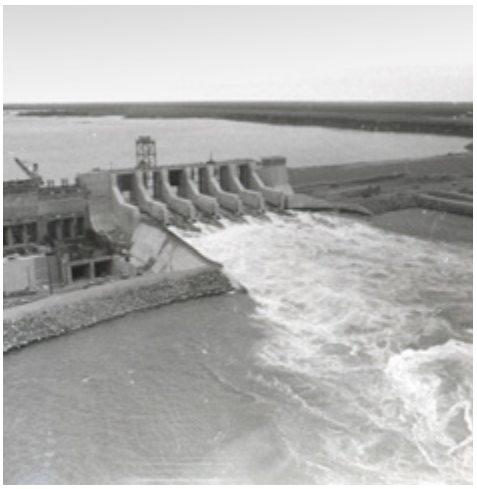


THE NELSON RIVER HYDROELECTRIC PROJECT

A HISTORY OF LAKE WINNIPEG REGULATION




Prepared By Know History 2015

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OVERVIEW

Lake Winnipeg is a large, shallow lake in the heart of Manitoba. Its waters are fed from an enormous watershed that covers almost one million square kilometres from the Rocky Mountains to Lake Superior. For more than 8,000 years, the lake has supported the people and economy of the region. First Nations people depended upon its fish-filled waters and abundant wildlife. During the 18th and 19th centuries, Lake Winnipeg and its rivers were central transportation routes for the shipment of furs and supplies. By the early 1900s, new communities of European and Métis settlers established farms, fisheries, and recreational activities along its shores.

As the population of Manitoba grew in the 20th century, so too did its need for energy. In the late 1950s, the provincial government began to explore the possibility of regulating Lake Winnipeg for the purposes of flood control and hydroelectric generation along the Nelson River. To augment the power potential of the river, hydro engineers recommended that water be diverted from the Churchill River to the Nelson River. In 1966, the federal and provincial governments agreed to develop the Nelson River hydroelectric project as a joint venture. The project included generating stations on the Lower Nelson River, two bipole transmission lines, and the construction of the Lake Winnipeg Regulation (LWR) and Churchill River Diversion (CRD) projects.

From the beginning, LWR and CRD were expected to have a significant impact on the social and economic interests of those who lived and worked in the affected region, but the nature of the impact was not well studied before the projects began, and consultations with people who lived in the affected regions was insubstantial. The governing Progressive Conservative Party endorsed plans for a high-level CRD, which would mitigate the need for LWR but would also devastate the communities and environment of Southern Indian Lake on the Churchill River.

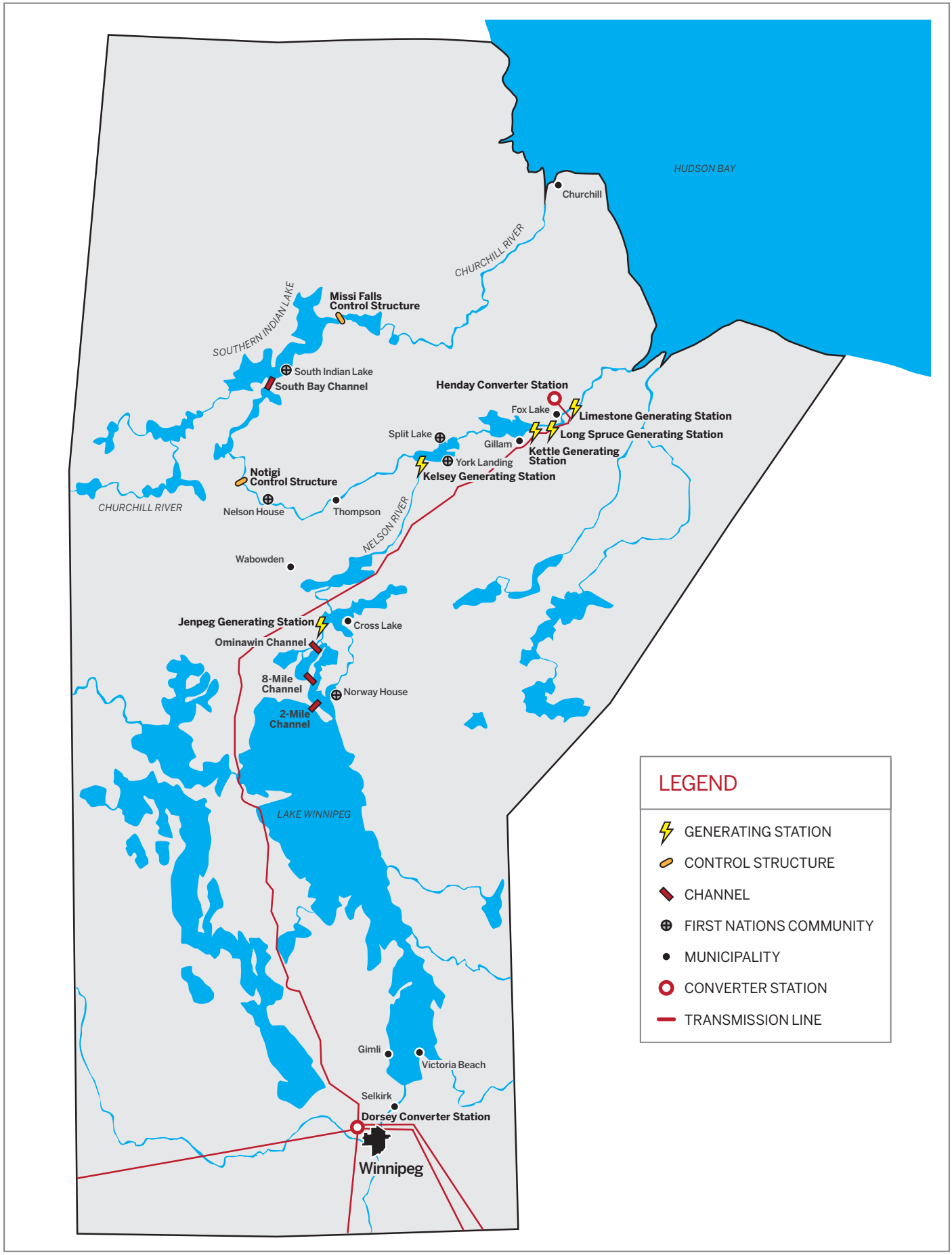
By 1969, strong public and political opposition to the high-level CRD helped push the Progressive Conservatives from power. The newly elected New Democratic Party (NDP) government cancelled the contentious high-level CRD in favour of a lower-level diversion and accelerated construction of LWR. Work on both projects was initiated in the early 1970s, but it suffered from significant delays and cost overruns, which contributed to a $ 2 billion corporate debt for Manitoba Hydro. In 1977, the Progressive Conservative Party returned to power. It appointed a Commission of Inquiry, led by George Tritschler, to investigate the problems associated with the Nelson River hydroelectric project. The Tritschler report concluded that the problems associated with the creation of LWR and CRD were the result of inadequate planning, poor management, and a lack of accountability by Manitoba Hydro and the NDP government. Although Tritschler devoted considerable attention to the economic costs of the Nelson River hydroelectric project, his report did not consider the social and environmental costs, however.

The Nelson River hydroelectric project had a significant impact on the northern First Nations communities that resided downstream from LWR and along the CRD flood zone. The community of South Indian Lake, for example, was required to relocate. In other areas, local economies that depended on commercial fishing, hunting, and trapping were seriously challenged. In 1974, five of the most severely affected communities (excluding South Indian Lake) joined together to form the Northern Flood Committee (NFC). In 1977, the NFC signed the Northern

Flood Agreement (NFA) with Manitoba Hydro and the provincial and federal governments. The NFA was intended to mitigate and compensate for the adverse effects of hydroelectric development, but the implementation process took over a decade to finalize. As of February 2015, the communities of Pimicikamak and Cross Lake have yet to achieve an implementation agreement.

For all Manitobans, the regulation of Lake Winnipeg and the generation of hydroelectricity on the Nelson River remains a vital source of cheap, renewable energy. The resulting affordable electricity bills and higher export sales have come with significant trade-offs, however: the long-term environmental impact of LWR and CRD has been the subject of considerable research since the mid-1970s. Comprehensive studies into water quality, shoreline erosion, and fish and wildlife populations have revealed the ecological consequences of hydroelectric development, as well as the natural resiliency of the environment over time.

For northern First Nations communities, whose livelihood depends on the health of the land and its waters, the Nelson River hydroelectric development has been a threat to their traditional economy and has added to an existing burden of social and economic problems. As well, for those who live, work, and play along the shores of Lake Winnipeg, recent evidence of shoreline erosion and accelerated algae growth has heightened concern for the health of the lake.



Map showing the communities and infrastructure associated with northern Manitoba hydroelectric development.

CHAPTER 1

LAKE WINNIPEG

The history of hydroelectric power in Manitoba is in large part the story of Lake Winnipeg and its connecting rivers. The lake drains a vast watershed from the Rocky Mountains to Lake Superior. First Nations peoples have inhabited the Lake Winnipeg region for millennia, and the province's waterways have always been a central part of their way of life. The arrival of European fur traders in the 17th century profoundly altered this existence, however, and began a process of cultural dislocation that led to the signing of numbered treaties and the creation of the reserve system in the 1870s.

European settlers who arrived on the western shore of the lake in the late 1800s started farms, established commercial fisheries, and built steam navigation and railways. Although commercial fishing remains important on Lake Winnipeg, the lake has also become an important place for fun and recreation. Thousands of cottages dot the picturesque shoreline of the southern basin, and beaches from Gimli to Grand Beach draw crowds of sun seekers each year. Increasing development along the lake has had its drawbacks, however, and concerns over Lake Winnipeg's health have arisen.

LOCATION

Lake Winnipeg has a surface area of approximately 24,500 square kilometres, making it the third-largest freshwater lake in Canada and the tenth-largest freshwater lake in the world. Lake Winnipeg's southern shores begin roughly 50 kilometres north of Winnipeg and stretch over 400 kilometres to the northwest. The lake measures 111 kilometres at its widest point, but only 40 kilometres at its most narrow. Although its surface area is large, the lake itself is quite shallow, measuring only 12 metres deep, on average. The southern basin of the lake is connected to the larger north basin by the Narrows. The shallow nature of the lake and the narrow separation of the two basins make Lake Winnipeg quite susceptible to water-level fluctuations caused by storms, wind, seasonal change, and sudden variations in barometric pressure.[1]

GEOGRAPHY

Lake Winnipeg was formed as the last vestige of what was once a massive inland lake known as Lake Agassiz, which was created by melt water that formed around the southern edge of the retreating glaciers during the last ice age, roughly 12,000 years ago. Lake Agassiz was larger than all of the Great Lakes combined: it covered most of Manitoba, eastern Saskatchewan, northern Minnesota, and northwestern Ontario. As the ice sheets shrank northward, Lake Agassiz shifted in size and shape. The land, which was once buried under the colossal weight of the glacier, began to rebound slowly upward. In the process, new lakes and rivers were formed; Lake Winnipeg is the result of this ongoing transformation. The land around Lake Winnipeg continues to rise, in a process called post-glacial isostatic rebound. Research indicates that the northern end of Lake Winnipeg is rising at a faster rate than is the south. In essence, Lake Winnipeg is slowly tilting upward at the north end. As a consequence, water levels in the south have increased at a rate of approximately 20 centimetres per century. It has been suggested that the uneven pace of the isostatic rebound around Lake Winnipeg has contributed to an increase in flooding and soil erosion in the south basin.[2]

Lake Winnipeg, like Lake Agassiz before it, receives water from an enormous watershed system that stretches from the Rocky Mountains in the west, to Lake Superior in the east, to the Red River basin in the south. Most of this water flows into Lake Winnipeg from the Red River, Saskatchewan River, and Winnipeg River. The water drains out of Lake Winnipeg from the north basin into the Nelson River system and eventually into Hudson Bay. The Nelson River flows in a northeasterly direction from the northern end of Lake Winnipeg to its outlet near York Factory on Hudson Bay, a distance of almost 650 kilometres. Approximately 160 kilometres north of the Nelson River is the Churchill River, which is roughly 1,600 kilometres long and runs in an easterly direction from eastern Alberta, across Saskatchewan and Manitoba, and into Hudson Bay near the town of Churchill, Manitoba. The Nelson and Churchill Rivers served as important arteries for inland transportation during the fur trade, and became critical components in the development of hydroelectricity in the late 20th century.[3]

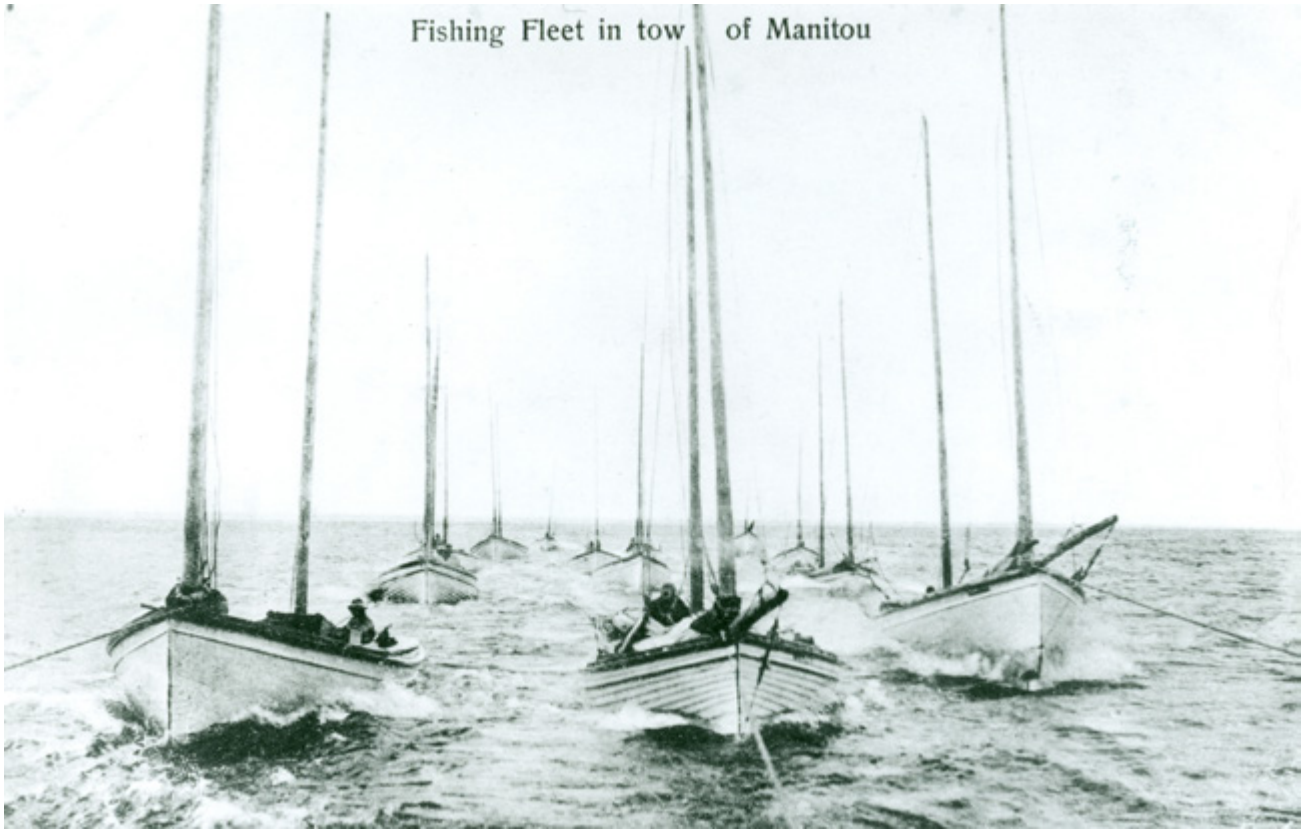
PEOPLE AND HISTORY

Humans have inhabited the shores of Lake Winnipeg for at least 8,000 years, from a time when boreal forests to the east and the parkland plains to the west supported a rich diversity of food sources. Approximately 2,000 years ago, Cree from the east moved into the region around Lake Winnipeg. In the summer months, communities gathered along the lake and its tributaries to hunt, fish, harvest rice, and gather other edible plants. They engaged in extensive trade networks that helped to strengthen social, economic, and cultural ties with other First Nations communities. During the autumn, some groups traveled west to hunt bison, returning before winter to the boreal forests around Lake Winnipeg, where they hunted and trapped other animals. By the mid-1600s, the region was dominated by Cree and Assiniboine peoples.[4]

First Nations going to Nelson House for treaty payments circa 1910.

