costs of the NCPC would be saved as well as the costs of relocation to the North. A management fee is calculated, which assumes that the private utilities would continue to receive compensation equal to their current rate of return on their present and predicted rate bases. It also assumes that they would recover their administrative costs.

The effect on selling prices of privately operated territorial Crown corporations is now shown.

	1983	1984	1985	1986	1987
	(Average selling price ¢ per kWh)				
<u>Impact on Yukon</u>					
Present arrangements	10.68	10.69	11.09	12.08	12.79
After elimination of NCPC administrative costs and savings in property taxes	10.16	10.10	10.42	11.14	11.85
(Saving)	(.52)	(.59)	(.67)	(.94)	(.94)
<u>Impact on NWT</u>					
Present arrangements	17.63	19.01	21.84	22.03	23.66
After elimination of NCPC administrative costs and savings in property taxes	16.57	17.88	20.82	20.90	22.45
(Saving)	(.06)	(1.13)	(1.02)	(1.13)	(1.21)

Private-sector operation of the territorial Crown corporations provides one significant advantage: the private utilities can tap into the management and technical skills of their parent companies. The fear that splitting the NCPC into two territorial Crown corporations will reduce their capabilities is thus eliminated if this option is selected.

APPENDIX F

THE NORTHERN CANADA POWER COMMISSION ACT

Chapter N-21

An Act respecting the supplying of electrical power and other public utilities in northern Canada. 1956, c. 42, s. 1.

Amended by 1970 (1st Supp.), c. 16; 1975, Bill C-13; 1977, c. 34.

Short Title

Short title

1. This Act may be cited as the *Northern Power Commission Act*. 1956, c. 42, s. 2.

Interpretation

Definitions

2. In this Act

“Commission”

“Commission” means the Northern Canada Power Commission;

“Member”

“member” means a member of the Commission;

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“Minister”

“Minister” means the Minister of Indian Affairs and Northern Development;

“Municipality”

“municipality” includes a municipal district and a local improvement district established under an Ordinance of the Northwest Territories or the Yukon Territory;

“Plant”

“plant” means facilities for the generation, supply, control, transmission or distribution of a public utility and includes the site thereof, and all land, water, rights to use water, buildings, works machinery, installations, materials, transmission lines, distribution lines, pipelines, furnishings and equipment, construction plant, stores and supplies acquired, constructed or used or adapted for or in connection therewith;

“Project”

“project” means any scheme for the development of or addition to or the construction, purchase or rental of a plant and includes the investigation of any such scheme;

“Public utility”

“public utility” means

- (a) electric energy produced by hydraulic, electrical, steam or internal combustion engine or by gas, oil or any other process,
- (b) thermal energy in the form of steam, hot water or hot air produced by any process for heating buildings or for domestic use or for use in any commercial manufacturing enterprise or industrial process,
- (c) water supplied for domestic use or for use in any commercial or manufacturing enterprise or industrial process,
- (d) sewerage services, and
- (e) telephone systems;

“Rates”

“rates” means the charges set or made for the supply of a public utility and includes all conditions of supply pertaining thereto. 1956, c. 42, s. 2; 1966-67, c. 25, s. 40.

Commission Established

Commission established

3. (1) There is hereby established for the purposes set forth in this Act a corporation to be called the Northern Canada Power Commission.

Constitution

(2) The Commission shall consist of a chairman and four additional members to be appointed by the Governor in Council.

Appointment

(2.1) Of the members of the Commission other than the chairman, one shall be appointed on the recommendation of the Commission in Council of the Northwest Territories and one shall be appointed on the recommendation of the Commissioner in Council of the Yukon Territory.

Chairman

(3) The Chairman is the chief executive officer of the Commission.

Tenure

(4) The members of the Commission hold office during pleasure.

Remuneration

(5) Each member of the Commission shall be paid such sums for his services as the Governor in Council may determine.

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Vacancy

(6) A vacancy in the membership of the Commission does not impair the right of the remaining members to act.

Quorum

(7) A quorum shall not be properly constituted and shall not conduct business unless twenty-four hours clear notice of the meeting has been given to each member of the Commission at his ordinary place of residence.

Rules

(8) The Commission may make rules for the regulation of its proceedings and the performance of its duties and functions under this Act.

Directions

(9) The Commission shall comply with any directions from time to time given to it by the Governor in Council or the Minister respecting the exercise of its powers.