The first European believed to have reached Lake Winnipeg was Henry Kelsey, who arrived in 1690. He identified the lake by its Cree name, "wīnipēk," or "muddy water."[5] Over the next 150 years, Lake Winnipeg supported a massive trading network that transported furs — especially beaver and, later, muskrat and marten — from the interior to the Hudson Bay Company trading post at York Factory. In return, European commodities such as guns, blankets, cloth, and metal products traveled from York Factory to Lake Winnipeg and then on to the communities supported by the Lake Winnipeg watershed. By 1821, additional posts were built at various sites along the inland trade routes. Of these, Norway House, located on the Nelson River, emerged as the Hudson Bay Company's administrative centre for interior trade.[6]

Over the course of the 19th century, the First Nations people who had once dominated the region were challenged by illness, a decline in traditional food resources, and a growing dependence on trading posts for food, equipment, and employment. At the same time, groups of Métis, Canadian, and European settlers arrived in the territory to establish new communities with their own social, political, and economic structures. In 1869, the unilateral decision to transfer Hudson's Bay Company territory to Canada resulted in an armed rebellion led by Métis leader Louis Riel. After the defeat of Riel and the imposition of Canadian law, Manitoba became a province of Canada in 1870. Shortly thereafter, the First Nations of Manitoba were persuaded to surrender their title to the land in a series of five numbered treaties between 1871 and 1875. In exchange, they were offered reserve land, to be administered under the terms of the *Canadian Indian Act*.[7]



Boats similar to these were used in the early years of commercial fishing on Lake Winnipeg.

With the decline of the fur trade, the building of the railway, and the emergence of Winnipeg as the centre of trade and commerce, economic activity on Lake Winnipeg and the Nelson River system shifted toward commercial fishing. By the early 20th century, fishermen on Lake Winnipeg were harvesting over 6 million kilograms of whitefish, sauger, and walleye annually.[8] A century later, Lake Winnipeg remains one of the largest freshwater commercial fisheries in Canada, second only to Lake Erie, and boasts the largest commercial walleye fishery in the world.[9] During the 2002–03 season, for example, fishermen landed over 3 million kilograms of walleye, 1.5 million kilograms of whitefish, and 700,000 kilograms of sauger.[10]

Hundreds of visitors vacation in communities such as Grand Beach, along the shores of Lake Winnipeg. 1934.

In addition to commercial fishing, recreation is also an important part of the Lake Winnipeg economy. The sandy beaches and scenic shorelines of Lake Winnipeg have drawn cottagers and vacationers for over 100 years. There are currently over 10,000 cottages along the south basin, and recreation and tourism expenditures in the area generate over $100 million annually. Popular vacation communities along the west shore include Gimli, Winnipeg Beach, and Sandy Hook, complemented by Grand Beach and Victoria Beach on the eastern shore. The eight provincial parks located around the south basin are also popular summer destinations. During the summer of 2005 alone, nearly 400,000 people visited Grand Beach Provincial Park. Recreational boating is another popular pastime: there are a total of 15 harbours around the lake. Gimli Harbour has berths for 220 vessels, while the marina at Winnipeg Beach has 148 berths.[11]

In recent years, fishing and recreational activities on Lake Winnipeg have been threatened by the emergence of thick blooms of blue-green algae. This potentially toxic algae, which tends to appear in the late summer months, has been attributed to an overabundance of chemical nutrients caused by wastewater, industrial effluent, and runoff from agriculture and livestock production. Grassroots efforts to restore the health of the lake have been supported by provincial and municipal initiatives to reduce nutrient levels and improve wastewater treatment facilities.[12]

CHAPTER 2

ELECTRICITY IN MANITOBA

Electricity arrived in Manitoba in the late 19th century, when private companies started to produce, transmit, and sell power to residential and commercial customers. In 1919, the Manitoba Power Commission was formed to help municipalities develop their electrical infrastructure and to link smaller towns and rural farmers to the provincial power grid. Much of the electricity was produced by hydroelectric generating stations located on the Winnipeg River.

By the mid-1950s, the power potential of the Winnipeg River had reached its maximum capacity, yet the demand for hydroelectric power continued to increase exponentially. To meet this growing demand, engineers explored the possibility of developing hydroelectric generating stations along the Nelson River, the outlet to Lake Winnipeg and its vast watershed. By harnessing the power potential of the river, Manitoba could be guaranteed a steady supply of reliable power for decades to come; generating and transmitting that power would require considerable planning and financial capital, however. The formation of Manitoba Hydro in 1961, along with the federal government's desire for a national power grid, finally created a solid foundation upon which the power of the Nelson River could be harnessed.

ELECTRICITY ARRIVES IN MANITOBA, 1873–1919

The 19th century was a period of profound change in Manitoba. Although it was a sparsely populated territory of Aboriginal communities and fur trading posts before the 19th century, Manitoba entered the 20th century as a Canadian province with a fast-growing population of European immigrants, Métis settlements, and First Nations reserves. Agriculture largely replaced the fur trade, and industries moved into the cities. Winnipeg became the capital and the commercial heart of the province, and its population grew exponentially: in 1891, the population of Winnipeg was approximately 25,000; by 1921, it was almost 180,000. Similar patterns of population growth were apparent in the province as a whole: from 1891 to 1921, the population of Manitoba quadrupled from roughly 150,000 to just over 610,000 (see Table 1). Situated at the crossroads of the eastern and western railway systems, virtually all people and products moving across the country passed through Winnipeg.

YEAR	MANITOBA[1]	WINNIPEG[2]
1871	–	241
1881	65,954	–
1891	152, 506	25,639
1901	255,211	42,340
1921	610,118	179,087

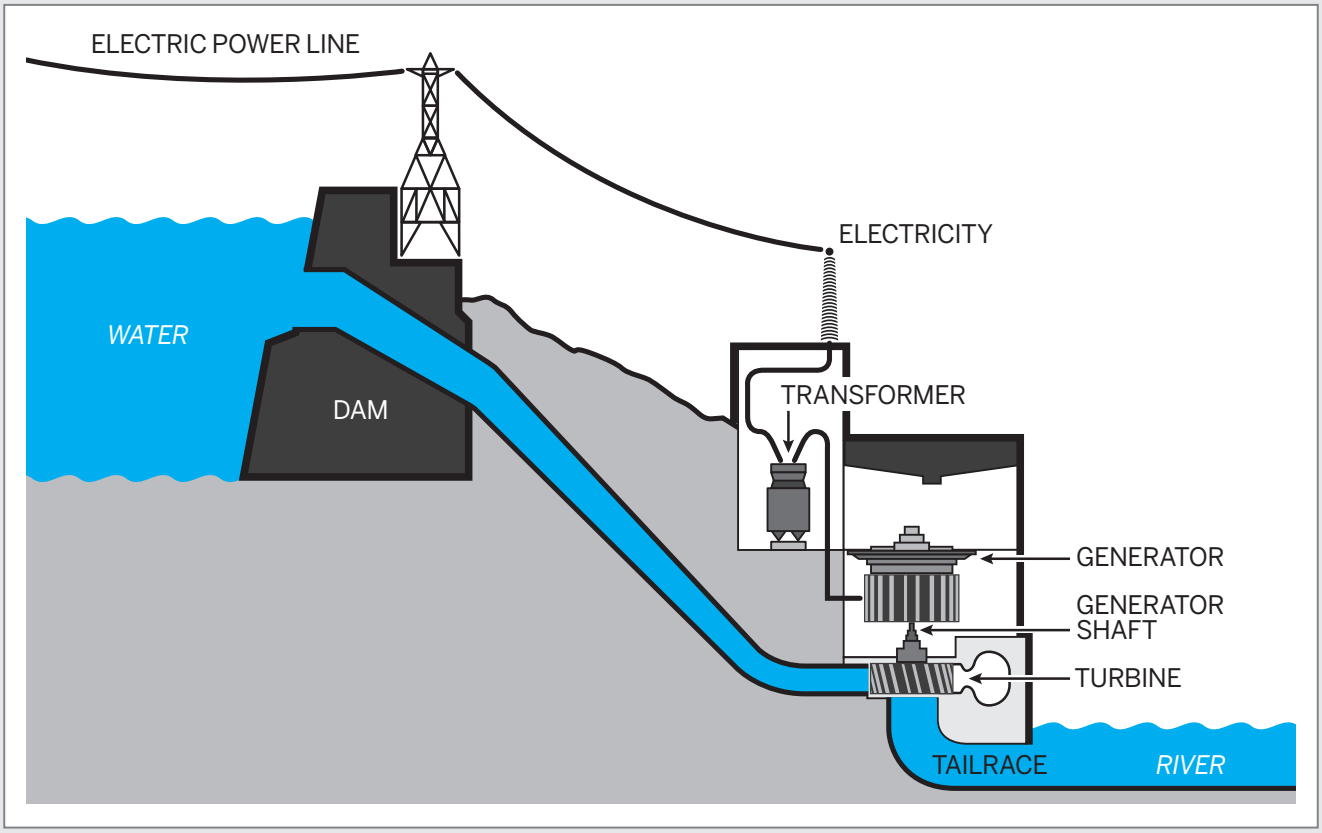
Table 1: Population of Manitoba and Winnipeg, 1871–1921

To support its growing population, the province needed energy to power its industries. In the late 19th century, that energy came in the form of wood, coal, and diesel. Coal, in particular, provided energy for manufacturing steel and iron. It fired the trains used to transport people and products, and, in urban areas, it replaced wood for heating homes; as well, gas produced from coal was used for lighting. In Manitoba, the coal that fueled its economy came entirely from imported sources, mainly from the United States. By the end of the century, however, Manitoba had started to develop its own energy resources in the form of hydroelectricity.

Electricity arrived in Manitoba on March 12th, 1873, when the Davis Hotel on Winnipeg's Main Street installed an electric light above its entrance. While this light was primarily a novelty to attract customers, the technology would soon transform the urban landscape and help to usher in the modern age of industrial technology and residential comfort. The successful implementation of electrical technology was dependent on three key factors: a reliable source of power generation, the transmission of electrical power to customers, and an administrative organization to deliver the service.

HYDROELECTRICITY – HOW IT IS GENERATED

Hydroelectricity is produced from the kinetic energy of falling water. Hydroelectric generating stations are built on rivers where there is a natural drop in elevation or where a dam is constructed to increase the water level. Water from the upper elevation, or "forebay," flows down a pipe called a "penstock," where it hits the blades of a turbine, causing it to turn. The turbine is connected to a generator by a drive shaft. As the generator spins, magnets inside it move past copper coils, stimulating electrons to create an alternating current (AC) of electricity. Power lines convey the electricity to a converter station, where the electrical charge is changed from AC to high-voltage direct current (HVDC) for long-distance transmission to faraway markets. The HVDC is converted back into AC before reaching its final destination in the homes and businesses of consumers.



The amount of electricity produced by a hydroelectric station depends on the amount of water and its vertical drop. Dams (also called control structures) can increase the height of water and create a reservoir of stored water. The water level of the reservoir can be regulated by releasing water through a spillway that is built into the dam. If the dam includes a generating station, the water that is released from the reservoir can be used to generate electricity.

In the 1960s and 1970s, Manitoba Hydro and the provincial government decided to harness the power potential of the Nelson River by building a series of hydroelectric generating stations along the river. The Jenpeg control structure and generating station were constructed at the outlet of Lake Winnipeg, to control the flow of water down the Nelson River. Converter stations and two bipole transmission lines delivered the electricity from the generating stations to consumer markets in southern Manitoba, 900 kilometres away.

In the late 19th century, most of the advancements in electrical technology focused on improving the process of power generation and transmission. Notable among these improvements was the creation of hydroelectricity, which used fast-flowing water to turn turbines that generated electrical power. Typically, electric generators had been fueled by steam that was heated by coal or diesel. While these thermal generators provided a good supply of localized electricity, importing coal and diesel fuel could be costly. With hydroelectric generation, there was no need to import fuel from elsewhere: the "fuel" came from local rivers. Although hydroelectricity was less expensive to produce than thermal power, constructing the hydroelectric generating stations was expensive and complicated. Consequently, early hydroelectric stations tended to be built where the demand for electricity was especially high and where there was nearby access to fast-moving water. The first hydroelectric station in North America was built in 1881 on the American side of Niagara Falls in New York state, for example. By the end of the decade, there were over 200 hydroelectric power stations in Canada and the United States. In Manitoba, the first hydroelectric generating station was built in 1900, on the Minnedosa River just outside of Brandon.[3]

A second important area of technological advancement was in the area of electrical transmission. Initially, the lack of viable transmission lines meant that power had to be generated very close to where it was to be used. As a result, only those people and businesses that could afford to install a generator on their own property could enjoy the benefits of electricity. In the late 1800s, however, as the technology behind electrical transmission improved, electricity became more accessible to the broader population. In 1886, George Westinghouse's experiments in alternating current significantly improved the stability of electrical transmission.[4] Additional refinements over the next two decades dramatically improved the capacity of transmission lines to carry high-voltage electrical currents over longer distances. This had a number of advantages: first, it meant that generating stations could be built further away from the customer base. This was particularly important for the development of hydroelectric generation, because the best sources of water current might be several miles from the community. Second, improved transmission allowed for larger loads of high-voltage electricity to be carried. This meant that greater amounts of power could be transmitted to larger numbers of customers across the same set of transmission lines. The resulting economies of scale lowered the cost of the infrastructure and helped to reduce electrical bills for customers.[5]

As the technology for electrical generation and transmission improved over time, the process of service delivery and administration became more complex. Building the infrastructure to generate and transmit electrical power throughout a community required considerable planning and investment capital. Municipal governments soon realized that it was in the public interest to establish a single set of power lines to service an entire community. To this end, local governments formed contracts with individual companies to build and supply the infrastructure for electrical transmission, street lamps, and streetcars. The company that won the municipal contract built the infrastructure at a reduced rate in exchange for a long-term, exclusive franchise to deliver electrical services once the system was complete.[6]

These exclusive contracts tended to be highly lucrative for the winning company and soon led to the consolidation of electrical services into a single corporate monopoly. In Winnipeg, for example, the Winnipeg Street Railway Company was awarded a 35-year franchise in 1892 to build and operate the city's electrically powered streetcars.

By 1898, the Company was sufficiently profitable that it purchased the Manitoba Electric & Gas Light Company, thereby gaining complete control over the construction, operation, and distribution of electric light, power, and gas, as well as all transit service within the city of Winnipeg.[7] Once it gained monopoly control over the city's power generation, transmission, and sales, the Winnipeg Electric Railway Company was able to invest in the future. In 1902, it began building the Pinawa hydroelectric generation station. This ambitious $3-million project was considered at the time to be a marvel of engineering. It was the first hydroelectric generating station to be built on the Winnipeg River. It was also the first generating station to operate year-round. The Pinawa generating station commenced operations in 1906 and remained in operation until 1951.[8]

The trend toward monopoly ownership was not unique to electricity, however, nor was the necessity of building a common infrastructure. Telegraphs, telephones, railways, water, and sewage systems all required a large initial investment to construct a shared grid of wires, rails, and pipes through which services could be provided to commercial and residential customers. By the end of the 19th century, the private companies that installed these technologies and provided the services became highly profitable and politically powerful monopoly ventures. The services they provided transformed the urban landscape and became the lifeblood of modern industrialization. Cities with modern networks of transportation, communication, power, and plumbing were well positioned to attract new business and foreign investment. For customers, however, the price of monopoly services was high, and they had no alternative for changing service providers.[9]

The Winnipeg Electric Street Railway Company used its monopoly ownership of electricity in Winnipeg to further hydroelectric development.

In the early 20th century, in order to create competition with the private monopolies, some municipalities started to develop their own utility services. Winnipeg joined the trend toward public ownership in 1906 with the creation of the City of Winnipeg Hydro Electric System, or City Hydro. Public ownership gave the City of Winnipeg greater control over the expansion and distribution of electricity within the residential market. It also ensured that local citizens, whose taxes had paid for the electrification of the urban infrastructure, would not pay exorbitant rates for electrical power.[10]

The benefits of competition were almost immediately apparent. In the same year that City Hydro was formed, the Winnipeg Electric Railway Company cut its rates from 20 cents per kilowatt hour (kWh) to 10 cents. Rates dropped again in 1911, when City Hydro completed work on the Pointe du Bois Generating Station, on the Winnipeg River. This station allowed the public utility to produce its own source of power generation, which, in turn, made it possible to reduce rates further still, from 7.5 cents to 3.3 cents per kWh. [11]

Although the city of Winnipeg was among the first municipalities to form its own public utility, it was not the only one to do so. Several municipalities in Saskatchewan had made similar moves; however, the biggest shift toward public ownership occurred when provincial governments began developing their own public utility companies. Ontario began the trend with the formation of the Ontario Hydro Electric Commission in 1906. The Ontario Commission was formed in part to harness the energy potential of Niagara Falls and to ensure that the power it generated would benefit communities through the region. By the 1920s, all provinces except Quebec and British Columbia had developed their own electric regulatory boards or Crown corporations to manage the development, expansion, and distribution of electric service.[12]

MANITOBA POWER COMMISSION, 1919–45

In Manitoba, the move toward provincial ownership came in 1919 when the *Manitoba Electric Power Transmission Act* created the Manitoba Power Commission. The Commission's mandate was to "generate, purchase, transmit and distribute electrical energy" throughout Manitoba. Winnipeg's City Hydro continued to operate as a separate, municipally owned utility serving the needs of Winnipeg customers, while the Manitoba Power Commission focused on providing services to customers outside of the provincial capital.[13]

Like previous providers of electrical services, the Manitoba Power Commission recognized the value of creating its own means of power generation, electrical transmission, and service administration. Over the next four decades, the Commission developed each of

The Manitoba Power Commission's district supervisors assembled for their annual conference, 1938.

these three elements in order to bring the commercial and residential benefits of electrical energy to all members of the province.

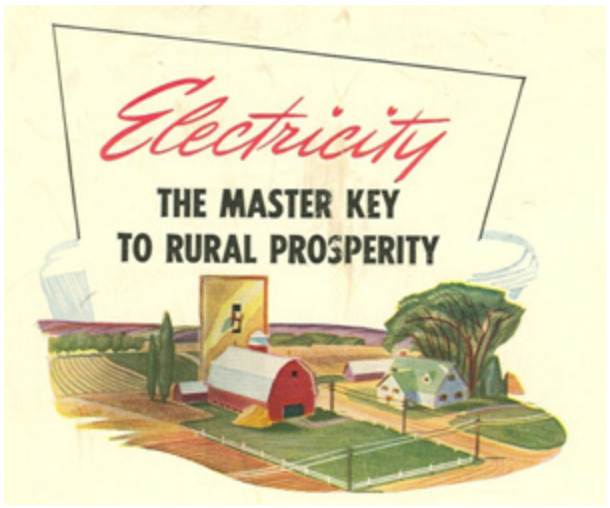
Plans to expand the province's hydroelectric generating capacity began even before the creation of the Manitoba Power Commission. In 1912, Prime Minister Robert Borden transferred the northwestern territories that made up the District of Keewatin from the federal government to Manitoba. The addition gave Manitoba jurisdiction over much of the Churchill and Nelson River water basins.[14] Studies undertaken by the Geological Survey in 1913 and by the Manitoba Utilities Commission in 1914 and 1916 examined the potential for mineral and resource development in the newly acquired territories. The research included a specific examination of the Nelson and Churchill River systems to assess their potential for generating hydroelectric power. These early surveys confirmed that the two rivers had considerable power potential. Although there was not yet the demand or the technology available to develop these northern resources, the studies became a basis for future planning.[15]

For the immediate future, therefore, the Winnipeg River remained the focus of all new power generation. Between 1920 and 1955, five new hydroelectric generating stations were constructed along the river. The privately owned Winnipeg Electric Company (formerly the Winnipeg Electric Railway Company) completed the Great Falls Generating Station in 1923[16] and the Seven Sisters Generating Station in 1931.[17] City Hydro built the Slave Falls Generating Station in 1931.[18] In 1951 and 1955, the provincially owned power company completed work on the Pine Falls and McArthur Generating Stations.[19] McArthur was the last hydroelectric generating station to be built on the Winnipeg River.

Slave Falls Generating Station, 1948.

The expansion of the province's generating capacity was precipitated by the growth of the provincial population and its industries. To help municipalities keep up with the modernizing technologies, the Manitoba Power Commission introduced changes to the administration of electrical service. Until the 1930s, the electrification of Manitoba's rural towns and businesses was haphazard. Individual municipalities formed contracts with individual electricity providers using the power generated from local water or imported fuels. With the creation of the Manitoba Power Commission in 1919, municipalities were given the option of purchasing power directly from the Commission. This arrangement allowed Manitoba towns to tap into a stable source of power generation without having to invest in their own generating infrastructure. During the 1920s, dozens of Manitoba's smaller towns and rural communities, such as Roland, Minnedosa, and Virden, took advantage of this opportunity.[20]

One of the problems with this arrangement was that municipalities were still able to set their own utility rates. Consequently, the price of electricity could vary dramatically from one community to the next. In 1931, the provincial government introduced the *Manitoba Power Commission Act*. The new Act reorganized the structure of the Manitoba Power Company, allowing it to sell electricity directly to provincial customers. Municipal governments were no longer expected to serve as middlemen in the provision of power; they were simply customers, like everyone else. This change in the administration of the utility ensured greater uniformity in the cost and delivery of electrical service across the province.[21]



Advertisements were used to promote rural electrification. 1942.

The third area of provincial expansion was in the realm of transmission. The Second World War boosted the nation's economy by increasing demand in both the manufacturing and agricultural sectors. The war also created a labour shortage, particularly in labour-intensive industries such as farming. In 1942, the Manitoba government investigated options for bringing labour-saving electrical technology to the province's farms.[22] In 1945, the Manitoba Power Commission launched its rural-electrification initiative. The Commission installed the transmission poles and lines, and individual farm households undertook the wiring of their homes and barns. By 1954, almost 75% of Manitoba's farms had joined the electrical grid.[23]

POST-WAR EXPANSION

The expansion of electrical power into rural Manitoba contributed to an exponential rise in the demand for power in the post-war era. Additional factors included the growth in industry, an expanding population, and the proliferation of household electrical appliances and luxury products, such as radios and televisions. While these indicators suggested that the economic future was bright, such progress was contingent on the availability of electrical

power. To meet the ever-increasing demand for electricity over the next several decades, the province would need to secure new sources of power generation and extend the reach of its transmission lines and service delivery.

Three important developments led to the process of hydroelectric expansion in the post-war period: the creation of Manitoba Hydro as a publicly owned monopoly, federal interest in a national electrical transmission grid, and the decision to build new hydroelectric generating stations on the Nelson River.

MANITOBA HYDRO

The move to "nationalize" provincial hydro began in the late 1940s, when the provincial government struck a royal commission to study Manitoba's electrical industry and to make recommendations on the best way to meet the province's current and future needs.[24] The royal commission's report, which was released in 1948, recommended that the province assert greater control over the development and supply of electrical energy by taking over complete responsibility for all existing private and municipal power companies. In consolidating the generation, transmission, and delivery of electrical services under a single, provincially owned monopoly, the Manitoba Power Commission could ensure greater uniformity of service across the province, which in turn would attract new industries and foreign investment. In addition, a provincially owned monopoly would be able to use public funds to construct the larger and more complex hydro projects needed to meet future demand, and any surplus revenues could be reinvested back into the public utility.[25]

While the plan to amalgamate all public and private electric utility companies under the banner of a single corporation promised to bring greater efficiency to the system, critics worried that the creation of a publicly owned monopoly would eventually lead to higher rates and less accountability. In the end, Premier Douglas Campbell opted for a hybrid solution, in which the City of Winnipeg would retain ownership of its own utility company but the province would take over responsibility for the generation, transmission, and distribution of electric power throughout the rest of the province.[26]

Implementation of the revised plan began with the creation of the Manitoba Hydro-Electric Board in 1949 under the direction of the Department of Mines and Natural Resources. In 1952, the Board purchased the generation and distribution assets of the Winnipeg Electric Company. A year later, the two companies amalgamated. The Winnipeg Electric Company remained in operation as a utility company, but it was now controlled by the Manitoba Hydro-Electric Board.[27]

The final move toward provincial ownership occurred in 1961, when the *Manitoba Hydro Act* united the Manitoba Power Commission and the Manitoba Hydro Electric Board to form Manitoba Hydro. Under the Act, Manitoba Hydro became responsible for supplying hydroelectricity everywhere in the province except the City of Winnipeg, where power continued to be provided by City Hydro (renamed Winnipeg Hydro in 1964). As a provincially owned crown corporation, Manitoba Hydro would report to the Manitoba legislature and its activities would be reviewed by the Standing Committee on Public Utilities and Natural Resources. The government was expected to maintain an arm's-length relationship to Manitoba Hydro, but it retained the authority to appoint members to the Manitoba Hydro Electric Board, to set limits on borrowing, and to approve all export sales outside of the province.[28]

THE NATIONAL POWER GRID

At the same time as the province was extending its administrative authority over hydroelectric services, it was also expanding its delivery of hydroelectric services across the province. In 1956, Manitoba completed its first interprovincial transmission line, linking the northwestern system of Ontario Hydro to the southeastern system of the Manitoba Hydro Electric Board. The interprovincial line allowed the two provinces to exchange surplus power in line with consumer demand and power capacity. In 1960, a second interprovincial transmission line was completed, linking Manitoba with Saskatchewan. During this same period, the provincial utility started to move into northern communities, including The Pas in 1958, Thompson in 1960, and Churchill in 1961. Additional coal-burning generating stations were built in Brandon in 1957 and Selkirk in 1960. By 1961, 523 communities in Manitoba had joined the provincial power system.[29]

Prime Minister John Diefenbaker, October 20, 1962.

The expansion of the provincial transmission system coincided with a new federal interest in developing a national power grid across the entire country. In the late 1950s, Prime Minister John Diefenbaker began to explore the possibility of building a national power grid that would allow provinces to transmit electrical power across shared transmission lines. Diefenbaker believed that this grid would strengthen Canadian industries by enabling energy-rich provinces to share their electrical power more easily. In addition, the cost of constructing a national power grid would be spread across the country, thereby reducing the tax burden on individual provinces.[30]

The proposed plan for a national power grid was championed by Walter Dinsdale, Diefenbaker's Minister of Northern Affairs and Natural Resources. Working in consultation with David Cass-Beggs, a hydrographic engineer and general manager of the Saskatchewan Power Corporation,[31] Dinsdale argued that a national power grid would "make possible substantial economies and would permit the early development of major hydroelectric sources in remote areas."[32] In March 1962, Diefenbaker introduced his plans for a national power grid to the provincial premiers. It was discussed again at the premiers' meeting in August.[33]

Support among the premiers was mixed. Premier Jean Lesage of Quebec, who boycotted the first meeting, raised concerns about federal intervention into provincial resource management. Other premiers liked the idea of increasing the supply of electrical energy while reducing the cost of electrical generation, but they worried about jurisdictional issues. Manitoba's premier, Duff Roblin, was a particularly enthusiastic advocate for the plan. Given the power potential of Manitoba's northern rivers, Roblin believed that Manitoba was well positioned to become a central service provider in the federal government's national power grid.[34]

The premiers agreed to set up a joint working committee with the federal government and to hire consultants to examine the technical feasibility of building a national transmission line.[35] The consultants' reports confirmed the benefits of a national power grid. The 1964 report, authored by H.G. Acres & Company, stated that a national power grid, would "facilitate the development of Canada's remote hydroelectric resources, and...would yield substantial benefits to the national and provincial economies."[36] In 1966, the firm of Ingledow & Associates echoed these conclusions, stating that "the greatest economy is to be derived through the interconnection and coordination of all systems on a national basis."[37]

Even before the consultants completed their reports, however, plans for a national power grid had changed direction. In the spring of 1963, Diefenbaker's Progressive Conservative government was defeated by Lester Pearson's Liberals. Like Diefenbaker, Pearson was an economic nationalist who advocated for the development of Canada's domestic resources. Pearson recognized the benefits of a national power grid, but his energy policy supported a more continental approach to the sale of power.[38] Given the difficulty of selling power across multiple provincial and federal jurisdictions, the energy-rich provinces of Manitoba, British Columbia, and Quebec saw the benefits of formulating agreements to sell their surplus power directly to their wealthy American neighbours.[39]

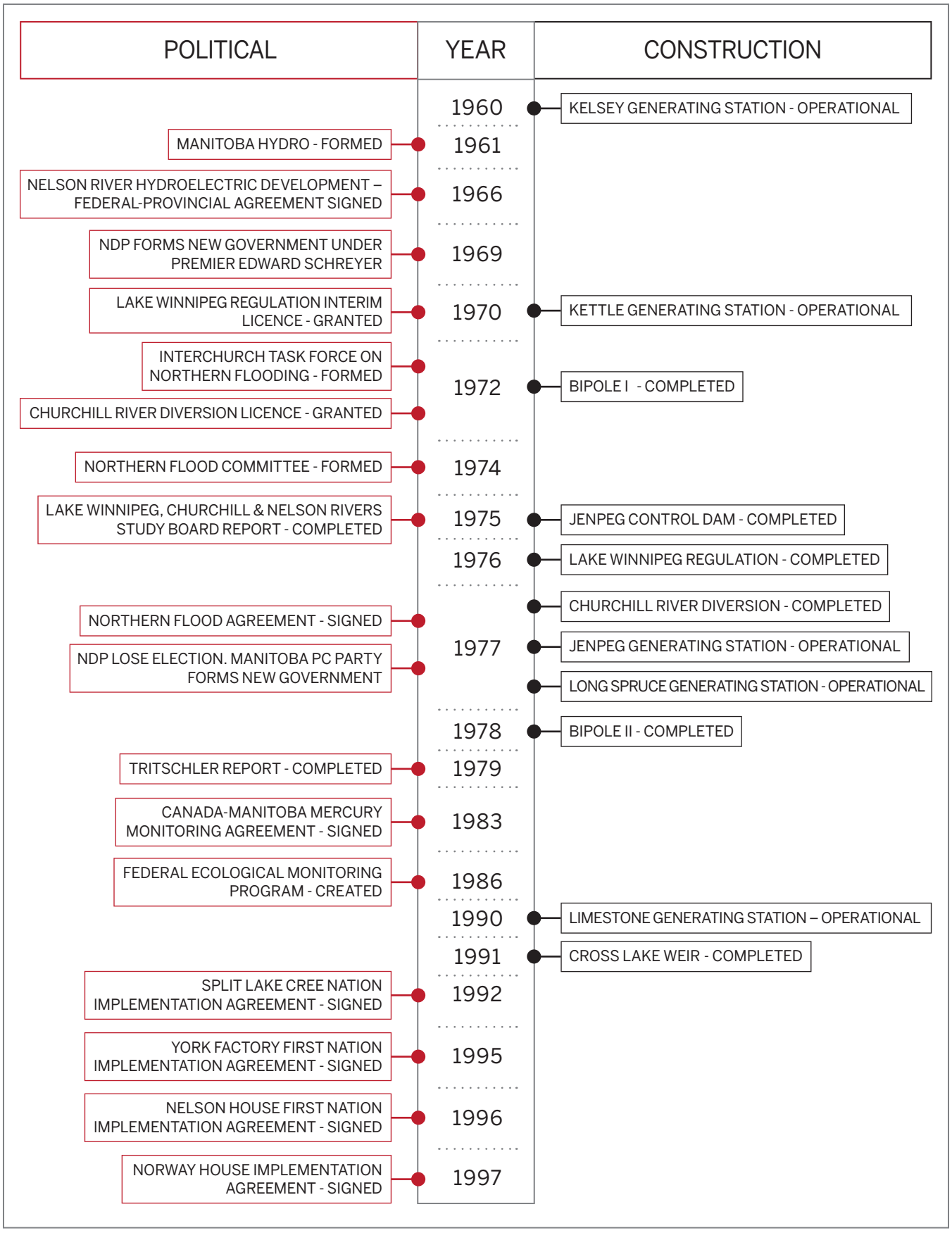
CHAPTER 3

THE NELSON RIVER HYDROELECTRIC PROJECT

The development of the Nelson River hydroelectric project began with investigations into financial costs and engineering challenges. To increase and regulate the flow of water down the river, hydro engineers recommended that a portion of the Churchill River be diverted to the Nelson River, and that the water level in Lake Winnipeg be regulated.