Expenses of members

(10) Each member of the Commission may be paid such reasonable travelling and living expenses as are incurred by him in the performance of his duties under this Act. R.S., c. 196, s. 3; 2956, c. 42, s. 3; 1975, Bill C-13, s. 1.

Agent of Her Majesty

4. (1) The Commission is for all its purposes an agent of Her Majesty and its powers may be exercised only as an agent of Her Majesty.

Contracts and property

(2) For the purposes of this Act the Commission may in its own name enter into contracts and acquire or hold real and personal property or any interest therein.

Legal proceedings

(3) Actions, suits or other legal proceedings in respect of any right or obligation acquired or incurred by the Commission on behalf of Her Majesty, whether in its name or in the name of Her Majesty, may be brought or taken by or against the Commission in the name of the Commission in any court that would have jurisdiction if the Commission were not an agent of Her Majesty. R.S., c. 196, s. 4.

Employment of staff

5. The Commission may employ such officers and employees as it considers necessary to conduct the business of the Commission at such rates of remuneration and on such terms and conditions of employment as the Commission may determine. R.S., c. 196, s. 5; 1956, c. 42, s. 4; 1975, Bill C-13, s. 2.

Powers

Powers

6. (1) The Commission may construct, purchase, rent or otherwise acquire, operate and maintain plants within the Northwest Territories or the Yukon Territory and, with the approval of the Governor in Council but subject to the laws of the province in which the powers under this section are exercised, elsewhere in Canada, and for those purposes may

- (a) undertake surveys and engineering investigations for the development of projects;
- (b) construct, make, purchase, rent or establish every kind of structure, excavation, or installation suitable for or necessary to the development, operation or maintenance of plants or projects;
- (c) purchase or rent equipment and facilities for the development, operation or maintenance of plants or projects;
- (d) construct and maintain dams for storage and power purposes, and flood and overflow land for the storage of water;
- (e) raise or lower the levels of rivers, lakes streams and other bodies of water, and make stream or river diversions;
- (f) enter upon and erect plants on, under or over any roads, railways, rivers, streams, waterways or lands;
- (g) develop, improve and operate any property of the Commission;
- (h) purchase public utilities from any person;

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(i) sell, exchange or otherwise dispose of any personal property of the Commission and, with the approval of the Governor in Council, any real property of the Commission; and

(j) do such other things as it deems expedient for or conducive to the attainment of the purposes set forth in this section. R.S., c. 196, s. 6; 1956, c. 42, s. 5; 1975, Bill C-13, s. 3.

Expropriation

Expropriation

7. (1) Where in the opinion of the Commission the taking of any land or interest therein by the Commission without the consent of the owner is required for the purposes of this Act, the Commission shall so advise the appropriate Minister in relation to Part I of the Expropriation Act.

Reference to the Commission

(2) For the purposes of the Expropriation Act, any land or interest therein that, in the opinion of the Minister mentioned in subsection (1), is required for the purposes of this Act shall be deemed to be land or an interest therein that, in his opinion, is required for a public work or other public purpose, and, in relation thereto, a reference to the Crown in that Act shall be construed as a reference to the Commission. R.S., c. 196, s. 7; 1970 (1st Supp.). C. 16, s. 42.

Release of former owner

8. Where any plant is acquired by the Commission with or without the consent of the owner, the Commission may by order release the owner from all his obligations relating to the generation, purchase or supply of public utilities from the plant so acquired and the order is binding on all persons. 1956, c.42, s.6.

Supply of Public Utilities

Supply of utilities

9. The Commission may supply public utilities to municipalities, organizations, corporations or individuals, or to such districts or areas as may be established by the Commission for convenience of administration and supply of public utilities. 1956, c. 42, s. 6.

Rate zones

10. (1) For the purpose of establishing rates, the Yukon Territory and the Northwest Territories shall be separate rate zones.

Subdivision of rate zones

(2) The Commission may divide the rate zones established under subsection (1) into two or more separate rate zones.

Establishment of rates

(3) The Commission shall, with the approval of the Governor in Council, establish for each rate zone schedules or ranges of rates for public utilities supplied by it under this Act and the rates to be charged within those schedules or ranges shall not be less than the estimated cost to the Commission, as determined by it, of supplying the public utility in the rate zone, which cost shall include.