In 1966, the federal and provincial governments agreed to collaborate on the venture and construction of the first generating stations; construction on the transmission lines began soon afterward. Construction of the Churchill River Diversion (CRD) and Lake Winnipeg Regulation (LWR) projects took longer to get underway, however. Proposed plans for a high-water CRD met with strong opposition when it became apparent that vast tracts of boreal forest would be flooded, decimating the local economy and requiring the forced relocation of affected First Nations communities.

A spring election in 1969 brought about a change in the provincial government. The newly elected New Democratic Party (NDP) government reduced the planned flood levels of CRD, but accelerated construction of LWR. The two projects remained controversial, however, as they became mired in construction delays and cost overruns. When the Progressive Conservative Party returned to power, in 1977, the premier called a Commission of Inquiry, led by George Tritschler, to investigate the building of the Nelson River hydroelectric project. The Tritschler Report, released in 1979, was highly critical of both Manitoba Hydro and the provincial government, but was conspicuously silent about the projects' social and environmental impacts.



Timeline of select political events and constructions milestones associated with the Nelson River hydroelectric project.

PLANS AND DELIBERATIONS

Although plans for a national power grid did not materialize, the federal-provincial debates over its creation were important to the development of Manitoba Hydro. First, the discussions encouraged the provincial government to believe that external markets would be willing to purchase Manitoba's surplus energy. Second, the federal government's interest in promoting a national power grid and supporting the development of domestic power sources led to cost-sharing agreements that helped Manitoba to research, design, and build its new sources of power generation and transmission. Both of these factors encouraged the province to initiate plans for a massive new hydroelectric development along the Nelson River.

Geological surveys of the Nelson River conducted in 1913, 1914, and 1916 had identified the river as a viable source of power generation, but neither the demand nor the available technology made it feasible to develop its potential at that time. By the 1960s, however, Canada had become a world leader in the field of long-distance electrical transmission.[1] Consequently, technology was less of an impediment to development. As well, with the demand for electricity rising steadily throughout the post-war period, and the promise of external markets for power export, new sources of power generation were required. With the completion of the McArthur Generating Station in 1955, the Winnipeg River reached its maximum generating capacity. The Nelson River became the next logical site for new hydroelectric development.

The first hydroelectric generator to be built on the Nelson River was the Kelsey Generating Station at Thompson, in 1960. The Kelsey station was built to supply power to the International Nickel Company (INCO). The company became interested in the region following the discovery of nickel sulfide in northern Manitoba in 1956. The province's willingness to subsidize construction of the Kelsey station encouraged INCO to set up mining, smelting, and refining operations at Thompson. The Kelsey station provided power for the company and served the residents of Thompson. For the province, it was another demonstration of the link between the provision of power and the advancement of provincial industries.[2]

Construction of the Kelsey Generating Station on the Nelson River, circa 1958.

Although the construction of the Kelsey Generating Station was an important first step in the development of the Nelson River, it was still a relatively small station that was intended to serve consumers from the immediate region. To maximize the full power potential of the Nelson River, the province and Manitoba Hydro began planning a more massive hydro engineering project. The first challenge was to find a way to increase and stabilize the flow of water down the Nelson River. To increase its power potential, Manitoba Hydro needed to achieve a certain level of firm, dependable flow of water down the river. The company also had to

control the rate of water flow so that it could increase power generation when the demand for power was high, and reduce generation when demand was low. In its natural state, the volume of water flowing down the Nelson River tends to be highest during the spring and early summer, when melting snow and spring rains swell the lakes and rivers that feed the river. The flow of water is weakest during the winter months, when the lakes and tributaries freeze over, thereby reducing the volume of running water.

Unfortunately, this naturally occurring fluctuation in water flow runs contrary to consumer demand, because the demand for electrical power tends to be highest in the cold, dark months of winter, and lowest during the long, hot days of summer. Since it is not possible to store electricity after it has been generated, Manitoba Hydro's only option was to store the water in a reservoir, where it could be released when needed. For the Nelson River, two possible options for creating a hydro reservoir were identified. The first option was to restrict and regulate the outflow of water from Lake Winnipeg, thereby turning the lake into a massive hydro reservoir. The second option was to divert water from the Churchill River and regulate its flow down the Rat and Burntwood Rivers into the Nelson River. Ultimately, both options were constructed, but it took over a decade of research and debate to reach this decision.

In the 1950 Winnipeg flood, Wellington Crescent at Niagara Street became an unwanted lake.

LAKES WINNIPEG AND MANITOBA BOARD REPORT, 1958

Detailed research into the possibility of regulating the water in Lake Winnipeg was first initiated by the Lakes Winnipeg and Manitoba Board in 1956. The Board was established by the provincial government to explore options for mitigating the property damage caused by seasonal flooding. While the Board's research was not primarily concerned with the generation of hydroelectric power, it recognized that the regulation of Lake Winnipeg could be useful both for flood control and power generation.[3]

The Board released its report in 1958. The report concluded that LWR was both viable and valuable for the prevention of flooding, but that it would only be cost effective if it was undertaken as part of a broader plan to generate power from the Nelson River. The primary question, suggested the report's authors, was not whether regulation for power generation was possible, but, rather, "at what cost could such regulation be accomplished; how much power would be gained; and at what time in the future would regulation be feasible."[4] In anticipation that Lake Winnipeg would one day be regulated to support power generation on the Nelson River, the Lakes Winnipeg and Manitoba Board recommended that Crown land along the shores of Lake Winnipeg be held in reserve for the future.[5] With respect to seasonal flooding, the Board recommended a program for shoreline protection, and the creation of protective dikes.[6]

THE CRIPPEN REPORT

The next major study into LWR and Nelson River hydroelectric development was initiated in February 1963 as part of a federal-provincial cost-sharing agreement.[7] The agreement included the formation of the Nelson River Programming Board, which would direct research and administer the agreement. The Board hired the engineering firm of G.E. Crippen & Associates "to investigate the economic feasibility of developing the hydro-electric potential of the Lower Nelson River in the Province of Manitoba."[8]

Premier Duff Roblin (right) and Federal Minister of Indian Affairs and Northern Development Walter Dinsdale at the signing of an agreement to share the $1-million cost of a study into the hydroelectric potential of the Nelson River, 1963.

Crippen & Associates released an interim report in November 1963, followed by a more substantial report in 1964. The latter report stated that "the Nelson River, regulated by Lake Winnipeg, contains the greatest undeveloped hydro-electric potential remaining in Manitoba."[9] The report further noted that the diversion of water from the Churchill River at Southern Indian Lake to the Nelson River could be engineered "at very low cost" and would increase "the dependable water supply to the proposed Lower Nelson River plants by 30 percent."[10] Crippen asserted that combining LWR with CRD could produce "an 80 percent increase in dependable flow."[11] As a consequence of such a strong and reliable flow, Crippen was confident that the Lower Nelson River could support the operation of at least six generating stations.

In terms of the sequence of construction, Crippen recommended that the first new generator be built at Kettle Rapids, to meet the immediate demand for new energy. Its construction would be followed by generators at Limestone and Long Spruce. The report explained that the timing of construction of CRD and LWR would depend on the relative priority of cost over time. Building the Limestone Generating Station and CRD first would cost the least, but would take five years to complete. Alternatively, building the Kettle Generating Station, LWR, and CRD simultaneously would cost more, but could be completed in three-and-three-quarter years.[12] No matter which construction project came first, however, Crippen & Associates argued that all of the projects would need to be built eventually. Consequently, the final cost for completing all of the projects would be roughly the same, regardless of which project was undertaken first.

NELSON RIVER PROGRAMMING BOARD

The Nelson River Programming Board tabled the Crippen Report in Parliament and in the Manitoba Legislature on March 4, 1964. The findings of the 1964 report proved to be sufficiently compelling that on May 27, 1964, the federal-provincial cost-sharing agreement was renewed and the Nelson River Programming Board was granted an additional $3 million to extend its studies and investigations until March 1966.[13]

In December 1965, the Programming Board released an interim report months ahead of its deadline, because "a decision by Manitoba on its next source of new generating capacity [was] an urgent requirement."[14] The recommendations of the Programming Board's interim report called for the construction of four distinct projects, to be known as "the Phase I Development." The four projects included:

- The building of a generating station at Kettle Rapids, at an estimated cost of $143 million over four-and-a-half years;
- The diversion of water from the Churchill River to the Nelson River via the Rat and Burntwood Rivers, at an estimated cost of $20 million over three years;
- The construction of a control dam, spillway, and pumping station for the regulation of Lake Winnipeg, at an estimated cost of $28 million over three-and-a-half years; and
- The creation of a high-voltage transmission system to convey power from the Nelson River to southern markets, at a cost of roughly $114 million over four-and-a-half years.

All in all, the project was expected to take a minimum of four-and-a-half years to complete and cost a grand total of $305 million (the equivalent of $2.3 billion in 2015 dollars).[15] Although the Nelson River Programming Board's report recognized that the project was expensive, it argued that the cost was justified by "the indirect and intangible benefits" to the province and nation. These benefits included the use of renewable energy to generate provincial power, the advancement of cutting-edge transmission technology, and the opportunity to raise revenue through "the export of power beyond the boundaries of Manitoba."[16]

On February 15, 1966, just two months after the Nelson River Programming Board released its interim report, the Government of Canada signed an agreement with the Province of Manitoba to initiate construction on the first phase of the Nelson River hydroelectric development. "Phase One" of the Nelson River Hydro-electric development project identified the same four projects that had been recommended by the Board in December 1965, namely: construction of the Kettle Generating Station; construction of high-voltage bipole transmission lines; construction of CRD; and construction of LWR.[17]

With both a clear plan and dedicated financing, Manitoba Hydro was finally able to initiate work on the massive new Nelson River hydroelectric project.

PHASE-ONE DEVELOPMENT

Work on the Kettle Generating Station and the Bipole Transmission Line began soon after the signing of the federal-provincial agreement. Forecasters at Manitoba Hydro had predicted that the province's demand for power would outstrip its current capacity by 1971. Completion of the Kettle station with accompanying transmission lines would

achieve the immediate requirement for power and give Manitoba Hydro time to investigate options for designing LWR and CRD.

Map of Phase One Development.

KETTLE GENERATING STATION

Feasibility studies for building the Kettle Generating Station were completed in 1966 and construction contracts were in place by November 1966. The station was to be located on the Lower Nelson River at the Kettle Rapids,

approximately six kilometres east of Gillam and 300 kilometres east of Thompson. Construction began in 1966 and included the creation of the town of Gillam to house and provide services for hydro workers and their families.[18]

Opening of Kettle Generating Station, 1973.

The first set of turbines came into operation in December 1970, the same year that the National Energy Board approved Manitoba's application for a permit to build a transmission line between Winnipeg and Grand Forks, North Dakota.[19] The last set of turbines was installed in November 1974, rendering the Kettle Generating Station fully operational. With a maximum generating potential of 1,272 megawatts of power, the Kettle station was the largest generating station in Manitoba. The final cost of construction was $240 million, almost double the original estimate.[20]

Shortly after the completion of the Kettle Generating Station, work began on the Long Spruce Generating Station, approximately 27 kilometres east of Gillam. Although the Long Spruce station was not among the four main projects identified in the 1966 federal-provincial agreement, it was among the six generating stations recommended for early development in the Crippen report.[21] The Schreyer government initiated construction of the Long Spruce Generating Station two years ahead of schedule in anticipation of future export sales and increasing domestic demand. Long Spruce began generating power in 1977 and was fully completed in 1979 at a total construction cost of $508 million (roughly $60 million over budget).[22]

The third and final generating station undertaken during this period was the Limestone Generating Station. Like the Long Spruce station, it was identified for early development. Construction began in 1976, but was halted in 1978 because of an unforeseen drop in consumer demand for electricity. Work resumed in 1985 and was fully completed in 1992, at a total cost of $1.43 billion.[23]

Construction of the Long Spruce Generating Station, 1975.

BIPOLE TRANSMISSION

The second major component of the Nelson River project was the transmitting of power from the generating stations to the ratepayers. Until the 1950s, one of the biggest obstacles to developing hydroelectricity along the Nelson River was the inability of transmission lines to carry electrical power over very long distances. By 1966, however, the technology of long-distance, high-voltage transmission was considerably more advanced. Construction on the transmission lines, known as Bipole I and Bipole II, was managed by Atomic Energy Canada, with financing from the federal government.[24] Through the use of recent advancements in high-voltage direct current (HVDC) transmission, Atomic Energy Canada constructed more than 4,000 transmission towers across over 900 kilometres of land from the Lower

CRD AND LWR "FLIP-FLOP"

With the commencement of power generation at the new Kettle Generating Station in December 1970, and the completion of Bipole I in 1972, Manitoba Hydro had enough new power to meet consumer demand for the next several years. The next critical component of phase one development was the construction of the CRD and LWR projects.

Before construction could begin, however, additional research was required to clarify the engineering plans and to identify the costs, risks, and benefits of potential project plans. During the course of this research, Manitoba Hydro completely reversed its position on the relative merits of CRD and LWR. Although reports from the early 1960s indicated that LWR was central to the Nelson River development, reports after 1966 suggested that it might not be necessary at all if a sufficiently large volume of water could be diverted from the Churchill River to the Nelson River. To do this, Manitoba Hydro would need to increase water levels by up to 30%, causing mass flooding. By 1968, Manitoba Hydro was sufficiently committed to the high-level diversion of the Churchill River that it no longer saw the need to conduct further studies into LWR. Two years later, when the social and environmental impact of this scheme became a matter of public and political debate, Manitoba Hydro once again reversed its position and chose to develop modified versions of both projects simultaneously.

Nelson River to southern Manitoba. The transmission lines were built along the west side of Lake Winnipeg. While the east side of the lake allowed for a shorter, more direct, route to southern markets, the longer western route was selected because it would be better served by roads and railways. It was also believed that the swampy conditions and permafrost found on the east side of Lake Winnipeg would make construction and maintenance more difficult. In addition to transmission poles and lines, converter stations were built to convert the alternating current (AC) produced by the generating station into DC for transmission south. A third converter station, located near Winnipeg, converted the DC back to AC for use by consumers.[25] The Bipole I transmission line became operational in June 1972. Bipole II was completed in October 1978.[26]

ENHANCING THE FLOW: LAKE WINNIPEG AND THE CHURCHILL RIVER

The idea for the high-water diversion plan stemmed from engineering reports that were undertaken after the 1966 federal-provincial agreement was signed. Engineers identified four possible locations for diverting water from the Churchill River to the Nelson River.[27] Southern Indian Lake was deemed the best location because it could provide both water storage and water diversion.[28] Southern Indian Lake is formed from a natural widening in the Churchill River.[29] At Missi Falls, the water drains out of Southern Indian Lake into the Lower Churchill River. It was proposed that, by building a 100-foot control structure at Missi Falls and a second, 80-foot control dam at the Rat River, the Churchill River would, in effect, be blocked off at Southern Indian Lake. Diversion channels would then redirect the flow of water from the south basin of Southern Indian Lake down the Rat River, into the Burntwood River, and, finally, into the Nelson River at Split Lake.[30]

Missi Falls on the Churchill River, 1969.

By blocking the flow of water at Southern Indian Lake, Manitoba Hydro could create a massive storage reservoir, which it could then regulate in accordance with consumer demand. A report commissioned by the Manitoba Water Commission in 1968 estimated that the diversion of the Churchill River at Southern Indian Lake would create enough of a reservoir that additional Lake Winnipeg storage would "hardly be needed anymore."[31] The report recognized that this approach could have a significant impact on the environment. The shoreline would be inundated by 30–40 feet of additional water, thereby causing "substantial damage" to forestry, wildlife, fishing, mining, and recreation. As well, approximately 500 people living in the community of South Indian Lake would need to be relocated.[32]

Despite the apparent social and environmental impacts, Manitoba Hydro supported the recommendation for high-level flooding on Southern Indian Lake because it would allow larger quantities of water to be diverted from the Churchill River to the Nelson River. Engineering reports indicated that construction of a "high-level diversion"

on the Churchill River would reduce the need to regulate the water flow from Lake Winnipeg for several years, if not indefinitely.[33] By 1968, the chairman and general manager of Manitoba Hydro, W.D. Fallis, concluded that "Manitoba Hydro will not…require Lake Winnipeg regulation for power purposes prior to 1978. Deferment for many years beyond that date would appear quite possible."[34]

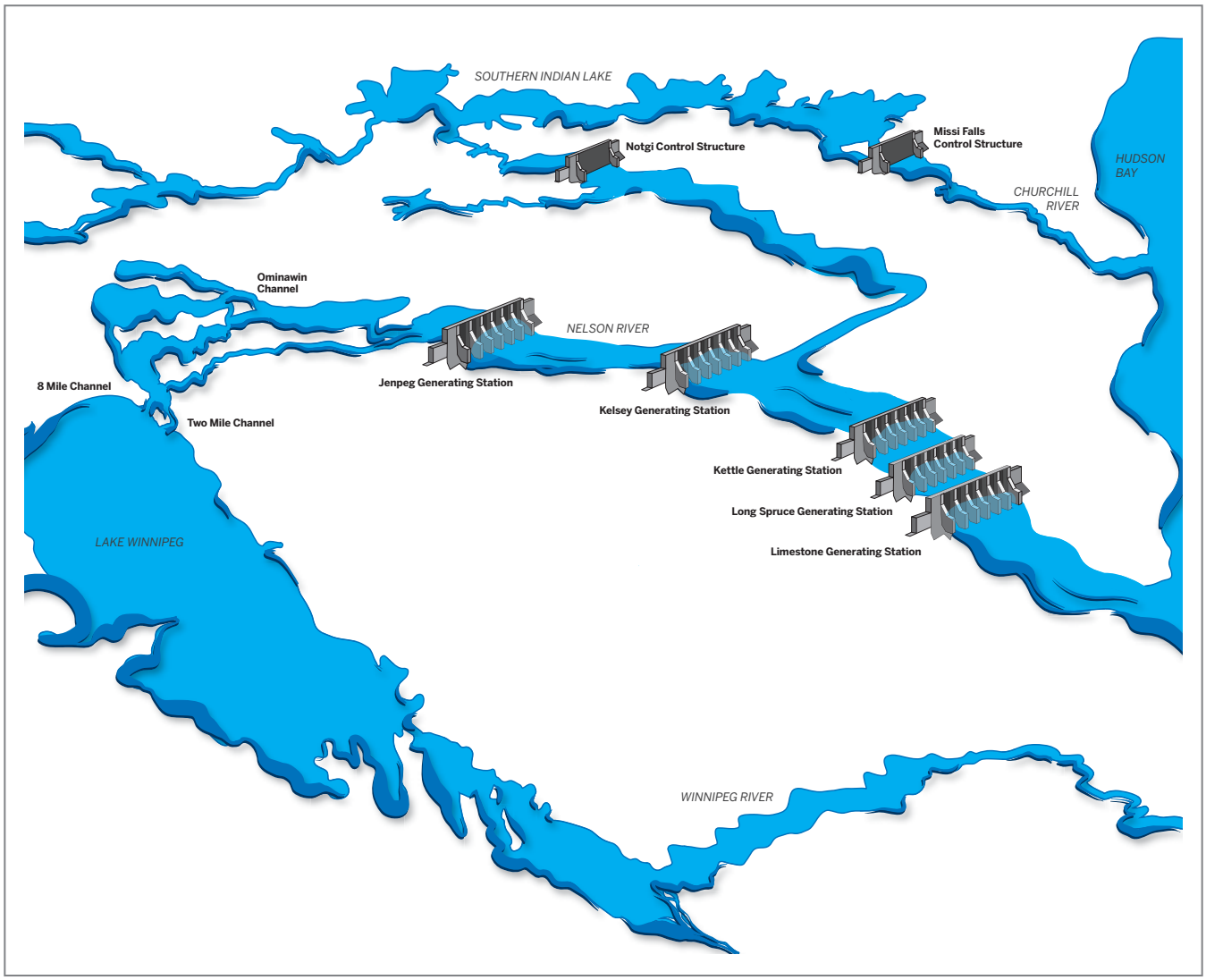
Manitoba Hydro was so enthusiastic about the high-level CRD plan that it postponed further research on LWR. New research was conducted, however, by E. Kuiper and C. Booy on behalf of the Manitoba Water Commission. Drawing from the earlier reports,[35] Kuiper's 1968 study examined several options for regulating Lake Winnipeg. Kuiper also studied how different water levels might affect the commercial, recreational, and environmental interests of those who lived and worked on the lake. He identified six different interest groups: agriculture, recreation, power, navigation, wildlife, and fisheries.[36] Notably, neither Kuiper nor his successors examined the interests of those who lived and worked beyond the outlet of Lake Winnipeg, thus ignoring the impacts that regulation would have on the people and environment immediately downstream from the control structures.

Kuiper's research concluded that the regulation of Lake Winnipeg water levels at between 711 and 715 feet above sea level would satisfy the requirements of the interest groups he had studied. Hydrographic records from 1913 to 1967 demonstrated that the water levels of Lake Winnipeg fluctuated within a range of 709 to 717.5 feet above sea level.[37] Kuiper hypothesized that while the interests of the commercial fishing industry could accommodate a fairly wide fluctuation in water levels, at between 711 and 715 feet, other interest groups preferred a more stable narrow range, between 712 and 714 feet.[38] Kuiper noted that only the "power" interest of Manitoba Hydro would benefit from higher water levels (up to 730 feet),[39] but that this would result in substantial flooding throughout the region. The provincial government had discovered the high cost of flood relief and property damage following the mass floodings of 1950 and 1966. To avoid potential lawsuits, therefore, it was recommended that LWR remain within a narrow range of natural levels.[40]

Having identified the optimum ranges for water regulation, the Manitoba Water Commission asked Kuiper and Booy to consider three possible options for LWR. Option one was the "excavation scheme," which entailed undertaking channel excavation at Playgreen Lake and a control dam at Whiskey Jack Narrows. Option two was the "pumping scheme," which would require the construction of a control dam and pumping station at Warren Landing. Option three was known as the "two-pool scheme." It would see the construction of a control dam at the Narrows as well as a control dam and pumping station at Warren Landing. In essence, the two-pool plan would sever the link between the north pool and the south pool of Lake Winnipeg. The north pool would become a reservoir that could be regulated at the high range preferred by Manitoba Hydro. The south pool, where the majority of property and business interests resided, would be regulated at a lower level, for flood-control purposes only.[41]

Each of these proposed schemes for LWR had its attractions and its challenges. Crippen's 1964 report preferred the pumping scheme, but later reports were less definitive. Kuiper estimated that the excavation scheme would cost approximately $16 million to $28 million, but that it would only handle a relatively narrow range of regulation. The pumping scheme would allow for the full 710–714-foot regulation, but was expected to cost upwards of $35 million to $50 million. Moreover, the pumping station would require its own transmission lines and electrical

power to run the pumps. The two-pool scheme was in many respects the most advantageous to the identified stakeholders, but the cost was expected to be anywhere from $70 million to $100 million.[42]



Generating stations and control structures in northern Manitoba.

Although the estimated costs ascribed to each of the three schemes increased over time, the basic conclusions remained the same: excavation was cheap but limited; pumping was more effective, but also more expensive; and the two-pool plan was clever, but very pricey.[43] Of the three schemes, Booy concluded that the excavation scheme achieved the best benefit-cost ratio. He reviewed data from the flood of 1966 to conclude that the cost benefits derived from flood control, recreation, and power were greatest when measured against their annual yearly cost. Booy also noted that further research was required:

> There is considerable uncertainty in several basic aspects of lake regulation, which may hamper

> future studies. These aspects are the following: the effect of lake level fluctuation on commercial fish productivity, the effect on beach erosion, the effect on the quality of the beach recreation and on visitor reaction to changed water levels. In addition, the effectiveness of channel improvement on the outlet capacity under open water and ice conditions is to a degree uncertain. None of these problems can be solved in a crash study program; all require observations over a considerable length of time plus the type of research for which time and manpower may not be available when lake level regulation appears to be economically attractive. The Commission...recommends that research in each of the above areas of uncertainty be carried out now, in anticipation of a more comprehensive study to be undertaken in the future.[44]

Despite the recommendation to undertake additional research, it appears that, by 1968, Manitoba Hydro was largely uninterested in pursuing further studies into LWR. Having decided that the high-level CRD project would provide both the water storage and the regulatory control required for augmenting the Nelson River, Manitoba Hydro seemed content to postpone detailed investigations into LWR until sometime in the future. For the provincial Progressive Conservative government, the postponement of LWR had the added benefit of avoiding, or at least delaying, the thorny challenge of juggling the various interests of commercial and residential property owners who lived and worked around the south pool of Lake Winnipeg. What the provincial government and Manitoba Hydro failed to anticipate was the highly public and largely negative reaction to the proposed flooding of nearly 100,000 acres of boreal forest in the vicinity of Southern Indian Lake, and the complete dislocation of the small First Nations community of South Indian Lake.[45]

SOUTH INDIAN LAKE

The studies prepared for the Manitoba Development Authority in May 1967 revealed the community of South Indian Lake to have a population of 480, of which 76.6% were "treaty Indians," 21.3% were "non-treaty Indian and Métis," and only 2.1% were "white." Fishing and trapping were the primary means of employment. Unlike many northern communities, South Indian Lake was entirely self-supporting, with an average per-capita income of $2,500 and a combined household income of $5,000. South Indian Lake's economic success is especially impressive when measured against other northern First Nations communities, where the average income was a mere $500 per year.[46] Despite the self-sufficiency of the South Indian Lake community, however, government consultants hired to study the issue did not believe that relocation would necessarily negatively disrupt its way of life. Indeed, the consultants were confident that the era of remote northern communities, such as the community of South Indian Lake, was rapidly coming to an end. In a letter to Dr. B. Kristjanson, deputy minister of the Manitoba Development Authority, the consulting team of Van Ginkel Associates and Hedlin, Menzies and Associates Ltd., explained that:

> The communities of native people that exist throughout Manitoba — and this is equally true of all parts of Canada — have no future and...the interest of the native people of the total community will be gravely prejudiced if those resources of money and creative thought are not dedicated to solving the problem of the remote Indian settlement and the Indian reservation.[47]

The consultants went on to state that "the reservation and remote settlement are anachronisms in the present

age of technology," resulting in "a loss to society" and "wasted human beings." Van Ginkel and Hedlin believed "the Indians of Manitoba could make a substantial contribution to the growth of this province if their talents were developed and their ambitions and aspirations awakened." Noting the growing "radicalism of the younger people," the consultants warned:

> if society does not move to design and implement policies that will provide social and economic opportunities for the native people, the reservation will be converted from a quiescent ghetto to a festering sore of discontentment and frustration.[48]

Despite the fact that South Indian Lake was not a reservation, and that the research conducted by Van Ginkel and Hedlin found it to be an economically successful self-supporting community, they concluded that relocation was not only inevitable but desirable. In their opinion:

> the flooding of the settlements at South Indian Lake has done nothing more than move forward in time the breakup of this community and way of life. It has provided the Government of Manitoba with an opportunity to test out physical plants and new concepts for the resolution of some of the problems of the native people.[49]

In conclusion, Van Ginkel and Hedlin recommended to the government that "the relocation of South Indian Lake should be considered as a pilot project" that could offer "solutions for the future...needs and expectations of a large portion of the 16,000 Indians that live to the north of the 53rd parallel."[50]

No doubt the findings offered by Van Ginkel and Hedlin must have appealed to the Progressive Conservative government: not only would its proposed high-level diversion of the Churchill River provide Manitoba Hydro with a substantial water reservoir for its Nelson River development, but the work could be accomplished without disrupting the people, businesses, and environment of Lake Winnipeg. As well, according to Van Ginkel and Hedlin, it might even contribute to the social and economic modernization of northern Manitoba.[51] While it was clear that relocation of the 480 residents of South Indian Lake and the smaller community of Granville Lake would entail certain costs, there seemed to be clear cost benefits, too. In addition, the proposed high-water diversion on the Churchill River would avoid the cost of developing both the Churchill River and Lake Winnipeg, and would obviate the thorny possibility of legal liabilities should LWR result in damage to the properties and businesses of southern Lake Winnipeg.

PUBLIC REACTION

On April 22 and 28, 1968, representatives from Manitoba Hydro and the provincial government visited the community of South Indian Lake to notify the residents of their intention to raise the level of the lake in order to divert water from the Churchill River to the Nelson River. The representatives acknowledged to the residents "that if this license were granted, the people of South Indian Lake and Granville Lakes would be making a sacrifice for the benefit of all of the peoples of Manitoba."[52] Hydro officials offered to work with the community to plan for the consequences of the diversion plan. Later that month, Manitoba issued a formal application for a licence to

South Indian Lake, 1984

build the dams and diversion channels that would be necessary for the high-level CRD plan.[53]

Official notification of the licence request was issued in June 1968, and follow-up community meetings were held in South Indian Lake in mid-August. By this time, the community had retained legal representation.[54] On January 7, 1969, the first formal public hearing into CRD was held at South Indian Lake. In addition to local residents, the hearing was attended by Harry J. Enns (minister of Mines and Natural Resources), Kris Kristjoanson (assistant general manager of Manitoba Hydro), Ed Overguard (an engineer from Manitoba Hydro), and Harold Buchwald (legal counsel for the residents of South Indian Lake). The hearing was presented in English with simultaneous translation into Cree. If Manitoba Hydro had hoped to inspire

Only a few years ago, major projects could be undertaken in "the wilderness" (and indeed close to urban centres) that imperilled the environment with little or no protest or compensation. Today, there is a greatly increased sensitivity to the need to preserve the natural environment, to respect the rights, particularly of Indian communities, and to develop resources together in a planned and integrated fashion. The fact the high level diversion at Southern Indian Lake has caused a major protest – not only from the local population but from many experts in the field – is not surprising considering the trend of thinking today.