- (a) payments in respect of the interest on, and in respect of the principal amount of, loans made or deemed to have been made to the Commission under this Act in respect of facilities in the rate zone that were used to supply the public utility;
- (b) the operating, maintenance, repair and other expenses in respect of such facilities;
- (c) the costs of administration and all other expenses of the Commission, as attributed by the Commission, to operations in each rate zone; and
- (d) contingency allowances on such basis as may be approved by the Governor in Council. 1956, c. 42, s. 6; 1975, Bill C-13, s. 4.

Agreements

11. The Commission may enter into agreements with any person for,

- (a) the supply of public utilities at rates authorized under section 10;
- (b) the use of the Commission's facilities and equipment; and
- (c) the attainment of the intent and purposes of this Act. 1956, c. 42, s. 6.

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Review of rates

12. The Commission shall annually review and in accordance with section 10, but subject to any contract entered into under section 11, shall adjust, if necessary, the rates for public utilities supplied. 1956, c. 42, s. 6.

Investigations

13. The Commission may investigate a project and advise the Minister or the Commissioner in Council of the Northwest Territories or the Commissioner in Council of the Yukon Territory, as the case may be, of the areas that might be served, the estimated amount of capital required, and the effect on the schedule or ranges of rates established for a rate zone under section 10. 1956, c. 42, s. 6; 1975, Bill C-13, s. 5.

Advances for investigations

14. (1) The Minister of Finance may authorize the payment to the Commission out of the Consolidated Revenue Fund of the sum of fifty thousand dollars as a fund for the purpose of meeting expenditures incurred by the Commission in carrying out investigations in accordance with section 13.

Charged to capital cost

(2) If a project investigated pursuant to section 13 is developed by the Commission, the cost of the investigation shall be included in the cost of the development, and the expenditures that were made from the fund established under this section shall be restored to the fund by the Commission and shall constitute a direct charge against the capital cost of the development.

Included in Estimates if project not developed

(3) If a project investigated pursuant to section 13 is not undertaken or proceeded with, an amount equal to the expenditures made for such investigation work out of the fund established under this section shall be included from time to time in the Estimates submitted by the Minister to the President of the Treasury Board. 1956, c. 42, s. 6; 1975, Bill C-13, s. 6.

Loans for capital expenditures

15. (1) The Minister of Finance may, on such terms and conditions as may be approved by the Governor in Council, authorize loans to the Commission for the purpose of capital expenditures under this Act out of moneys appropriated by Parliament for that purpose.

Loans out of C.R.F.

(2) The Minister of Finance may, from time to time, with the approval of, and on such terms and conditions as may be approved by, the Governor in Council, authorize loans to the Commission for the purpose of capital expenditures under this Act from unappropriated money in the Consolidated Revenue Fund, and an amount equal to the expenditures made from such loans in any fiscal year shall be included in the Estimates for the following fiscal year submitted by the Minister to the President of the Treasury Board, but where Parliament appropriates moneys to be lent to the Commission for the purpose of capital expenditures under this Act after a loan has been made under this subsection, that loan, or an amount thereof equal to the money so appropriated, shall thereafter be deemed to have been made out of that appropriation and not under the authority of this subsection.

Maximum amount of loans out of C.R.F.

(3) The total amount outstanding of any loans under subsection (2) shall not exceed one million dollars at any one time. R.S., c. 196, s. 15; 1975, Bill C-13, s. 7.

Deposit of moneys received

16. All moneys received by the Commission shall be deposited in such bank as the Minister of Finance may approve from time to time. R.S., c. 196; 1956, c. 42, s. 7; 1975, Bill C-13, s. 8.

17. R.S., c. 196, s. 17; Repealed by 1975, Bill C-13, s. 9.

18. R.S., c. 196, s. 18; Repealed by 1975, Bill C-13, s. 9.

19. R.S., c. 196, s. 19; Repealed by 1975, Bill C-13, s. 9.

20. R.S., c. 196, s. 20; 1956, c. 42, s. 8; Repealed by 1975, Bill C-13, s. 9.

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Investments

21.(1) The Commission may from time to time invest any funds held by it that are not immediately required for its purposes in bonds or securities of, or guaranteed by, the Government of Canada and may sell such bonds or securities as and when it deems it expedient to do so. 1956, c. 42, s. 9; 1975, Bill C-13, s. 10.

22. 1956, c. 42, s. 9; Repealed by 1975, Bill C-13, s. 10.

General

Commission to arrange with Minister of Supply and Services for accounting

23. (1) The Commission may make such arrangements as may be necessary with the Minister of Supply and Services for the accounting of the receipts and expenditures of the Commission.