David Cass-Beggs, *The Proposed Churchill River Diversion and Associated Problems*, report to the minister of Mines and Natural Resources, Government of Manitoba, September 9, 1969:6.

enthusiasm for its high-water diversion plan, it was likely quite disappointed. In response to questions posed by Harold Buchwald, South Indian Lake's lawyer, Ed Overguard, confessed that Manitoba Hydro had not undertaken any expert studies into the impact of flooding on the region's wildlife, fish populations, trapping, or commercial fishing. Ed Overguard further explained that Manitoba Hydro had opted to raise the water level of Southern Indian Lake by 30 feet, because the alternative solution would "increase the flooding which occurs at the South end of Lake Winnipeg [and] the people of Manitoba would want us to keep the lake level from flooding."[55] Manitoba Hydro officials were confident, however, that the corporation would cover all of the costs associated with relocation, retraining, and job creation, even if the company hadn't yet determined exactly what those costs might be.[56]

A second set of public hearings was held on January 27–29, 1969, in Winnipeg. Interest in the hearings was so great that organizers were forced to shift the venue from the Norquay Building on York Street to the much larger Winnipeg Concert Hall's auditorium, which had seating for 800 people.[57] Like the hearing in South Indian Lake, the Winnipeg hearings were dominated by the voices of lawyers, politicians, and representatives from Manitoba Hydro. In addition to these familiar voices, there were also submissions from academic experts in the fields of engineering, biology, zoology, and anthropology, who described "the grave consequences" of the high-water CRD plan. Ministers from the Presbyterian and Unitarian Churches spoke about the need to respect the cultural rights of First Nations peoples. There were submissions from the Manitoba Wildlife Federation, the University of Manitoba Student Union, and the Natural History Society. Legal counsel for South Indian Lake, the Manitoba Indian Brotherhood, and the communities of Churchill and Thompson detailed their concerns for the social, economic, and health safety of the communities they represented. Only the submissions of the Manitoba Farm Bureau and the Allied Hydro Council of Manitoba advocated for "progress over the maintenance of the status quo."[58]

The Winnipeg hearings into CRD revealed the sincere and sometimes passionate level of concern for Manitoba's northern people and environment. By the time the Progressive Conservative government tabled its high-level diversion plan in the legislature in February 1969, public opposition to the plan was already strong and growing stronger. Critics of the plan believed that Manitoba Hydro and the Progressive Conservative government were indifferent to the plight of Aboriginal peoples and unconcerned about the environmental impact of the plan. In the Manitoba Legislature, the minority government of Walter Weir faced heated debated from the opposition NDP and Liberals. The Minister of Mines and Resources, Harry Enns, defended the high-water CRD project and attempted to shut down plans for public hearings, which he felt had devolved into a forum for critics who used the opportunity to underscore the government's lack of research into the long-term environmental impacts.[59] Enns's decision to shut down the hearings was quickly overturned by the government, but the initial announcement fueled the opposition parties, who accused the government of lacking transparency. This assertion was compounded when two "secret" reports were leaked to the press; these reports confirmed that the dam would result in heavy losses to the local economy.[60] In May 1969, the Standing Committee on Public Utilities received further submissions detailing the mounting concerns of citizens, scientists, activists, and advocates.[61] Finally, on May 22, 1969, after months of acrimonious debate, Premier Weir made the abrupt decision to dissolve the legislature and call an election.[62]

CHURCHILL RIVER DIVERSION AND LAKE WINNIPEG REGULATION REVISITED

Walter Weir's decision to call an election proved to be unwise. Despite his party's recent successes in several by-elections, the Progressive Conservative Party was defeated on June 25, 1969, by the NDP, which formed a minority government. The NDP's win was due in part to the party's leader, Edward Schreyer. At just 33 years old, Schreyer was young, television savvy, socially progressive, and appealing to the growing demographic of baby boomers, many of whom had only just reached the age at which they could vote for the first time. Schreyer tapped into the public's discontent over the planned devastation of the northern environment and the community of South Indian Lake. Once in office, Schreyer's new government "set about to fulfil what it perceived to be its mandate from the public, to find an alternative to the high-capacity Churchill River diversion."[63]

In August 1969, just two months after the election, Schreyer asked David Cass-Beggs to review the existing plan for the Nelson River hydroelectric project and identify options for revising the high-water CRD. On September 9, 1969, Cass-Beggs submitted an interim report to the NDP government describing the current status of the Nelson River development. He noted that construction of the Kettle Generating Station was nearing completion and that work on the high-voltage transmission lines was underway. Consequently, his report focused exclusively on CRD and LWR.[64]

Cass-Beggs's interim report began with the unexpected acknowledgement that "from a purely technical point of view, the concept of the high-level diversion is excellent."[65] The problem, he explained, was that Manitobans had demonstrated through protests and the results of an election that they did not like the idea of "obliterating an existing lake which has undoubted value for Indian residents, fisheries and tourists, rather than utilize the existing reservoir provided by Lake

Premier Ed Schreyer at the opening of the Kettle Generating Station, 1963.

Winnipeg."[66] Cass-Beggs pointed to the original phase one proposal, which supported using both the Churchill River and Lake Winnipeg to augment and regulate the flow of water along the Nelson River.[67] Additionally, the regulation of Lake Winnipeg had the added potential of providing flood control at the south end of the lake. Thus, his report found, the Progressive Conservative's plans for the high-level diversion could be characterized as a proposal "to construct a reservoir which would be damaging to the environment rather than utilize an existing reservoir in a manner which would beneficial."[68] While the high-level diversion might postpone LWR to 1978 or beyond, reports indicated that, eventually, regulation would be required. High-level diversion could therefore not be considered as a permanent solution but merely as a temporary plan. Once LWR was complete, there would be far less need for water storage along the Churchill River. Consequently, asked Cass-Beggs, "Is the almost irreparable damage to Southern Indian Lake justified for so short a life for the storage aspect of the project?"[69]

Armed with Cass-Beggs's persuasive arguments and his assurance that it was not too late to rethink the high-level diversion, the provincial government denied Manitoba Hydro's request for a licence to begin work on the Churchill River and instead commissioned the utility to investigate options for the regulation of Lake Winnipeg. Manitoba Hydro's research included an examination of a low-level diversion plan that promised to have less damaging social and environmental impacts than did CRD. In January 1970, Schreyer invited Cass-Beggs to replace W.D. Fallis as chairman and chief executive officer of Manitoba Hydro.[70] As the new head of Manitoba Hydro, Cass-Beggs was no longer merely advising the provincial government: he was running the program. In later years, Cass-Beggs would be accused of managing Manitoba Hydro in an autocratic manner that placed the government's political agenda ahead of his obligations "to promote economy and efficiency in the generation, distribution and supply of power" as per the *Manitoba Hydro Act*.[71] These allegations are open for debate, but it is certainly clear that Cass-Beggs was dedicated to finding and implementing an immediate alternative to the high-water proposal.

David Cass-Beggs.

NEW PLANS, NEW DEBATES

Soon after his appointment as head of Manitoba Hydro, Cass-Beggs formed an internal task force of Hydro engineers to evaluate options and alternatives to the high-level diversion while still meeting the increasing demand for energy in the very near future. On July 22, 1970, the Manitoba Hydro Task Force released an interim report to the board of Manitoba Hydro, which included a cover letter from Cass-Beggs recommending that construction of LWR begin as soon as possible, with work on CRD to begin afterward. The aim was to complete LWR by 1974 and to have a low-

level CRD completed by 1975 or 1976. On July 30, 1970, the Board accepted the recommendations put forward by Cass-Beggs in the interim report.[72] Even though the final report of the Task Force would not be tabled until October, Cass-Beggs, on behalf of Manitoba Hydro, submitted an application for an "interim license for the regulation of water levels for water power purposes [on] Lakes Winnipeg, Playgreen and Kiskittogisu," on September 22, 1970. The government granted the interim licence on November 18, 1970, just weeks after receiving the Task Force's final report.[73]

The interim licence specified that LWR was to maintain water levels at between 711 and 715 feet, and was expected to involve the construction of:

- Two diversion channels, one from Lake Winnipeg to Playgreen Lake and the other from Playgreen Lake to Kiskittogisu Lake;
- River channel excavations at the Metchanais and Ominawin Rapids channels; and
- Two gated control structures across the Metchanais and Ominawin Rapids channels, each composed of reinforced concrete with two adjacent dams of rock fill.[74]

The immediate need was to complete the two new diversions at Playgreen Lake. This would allow for a quick increase in water flow during the winter months, thereby increasing the generating potential of the new Kettle Generating Station, which was located farther down the Nelson River. Work on the artificial diversion channels was also expected to take the longest to complete. Tenders for the work were issued in March 1971. Further design review, undertaken after the contracts were issued, convinced Hydro to amend its plans for the control structure. Instead of building two separate dams at Metchanais and Ominawin Rapids, it decided to build one large control structure at Jenpeg. In August 1971, Manitoba Hydro proposed to add generating capacity to the Jenpeg control structure. Approval for the new plan was given in December 1971, and construction tenders were issued early in 1972.[75] The budget for LWR was originally estimated at $50 million, with an additional $55 million for the inclusion of power generation at Jenpeg.[76] Construction was to begin in 1972 and be completed by 1974. The actual completion date was in 1976, and the final cost was in the range of $315 million.[77]

For advocates of the high-water CRD, and especially for members of the provincial Progressive Conservative Party who had spent considerable political capital promoting the high-water plan, the NDP's LWR scheme must have seemed entirely wrong-headed. Critics of LWR were given an opportunity to voice their concerns in a series of six public meetings held in Norway House, Gimli, Selkirk, and Winnipeg, in February 1972. Although the meetings to discuss LWR were less formal than were the public hearings of 1969, the discussion was no less heated. David Cass-Beggs and Sidney Green (the minister of Mines and Natural Resources) fielded persistent questions about the cost, sequence, purpose, and impacts of the plan. Although some questions came from area residents, most came from members of the Progressive Conservative and Liberal opposition parties, many of whom attended each of the six meetings. Newspaper reporters described tense verbal exchanges in which tempers on both sides "were at the edge of control."[78]

Jenpeg Generating Station, 1979.

Undeterred by criticisms voiced at the public meetings and by the opposition parties, the government and Manitoba Hydro proceeded as originally planned. The plan, however, was not without its complications. In opting to construct both LWR and CRD, instead of just CRD, as advocated by the Progressive Conservatives, the government significantly increased the upfront cost of the project. It also committed itself, and Manitoba Hydro, to overseeing multiple massive construction projects that would be undertaken simultaneously. The result, of course, was that Manitoba Hydro's managers, engineers, and financial resources were all stretched far too thin, leaving little room to accommodate the unforeseen, but inevitable, problems that were bound to arise.

The first of these problems was with the building of the two new diversion channels at Playgreen Lake. The successful bidders on the project were Sceptre-Dillingham of Vancouver and B-A Construction Ltd. of Winnipeg. Work got underway later that year, but progress was unexpectedly slow. Oversized boulders in the channels and other obstacles made it clear that the initial site studies had been inadequate. Consequently, the time and machinery needed for the project were dramatically underestimated in the contractor's winning bid.[79] Similar problems hampered the plans for installing generating turbines at the Jenpeg control structure. The contract for this arm of the project was awarded to a Soviet firm, but detailed designs were hampered by the shortage of design engineers at Manitoba Hydro. In addition, the Soviet-built bulb turbines were at the time untested in North

America, resulting in uncertainty over the installation process.[80] The delays in both contracts led to cost overruns and threatened work stoppages.

Similar problems plagued the construction of the low-level CRD. After the decision to cancel the unpopular high-water diversion in September 1969, the government needed a viable alternative, but must have had very little appetite for re-opening the discussion. In July 1970, the Manitoba Hydro Task Force released an interim report, which suggested that a low-level diversion of the Churchill River should proceed before LWR began. Unbeknownst to the task force, however, Cass-Beggs drafted his own 30-page report, which he included as a cover document to the Task Force's report. Contrary to the findings of the Task Force, Cass-Beggs's cover report recommended that LWR should proceed immediately, and that CRD should be postponed pending further study.

In October 1970, the Task Force tabled its final report. The report offered additional support for proceeding with CRD first, but the Manitoba Hydro Board had already accepted Cass-Beggs's recommendations and presented them to the government the previous July. As a result, even though Manitoba Hydro's top engineers believed that the most expeditious construction schedule was the development of the Churchill River ahead of Lake Winnipeg, the government and Hydro were committed to the plan crafted by Cass-Beggs in July 1970.[81]

Between July 1970 and December 1972, several studies were conducted to determine the regulatory levels for CRD and the best method for achieving it. Engineers debated the costs and challenges of attaining water levels between 845 and 854 feet. In December 1972, Manitoba Hydro applied for, and was granted, a licence to build CRD with a maximum operating level of 847 feet and the option of increasing the level to 850 feet if necessary.[82]

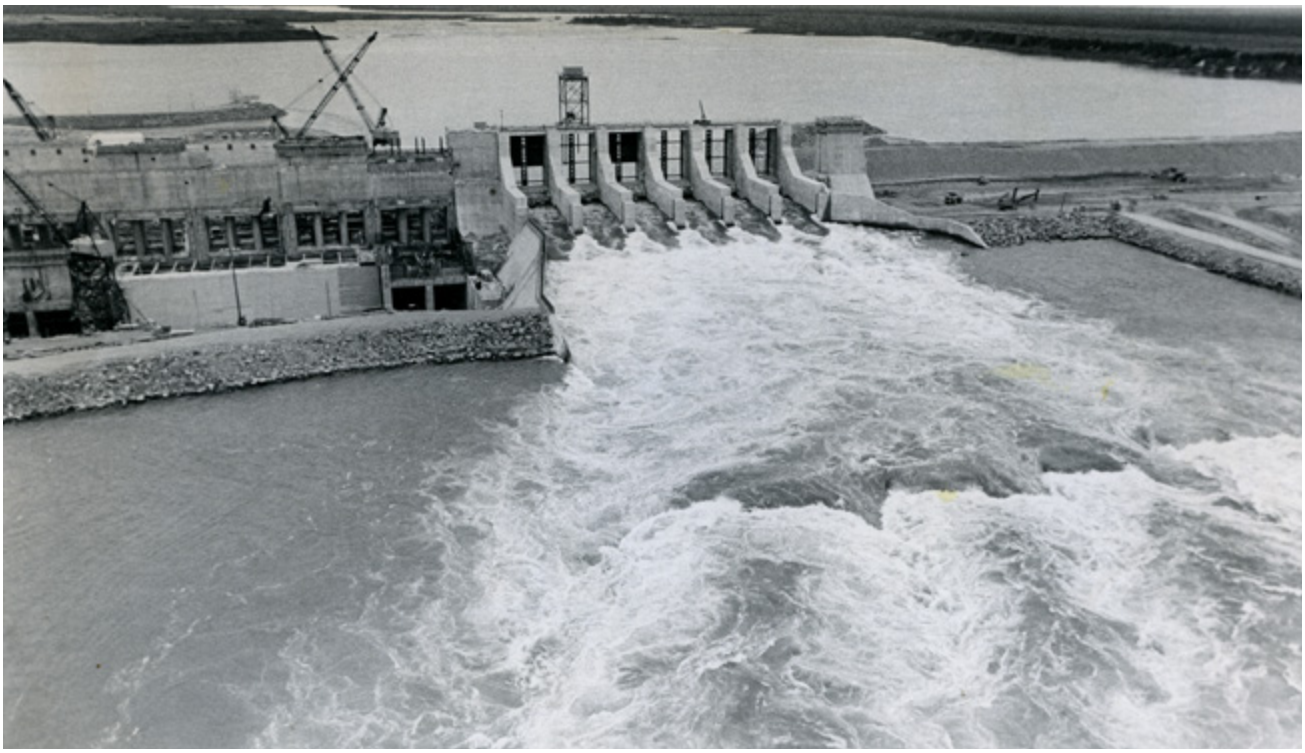
With a commitment to complete the three-and-a-half-year project in less than three years, Hydro was anxious to issue tenders and get the work underway. As it had done with LWR, Hydro solicited bids before the project requirements were fully understood. As a result, when the winning contractor began work in 1973, the project was found to be considerably more complicated and time-consuming than originally expected. The discrepancy between the geotechnical data provided by Hydro at the time of the tender and the actual conditions discovered by the contractors led to $36.6 million in lawsuits and resulted in settlements of roughly $15.9 million.[83]

COSTS AND CONSEQUENCES

The Churchill River Diversion project was eventually completed in 1977, two years behind schedule. Its original budget estimate of $29.5 million in July 1970 rose to $109 million by December 1972. By the time of its completion in 1977, the final cost of the project was approximately $226 million. When added to the $315 million for LWR, $240 million for the Kettle Generating Station, and $508 million for the Long Spruce Generating Station, Manitoba Hydro found itself with a debt of nearly $1.3 billion, far in excess of the government's original projection of $721.5 million.[84]

To pay down its debt, Manitoba Hydro introduced a series of rate increases. Between 1963 and 1973, power rates in Manitoba had remained relatively stable, but in 1974, rates were raised by 17.7%. They went up again the next year by 17.1%. In 1976, customers were subjected to an increase of 28.3%. Additional rate increases of 14.5% and 16.3% occurred in 1977 and 1978.[85] Although Manitoba Hydro customers still enjoyed some of the lowest rates

in the country, the rate increases of the 1970s must have been an unwelcome shock.[86] Since roughly $1.5 billion of Manitoba Hydro's debt was held in foreign currency, high inflation, combined with the sinking Canadian dollar further, swelled Manitoba Hydro's debt burden. Hydro estimated that by 1980 its total assets would be roughly equal to its overall liability.[87]



Long Spruce Generating Station, 1975.

The public's discontent over the exorbitant cost of Manitoba's Hydro's ambitious Nelson River hydroelectric development proved to be the undoing of the NDP. On October 11, 1977, the NDP lost the provincial election to the Progressive Conservative Party. The new government, led by Sterling Lyon, was widely regarded as a referendum on the NDP's management of Manitoba Hydro and the Nelson River development. As a result, one of the very first acts of the new provincial government was to announce the appointment of a commission of inquiry into the activities of Manitoba Hydro. In December 1977, Sterling Lyon appointed George E. Tritschler, a recently retired chief justice of the Manitoba Court of Queen's Bench, to lead a one-man inquiry into "the scope, direction, timing and scheduling of northern power projects, and the question of costs involved."[88] The final report of the two-year Commission of Inquiry into Manitoba Hydro, known simply as the Tritschler Report, offered a very detailed — and highly critical — assessment of the Nelson River hydroelectric development and the politics that influenced its construction process.

THE TRITSCHLER COMMISSION OF INQUIRY

The Commission's terms of reference required Tritschler to investigate "whether Manitoba Hydro [had] carried out the intent, purpose, and object of The Manitoba Hydro Act in all aspects of the development of the Nelson-

Churchill River Systems for the generation of hydro-electric power and projects associated therewith." Specifically, the Commission was to inquire "whether the regulation of Lake Winnipeg prior to the diversion of the Churchill River promoted economy and efficiency in the generation, distribution and supply of power in the province." The Commission was also asked to make findings as to the "economy and efficiency" of building a generator at Jenpeg, restricting water levels at South Indian Lake to 850 feet, and postponing the building of generating stations until after LWR was complete. Lastly, the Commission was asked to speculate on whether the sequence of hydroelectric development along the Nelson and Churchill Rivers had contributed "to past, present and prospective rate increases for consumers of electricity in Manitoba." Noticeably absent from the Commission's terms of reference were questions regarding the social and environmental impact of the development. Nor was the Commission asked to consider the likely impact of the original high-water diversion on the Churchill River or the earlier plan to postpone LWR. Consequently, the Commission did not attempt to compare the social, environmental, and economic costs of the actual development with previous alternatives.[89]

In essence, the Commission was asked to pass judgment on the development decisions made during the NDP's term in office. Given the rapid rise of Manitoba Hydro's debt during the NDP's leadership and the matching rise in consumer hydroelectric rates, it is not surprising that the newly formed Progressive Conservative government wanted to provide the public with an explanation. No doubt the Progressive Conservatives also recognized the political value in drawing a clear link between Manitoba Hydro's current economic problems and the NDP's management of the public utility. Both Ed Schreyer (the former premier and minister responsible for Manitoba Hydro), and Sidney Green (the NDP's former minister of Mines and Resources), dismissed the Commission of Inquiry as an expensive political exercise. Schreyer was quoted as saying, "I don't think it will achieve anything. I would rather apply the funds to building things." Sidney Green dismissed the Commission outright as being established "for political purposes," saying that it was of "absolutely no value at all."[90]

While the opposition NDP openly criticized the announcement of the Commission Inquiry, Manitoba Hydro's Chair and former Director of Systems Planning Len Bateman was more sanguine. Recognizing the public's frustration with the utility, Bateman believed that the Commission would allow the corporation "to remove any clouds that may be hanging over its head." He stated that he "was confident the commission will give us a fair hearing," and said he would be surprised if "anything damaging to Hydro came out of the commission's work."[91] Bateman's optimism proved to be misplaced. After two years of well-publicized hearings, Tritschler's report offered a scathing indictment of Manitoba Hydro's senior management, including Len Bateman, who was dismissed from his position at Manitoba Hydro shortly after testifying at the Commission.[92]

PUBLIC HEARINGS

The Commission began its work quietly. For the first 11 months, Tritschler set up his office, hired staff and legal counsel, and identified expert engineering consultants to review the mountains of technical documents received from Manitoba Hydro and other relevant utilities. The Commission also used this period to conduct private interviews with over 30 potential witnesses. Commission counsel described this in-camera interview process as being like "pre-trial examinations for discovery." Commission counsel's characterization of the inquiry being like

"a trial where counsel puts the whole picture before the judge" was revealing.[93] When the public hearings began in November 1978, the tone was decidedly adversarial. The questions posed by Commission counsel took the form of a cross-examination. Although Manitoba Hydro was allowed to ask questions and call rebuttal witnesses at the end of the proceedings, its role was limited. In the end, Manitoba Hydro declined to call any witnesses.[94]

Over the four months of public hearings, the Commission questioned dozens of witnesses, including Ed Schreyer, David Cass-Beggs, and Len Bateman. The Commission also questioned the members of the Manitoba Hydro Task Force, which had been set up by Cass-Beggs in 1970 to investigate alternatives to the high-water diversion project. Additional external engineering experts were called upon to present their own assessments of the planning and execution of Hydro's development project.

Testimony throughout the hearings focused on the sequence of construction, the lack of detailed project plans, and the various factors that contributed to an escalation of costs. Questions from Commission counsel were persistent, meticulous, and occasionally aggressive, especially when directed toward members of Manitoba Hydro's senior staff. In the process, Commission counsel revealed that the decisions behind the construction of LWR and CRD were often influenced by social, political, and even personal issues, rather than purely economic considerations.

Testimony from the engineering experts generally concurred that Manitoba Hydro's decision to commence work, first on LWR and later on CRD, was premature. They argued that insufficient site research and project planning meant that the utility had issued construction contracts without understanding the full magnitude of the massive project. The result included costly delays that might otherwise have been avoided. Several of the external consultants also argued that the decision to build LWR ahead of CRD meant that the utility had no time to review either project in detail if it was to meet its obligations for power supply by 1973/74. They argued that if CRD had been built first, there would have been sufficient power to meet upcoming power demands and would have given Manitoba Hydro more time to investigate options for building LWR.[95]

Even more troubling was the testimony provided by the members of the Manitoba Hydro Task Force. Witnesses from the Task Force stated that the recommendations

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Task force conclusions ignored in Lake Winnipeg regulation?

By ALLAN WILSON

Manitoba Hydro's board of directors may have ignored draft report conclusions of a Hydro engineering task force in its July 30, 1970, decision to build the Lake Winnipeg Regulation project before the Churchill River Diversion.

Instead, the board probably followed alternate suggestions contained in a 30-page report by then Hydro chairman David Cass-Beggs.

That scenario was suggested in answers from Hydro executive Donald Keith, first witness at the 2½-hour opening session of the Tritschler Commission inquiry into Hydro's northern development. In 1970, Keith was the administrator of a Hydro task force evaluating alternative methods of developing Manitoba's northern hydro potential.

How the northern development decision was made by the Hydro directors will be the subject of the first five weeks of hearings.

The commission started hearings Monday and will continue weekdays from 9 a.m. to 1 p.m. until Dec. 15. Then the hearings, open to the public, will resume Jan. 15 to look into how the northern developments were carried out.

The commission was formed in January this year under a single commissioner, former chief justice of the Court of Queen's Bench George E. Tritschler.

One of the key issues in the hearings will be what political input there was in Hydro's northern development decisions.

Keith said members of the Hydro task force were aware of the politics involved in the decision, but the "draft task force report was a very unbiased evaluation of the situation."

In an opening statement Monday, Hydro chairman Bateman conceded that politics play a part in Hydro decisions.

"The primary responsibility of Manitoba Hydro is to indicate the methods and means through which electricity can be provided at the lowest cost for the citizens of Manitoba.

"If these methods and means are in conflict with other government objectives, then Manitoba Hydro is bound to accept the dictates prescribed at the political level, and clearly communicated to it by the government."

Monday's session provided a chronology of events which led to the Hydro board's decision.

Following the June, 1969, provincial election, the controversial diversion of Churchill River water by flooding South Indian Lake to 869 feet above sea level was dropped by the new NDP government.

The flooding had been a major election issue, with the NDP saying it should be kept as low as possible.

The decision to drop high-level diversion was made in the fall of 1969 following a two-part report done for the government by David Cass-Beggs, formerly with the Saskatchewan electrical authority. In his report he said there were alternatives to the high level diversion project.

At the same time two private unrelated studies were undertaken. One sponsored by the government was a study of Lake Winnipeg Regulation; the other, commissioned by Hydro, studied the Churchill River Diversion project.

In January, Cass-Beggs was appointed chairman of the utility.

In February, 1970, Hydro appointed a task force of 12 members to study both reports and make recommendations on how northern development should be conducted.

The Hydro task force filed a draft report with Cass-Beggs July 18, 1970. That report recommended the Churchill River Diversion should be built before the Lake Winnipeg Regulation.

Keith said the draft report "said it was probably more economic to develop the Churchill River prior to the Lake Winnipeg Regulation but, in point of fact, both were required."

In his questioning, Bob Smellie, lawyer for Hydro, pointed out that both projects had also been recommended in a 1966 Hydro report on the Nelson River.

The draft report also asserted, following the private engineering report, that the Churchill project would be allowed to flood South Indian Lake to a level of 754 feet above sea level.

On July 22, Cass-Beggs presented the draft report and another 30-page report he had written for a Hydro board meeting.

On July 30, the Hydro board decided that the Lake Winnipeg Regulation should be built first and then flooding of South Indian Lake should be kept to a maximum of 850 feet.

Keith said the task force members were not aware their draft report was going to be used for a board decision. And no task force member, except possibly its chairman, Len Bateman (now Hydro chairman), had been invited to either board meeting.

Following the board decision, the task force continued to work on its final report, which was given to Cass-Beggs on Nov. 30, 1970.

The Tritschler Inquiry was extensively covered by Winnipeg newspapers.

put forward by Cass-Beggs to the Manitoba Hydro Board in July and November 1970 contradicted their research findings. Donald Keith, the Task Force's administrator, recalled that "the draft task force report was a very unbiased evaluation," which indicated that "it was probably more economic to develop the Churchill River prior to the Lake Winnipeg Regulation but, in point of fact, both were required."[96] By the time the Task Force submitted its final report, the Board had already decided on the alternate scheme.

Harold Hopper, one of several engineers on the Task Force, shared Keith's version of events, stating that the draft report, which was tabled in July 1970, recommended that CRD proceed ahead of LWR. The draft report also recommended a higher level of flooding for Southern Indian Lake than what the Board ultimately approved. Notably, Hopper also conceded that "there were no environmental studies done for the original scheme...we did not consider [the] environmental impact.[97] Keith acknowledged the information in the draft report "was based on incomplete cost and engineering estimates." For example, the draft report estimated that LWR would cost about $66 million, yet the final report lowered the estimate to $50 million, which happened to be in line with the numbers presented by Cass-Beggs.[98]

The testimony of the Task Force engineers suggests that their expert advice was largely ignored by Cass-Beggs, who, despite the findings of the Task Force, had already decided that Southern Indian Lake should be regulated no higher than 850 feet and that LWR should proceed ahead of CRD. Moreover, it appeared that Cass-Beggs was so determined to move forward with his own plan that he submitted his own recommendations ahead of the draft findings of the Task Force, altered some of the recommendations of the Task Force's draft report, and encouraged the Manitoba Hydro Board of Directors to announce its decision about the project before the Task Force had a chance to complete its work. When Gordon Duncan, a Task Force engineer, was shown evidence that Cass-Beggs had "revised" the findings of the Task Force's draft report to reflect his own assertions, Duncan reacted with shock, exclaiming, "the son of a bitch."[99]

Members of the Manitoba Hydro Board of Directors who testified before the Commission confessed that they had not read the Task Force's inch-thick draft report prior to the meeting at which they had decided on how to proceed with the Lake Winnipeg and Churchill River developments. Instead, they chose to rely on Cass-Beggs's report, believing that his recommendations were an accurate reflection of the Task Force's findings. Only Douglas Campbell, a Manitoba Hydro director and former Liberal premier, read the documents carefully enough to spot the discrepancies between the Task Force report and Cass-Beggs's recommendations, but he was unable to persuade the other members of the board to reverse their decision. Campbell testified that "Mr. Cass-Beggs did his level best to suppress any point of view that was contrary to his own." Kris Kristjanson, former Manitoba Hydro assistant general manager, was equally critical of Cass-Beggs, stating that, "[Cass-Beggs] had made up his mind early on and from this point on it was a matter of orchestrating events to fit that conclusion." Campbell and Kristjanson were sufficiently opposed to Cass-Beggs and his plan that both men resigned from their positions with Hydro in May 1971.[100]

Unlike the criticisms leveled at Cass-Beggs by Campbell and Kristjanson, however, Manitoba Hydro Board member Dennis Scott supported the Board's final decisions, stating that "Hydro needed to provide water storage

somewhere," and that "the government of the day (the Schreyer NDP government in 1970) had decreed that storage on Southern Indian Lake was virtually written off because of environment [sic] damage the flooding would cause and strong public opposition to the flooding."[101]

Scott's perspective was echoed by Cass-Beggs's own testimony a week later, in which he admitted to reviewing the Task Force's draft report. He explained that the Task Force was formed to provide advice, not make decisions. He said that most of the members of the Task Force had been involved in formulating the plans for the high-water diversion. He confirmed that LWR "got the edge" because he believed it would be less damaging to the environment and was "the easiest route to provide power." Moreover, given the public reaction against the high-level diversion of the Churchill River, Cass-Beggs admitted to thinking "we would get better public relations out of Lake Winnipeg regulation." Cass-Beggs did, however, confess to taking an overly relaxed approach to his budget forecasts, which, despite being presented to the Manitoba Hydro Board and legislative committee as a "final cost," quickly escalated well beyond the original figures.[102]

While Cass-Beggs was the subject of much criticism during the inquiry, he had already resigned from Manitoba Hydro to take up new challenges elsewhere.[103] The inquiry was more detrimental for Len Bateman, Hydro's then-chair. During the inquiry, Bateman found himself in the awkward position of trying to explain why he had supported high-level diversion prior to the change of government, had endorsed the low-level diversion when he became Chair of the Task Force, and eventually championed Cass-Beggs's scheme once he took over as chair of Manitoba Hydro.[104] Bateman explained that when the plans for the high-water Churchill diversion were first formulated, the environmental impact was not part of Hydro's consideration.[105] A decade later, Bateman admitted that the high-level diversion plan had been ill-advised. In a letter to then-premier Ed Schreyer, dated April 1977, Bateman wrote, "not only would Southern Indian Lake be so severely inundated that it would be written off as a useable lake for man and fish and fur-bearing animals for many years, but the effect on the diversion route, including the communities of Nelson House and Thompson, would have been extreme."[106]

Although Bateman eventually accepted the decisions and policies of Cass-Beggs and the government, his work on the Task Force left him in an ethical bind: having chaired the work of the Task Force, Bateman had of course endorsed its findings. Consequently, when Cass-Beggs presented his own recommendations to the board in July 1970, Bateman knew that Cass-Beggs had misrepresented the findings of the Task Force, but he chose not to contradict his boss. A year later, Bateman again agreed to misleading statements when Cass-Beggs asked him to sign his name on a memorandum stating that the Task Force "fully supported" the decision to proceed with LWR ahead of CRD.[107] As well, in June 1972, Bateman chose to remain silent when Cass-Beggs assured members of the legislative committee and the Public Utilities Board that the "final cost" of LWR would not exceed $56 million, even though Bateman knew that the actual estimate was closer to $85 million.[108] Finally, in 1976, when Bateman was the chair of Manitoba Hydro, he told the same legislative committee that the decision to restrict the level of Southern Indian Lake to 850 feet was based on the "optimum level" endorsed by Manitoba Hydro engineers. This, too, was a misleading statement, since Bateman knew that the Task Force had advocated for a higher level but had been overruled by Cass-Beggs.[109] Under questioning by Commission counsel, Bateman conceded that 850 feet was regarded as simply an "optimum" level because the provincial government had already decided that it would not allow flooding at higher levels.[110]

THE TRIBUNE
December 12, 1978

Tritschler inquiry

Bateman changed view on diversion scheme

By Susan Rutten
Legislature Reporter

One of the main proponents of Manitoba Hydro's high-level Churchill River diversion scheme in 1969 eventually came to regard the scheme as unworkable and "totally unacceptable," the Tritschler inquiry was told Monday.

Hydro chairman Len Bateman, in his first day of testimony, admitted that the scheme to send about 25 times the normal water flows down the Burntwood River would have had a serious impact on the environment and on the community of Nelson House.

Mr. Bateman said Hydro at the time was unaware of the severe downstream effects of the diversion or of severe ice-jamming which would have resulted.

Hydro was so sure the scheme would proceed that it never developed any alternative power scheme in case it was rejected, he said. The high-level scheme had the full backing of the Conservative government of the day, but was halted when the Conservatives lost to the NDP in the 1969 provincial election.

Mr. Bateman, as Hydro director of systems planning in 1968, played a key role in developing the high-level scheme.