Audit

(2) All accounts of the Commission are subject to the audit of the Auditor General of Canada. R.S., c. 196, s. 23; 1968-69, c. 28, s. 105; 1977, c. 34, s. 30.

Annual report

24. The Commission shall, as soon as possible, but within three months after the termination of each fiscal year, submit an annual report to the Minister in such form as he may prescribe, and the Minister shall lay the report before Parliament within fifteen days or if Parliament is not then in session within fifteen days after the commencement of the next ensuing session. R.S., c. 196, s. 24.

Permits

25. The Commission may prescribe and collect fees for permits for electrical installations using electrical energy supplied by the Commission, and for the inspection, testing and approval of all such works. 1956, c. 42, s. 10.

Damage to plants

26. In case any plant of the Commission, or any part thereof, becomes damaged so that the Commission is unable to supply any public utility, the Commission shall make repairs as promptly as possible, and, pending repairs, shall take all reasonable steps to supply the public utility from other sources, if such is available; but in no case shall the Commission be held responsible for any claims for financial losses or inconvenience caused to any person by reason of its failure to supply any public utility. 1956, c. 42, s. 10.

Rates for use of water

27. The Commission may set rates for the use of water stored in any of its reservoirs for power purposes that is surplus to the immediate needs of the Commission and such rates may be charged on the basis of the volume of water or the rate of flow. R.S., c. 196, s. 27; 1975, Bill C-13, s. 11.

Supply of surplus utilities

28. (1) Where the Commission has surplus electrical or thermal energy not under contract or otherwise required by the Commission, it may, at its discretion, supply such energy if, as and when available, at such rates as the Commission may determine from time to time, and section 10 does not apply in such rate determination.

Not obligatory

(2) The supply of surplus energy under subsection (1) is in no way obligatory on the part of the Commission, and the Commission is not responsible for any damages or claims arising from the discontinuing of any such energy that may have been supplied. 1956, c. 42, s. 11.

A copy of the relevant Minutes of Proceedings and Evidence of the Sub-committee on the Northern Canada Power Commission (Issues Nos. 1 to 3 inclusive) and a copy of the relevant Minutes of Proceedings and Evidence of the Standing Committee on Indian Affairs and Northern Development (Issues Nos. 19 and 40 which includes the report) are tabled.

Respectfully submitted,

**KEITH PENNER,
Chairman.**

MINUTES OF PROCEEDINGS

Wednesday, April 7, 1982
(45)

The Standing Committee on Indian Affairs and Northern Development met, *in camera*, at 3:59 o'clock p.m. this day, the Chairman, Mr. Penner presiding.

Members of the Committee present: Messrs. Allmand, Burghardt, Chénier, Fretz, Gingras, Manly, McCuish, Nickerson, Penner, Tousignant and Watson.

In attendance: From the Research Branch of the Library of Parliament: Mrs. Sonya Dakers and Mr. Marion Wrobel, Research Officers; *From Cooper's & Lybrand:* Mr. Glenn Ross and Mr. Robin Ghosh, Consultants and *From Committee Reporting Services:* Miss Lise Lebeau and Mr. Frank Murphy, Editors.

The Committee resumed consideration of its Order of Reference dated Thursday, March 5, 1981, relating to the study on the operations of the Northern Canada Power Commission. (*See Minutes of Proceedings of Thursday, March 12, 1981, Issue No. 19*).

The Committee commenced consideration of the First Report of the Sub-committee on the Northern Canada Power Commission.

On motion of Mr. Chénier, the First Report of the Sub-committee on the Northern Canada Power Commission was concurred in.

Ordered,—That the Chairman present the First Report of the Sub-committee on the Northern Canada Power Commission as the Fourth Report of this Committee to the House.

Ordered,—That the Committee print an additional 3,000 copies of Issue No. 40 of the Committee's Minutes of Proceedings and Evidence, which contains its Fourth Report to the House, in tumble bilingual format with special cover.

On motion of Mr. Tousignant, it was agreed,—That the Chairman table a report in the House seeking permission for the Members who served with the Sub-committee on the Northern Canada Power Commission, along with the necessary staff, to travel to the North for the purpose of holding press conferences with regards to the report on the Northern Canada Power Commission.

At 4:05 o'clock p.m., the Committee adjourned to the call of the Chair.

François Prigent
Clerk of the Committee