But by 1976, when Mr. Bateman was Hydro chairman, he was saying in notes prepared for a speech to be delivered by Premier Schreyer, that "the original Churchill River diversion, using the high level scheme, would not have been workable.

"In addition it would have had a totally unacceptable impact on the people and the environment in that region," his notes say. "Not only would Southern Indian Lake be so severely inundated that it would be written off as a usable lake for man and fish and fur bearing animals for many years, but the effect on the diversion route, including the communities of Nelson House and Thompson, would have been extreme."

While admitting the severe effects the high-level diversion would have had if implemented, Mr. Bateman stressed that Hydro would have phased the scheme in. Once the adverse effects started showing up, Hydro would have stopped implementing the plan, he said.

Inquiry lawyer Richard Scott also questioned Mr. Bateman about a 1970 report on alternatives to the high-level diversion which Underwood McLellan Ltd. prepared for Hydro after the NDP government halted the high-level plan.

Mr. Bateman testified that he wrote the consultants telling them not to study any diversion scheme that would involve flooding of Southern Indian Lake much above normal lake levels. He did this, he said, because of the new government's policy on flooding levels.

When Underwood McLellan completed its study, the study report was submitted along with a covering letter by Gordon Spafford of Underwood McLellan, Mr. Scott said.

He said Mr. Spafford later complained that a portion of the letter was deleted by someone at Hydro. The deleted section said that Hydro would have enough power in 1973-74 barring unforeseen problems.

Mr. Bateman said he hadn't known the paragraph was deleted without Mr. Spafford's permission. However, he said he felt the Underwood McLellan report didn't back up Mr. Spafford's claim that Hydro was okay for 1973-74.

"I thought they were trying to pull th wool over the eyes of Manitoba Hydro," Mr. Bateman said.

Len Bateman

Hydro chairman Len Bateman was one of dozens of witnesses questioned.

Bateman's admission that he had chosen not to reveal information that would contradict his chair suggested a fundamental lack of accountability within the governance structure of Manitoba Hydro. Bateman later tried to defend his integrity by claiming that the days of relentless questioning from Commission counsel had "affected [his] ability to think clearly," and that he would "not knowingly or wittingly or deliberately been untruthful to anyone."[111] Unfortunately for Bateman, it would not be possible for him to salvage his reputation. On December 29, 1978, Finance Minister Donald Craik announced that Len Bateman's appointment as chair of Manitoba Hydro had been revoked. Dr. L.M. Wedepohl, vice-chairman of Manitoba Hydro, was named as acting head of the corporation until a permanent replacement could be found.[112]

In the midst of the drama provided by Len Bateman's testimony and his subsequent dismissal, the Commission also heard from former Premier Ed Schreyer. Schreyer's testimony before the Commission was revealing, but much more relaxed than that of Len Bateman.[113] Like Cass-Beggs, Schreyer's career had already shifted in another direction.[114] Schreyer admitted to being "intuitively aware" that the initial budget estimates for the various hydro projects were low; he also confessed to holding onto a report by economist Eric Kierans that was critical of Manitoba Hydro's deficit borrowing. Ultimately, however, to Schreyer, the issue of the construction sequence was largely "academic" and "of absolutely no substantive consequence."[115] "It's not as if the government had some sort of master plan or ideological preference for one plan over another," said Schreyer, "that's what is so ironic about all this preoccupation with the sequence."[116]

As chair of the inquiry, former Chief Justice George Tritschler did not share Schreyer's somewhat cavalier perspective. To Tritschler, the sequence of development was "the nub of the thing."[117] By the time the Commission ended its public hearings, in March 1979, it was clear that Tritschler's inquiry would focus almost exclusively on the sequencing of the construction, the delays in completion, and the overall cost to ratepayers. No witnesses were asked to speak to the social or environmental costs, and none were called to discuss the efficacy of development

decisions made prior to the election of the NDP government in 1969.

FINDINGS

Premier Ed Schreyer being sworn in at the Tritschler Inquiry into northern hydro development.

The Commission's report was officially released on December 27, 1979. The 483-page report offered a very detailed account of the evidence presented by witnesses and in expert reports. Tritschler was highly critical of virtually all aspects of the planning, construction, and management of the Nelson River hydroelectric project. Writing in bold letters, Tritschler firmly stated that "In terms of the specific projects and sequence adopted in its generation since 1970, Manitoba hydro has not followed its mandate to promote economy and efficiency in supply of electrical power."[118]

Tritschler concluded that LWR "was not an optimal choice"[119] and "should not have been committed,"[120] and certainly should not have been built before CRD.[121] Tritschler described Manitoba Hydro's lack of detailed engineering plans as "inexcusable," and found that its "trial and error" approach to design and construction resulted in large cost overruns.[122]

> MANITOBA HYDRO HAS NOT FOLLOWED ITS MANDATE TO PROMOTE ECONOMY AND EFFICIENCY IN SUPPLY OF ELECTRICAL POWER.
>
> Tritschler Commission Hearings, *Final Report*, 1979.

With regard to the construction of the CRD, Tritschler concluded that, "the Roblin, Weir and Schreyer Governments were misled by Hydro engineers about the high level diversion."[123] The decision to restrict the elevation of Southern Indian Lake to 850 feet was described as "arbitrary" and "not based on economic considerations."[124] Moreover, explained Tritschler, Manitoba Hydro's decision to construct CRD "without knowledge of its downstream effects led to substantial claims for cost overruns and financial penalties...and to costly confrontations with communities."[125]

In addition to the problems associated with LWR and CRD, Tritschler was also critical of the planning decisions made for the various generating stations. He argued that the Jenpeg Generating Station should have been cancelled, the Long Spruce Generating Station was constructed too early in the process, and that construction on the Limestone Generating Station was started and then postponed because of poor economic forecasting.[126]

Tritschler concluded that the problems associated with the Nelson River hydroelectric project were ultimately the result of poor management and a lack of political oversight:

> The failure of Hydro to evaluate its options properly; its failure to recognize the importance of strategic planning for export markets; its failure to provide realistic estimates in advance of final project commitments; its failure to make effective use of its own internal resources; and its failure to obtain appropriate external assistance are all ultimately a failure of management.[127]

Turning his attention to the politicians involved in the project, Tritschler accused the government of the day (i.e., the NDP government) of encouraging Manitoba Hydro to ignore and deny the recommendations of its engineering experts "in favour of a more socially acceptable alternative."[128]

The inevitable outcome of these many failures in planning, construction, and decision-making was an inflated debt, which resulted in "significant and unnecessary increases in rates" for the citizens of Manitoba.[129]

RECOMMENDATIONS

The Commission offered several recommendations to improve Manitoba Hydro's financial and political accountability. It recommended, for example, that, in the future, Manitoba Hydro complete its investigations, plans, designs, and cost estimates before committing itself to particular contractors, sales agreements, or in-service delivery dates.[130] It advised the utility company to investigate fully the "financial, socioeconomic and environmental" aspects of its projects and programs, in addition to their engineering design.[131] The Commission encouraged Manitoba Hydro to improve its accounting practices and methods of financial planning and consider alternative policies, targets, and variables.[132] It further recommended that Manitoba Hydro strengthen the role of its senior management and listen to the expert advice of its engineering advisors. Lastly, and perhaps most importantly, the Commission offered detailed recommendations for improving the accountability of Manitoba Hydro to government, and for ensuring greater transparency in the factors that influence the government's decisions with respect to hydroelectric development.[133]

RESPONSE

Public reaction to the Commission's findings was predictable and mixed. Finance Minister Donald Craik was clearly pleased by the Commission's condemnation of the NDP's management of the public utility, stating that "the ineptness on the part of the government of that time to respond with leadership to Hydro's plans, demonstrates superficiality and error by omission in dealing with a massive development project." Craik announced that he was "disturbed and surprised at the magnitude of the deception that has taken place."[134] In contrast, Sidney Green, the former NDP minister of Mines and Resources, dismissed the inquiry as an "inquisition conceived in political vindictiveness."[135]

Hydro insiders, however, defended the utility company and its staff. Former Chair Len Bateman, who was the only major casualty of the Commission, defended his leadership of the utility and the work of Manitoba Hydro's staff. He asserted that the inquiry lacked the engineering expertise to understand the evidence it had collected.[136] Martin Wedepohl, who became the acting chair of Manitoba Hydro after Len Bateman was dismissed, offered similar statements. He believed that the Commission's report cast unfair aspersions on the staff at Manitoba Hydro and

only served to crush morale at the utility. In the end, explained Wedepohl, "if the sequence of construction was right or not, I don't know. But ultimately we got the cheapest power. We got the right results, even though it comes from the wrong decision."[137]

Several newspapers noted that the Commission, like the Nelson River hydroelectric development project, had come in behind schedule and over budget. The two-year Commission was originally intended to be completed in one year, at a cost of $150,000. By the time the Commission's report was completed, however, the final bill to taxpayers was $1.35 million, plus an additional $600,000 to be paid by Manitoba Hydro.[138]

OUTCOMES

Although many people in the province questioned whether Manitoba Hydro could be disentangled from the politics of government, Premier Lyon did undertake some specific changes. Of these, the two most significant changes were announced several months before Tritschler tabled the Commission's report. First, in the wake of Bateman's dismissal, Lyon formally separated the role of Manitoba Hydro's chair from its chief operating officer. The latter would be responsible for the day-to-day administration of the utility and for its business decisions. The chair of Manitoba Hydro's board, however, would serve as a kind of "go-between" or "mediator" who would communicate government policy to the utility and keep government officials up to date on the company's fiscal realities and scientific insights.[139]

The second crucial change was Lyon's decision to formalize and clarify the role of the provincial government in setting hydro rates. Whereas the Public Utilities Board had held this responsibility prior to 1979, Lyon determined that government alone should retain that authority. The Public Utilities Board would serve as an advisor and could make recommendations, but it would not be able to set rates.[140]

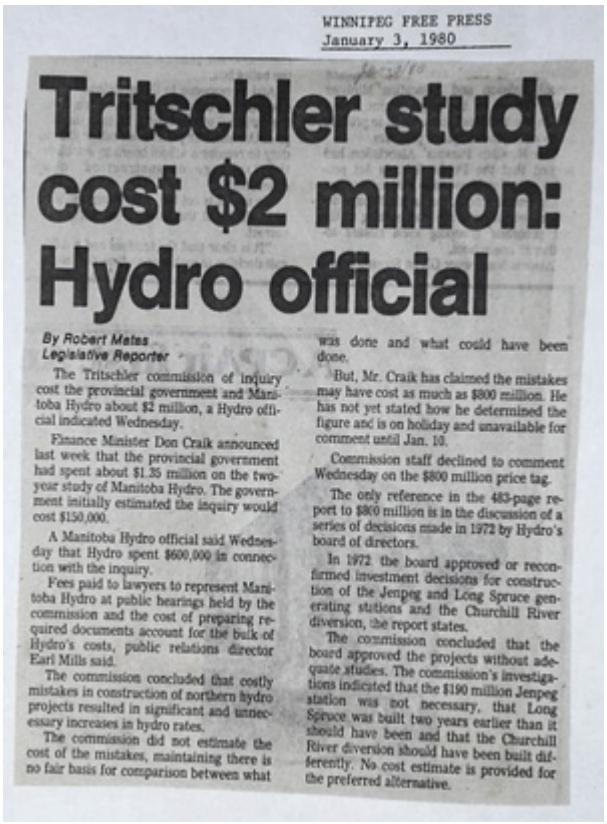
Premier Lyon's final major change was announced in the government's 1979 spring budget. The *Energy Rate Stabilization Act* allowed the government "to absorb foreign exchange losses on Hydro's $2 billion debt." Although the bulk of Manitoba Hydro's debt was because of construction costs, much of its debt was owed in foreign currency. Consequently, as the

THE MEDIA RECORD

Derwyn Davies, a letter writer to the *Winnipeg Tribune*, explained that "here we have a report which claims that Manitobans have been cheated out of $800 million, when the one-man operation to produce it exceeded its costs by 400 per cent!" Davies was not troubled to learn that "the decisions on the regulation of Lake Winnipeg regulation and the diversion of the Churchill River diversion were political decisions." "I already knew that," wrote Davies, "and I applauded when the government of the day showed itself responsive to human ecological considerations." Another citizen offered a similarly frank statement, "I think there may be some truth to the fact that there was a bit of a political thing going on. If they found there were problems, fine, but I think the Conservatives are trying to lay a bit of B.S. on the former government."

The editor of the *Winnipeg Free Press* also noted that politics was at the centre of the issue, stating that "Mr. Tritschler's report will probably be criticized as being too political. But it is difficult to see how a review of political acts can be much else." The editor concluded that the political issues raised by the Commission's report underscored the need for greater transparency: "Politicians should no longer be able to hide behind officials and engineers, nor should officials and engineers seek their own protection by hiding behind their public relations machinery."

Canadian dollar declined in value, Manitoba Hydro's foreign debt rose exponentially. Through the Act, the provincial government agreed to pay "all the increases in Hydro's overseas debt which [had] resulted from the dollar devaluation."[141] In taking over this portion of Hydro's debt, the government had, in effect, transferred a large portion of Hydro's debt from ratepayers to taxpayers.



WINNIPEG FREE PRESS
January 3, 1980

Tritschler study cost $2 million: Hydro official

By Robert Mates
Legislative Reporter

The Tritschler commission of inquiry cost the provincial government and Manitoba Hydro about $2 million, a Hydro official indicated Wednesday.

Finance Minister Don Craik announced last week that the provincial government had spent about $1.35 million on the two-year study of Manitoba Hydro. The government initially estimated the inquiry would cost $150,000.

A Manitoba Hydro official said Wednesday that Hydro spent $600,000 in connection with the inquiry.

Fees paid to lawyers to represent Manitoba Hydro at public hearings held by the commission and the cost of preparing required documents account for the bulk of Hydro's costs, public relations director Earl Mills said.

The commission concluded that costly mistakes in construction of northern hydro projects resulted in significant and unnecessary increases in hydro rates.

The commission did not estimate the cost of the mistakes, maintaining there is no fair basis for comparison between what was done and what could have been done.

But, Mr. Craik has claimed the mistakes may have cost as much as $800 million. He has not yet stated how he determined the figure and is on holiday and unavailable for comment until Jan. 10.

Commission staff declined to comment Wednesday on the $800 million price tag.

The only reference in the 483-page report to $800 million is in the discussion of a series of decisions made in 1972 by Hydro's board of directors.

In 1972 the board approved or reconfirmed investment decisions for construction of the Jenpeg and Long Spruce generating stations and the Churchill River diversion, the report states.

The commission concluded that the board approved the projects without adequate studies. The commission's investigations indicated that the $190 million Jenpeg station was not necessary, that Long Spruce was built two years earlier than it should have been and that the Churchill River diversion should have been built differently. No cost estimate is provided for the preferred alternative.

The Tritschler Inquiry and study were behind schedule and over budget.

The Nelson River hydroelectric development project was, without question, a massively expensive undertaking that had resulted in an extraordinary debt burden for the province. The Commission of Inquiry was created, in part, to investigate how and why Manitoba Hydro's debt load had ballooned to such a degree. During the course of the Commission's two-year investigation, that debt continued to grow. In January 1979, Hydro estimated that, by 1980, it would have $2,952.50 billion in liabilities, but only $2,951 billion in assets. In other words, if Hydro were to declare bankruptcy, it would still owe money even after it had sold all of its assets. Inflation was partly to blame for the rapid rise in debt. Roughly $1.5 billion of Manitoba Hydro debt was owned in foreign currency, the value of which, because of the weak Canadian dollar, had grown exponentially. Just paying the interest on this debt cost Manitoba Hydro upwards of $155 million, or roughly half its total annual revenue.[142]

To pay down its debts, Hydro either had to raise revenue by increasing its rates, or sell more power to more customers; it opted to do both. As noted previously, Manitoba Hydro raised its rates five times between 1974 and 1978. The rate increases helped cover the immediate cost of development, but once phase one of the Nelson River hydroelectric project was finally completed, Manitoba Hydro also had power to sell. With plenty of power to serve its own domestic market, Hydro was well positioned to sell its energy to outside markets in Ontario, Saskatchewan, and, especially, the United States.[143]

By the time the Commission's public hearings ended, but before its report was released, Manitoba Hydro's economic outlook was already starting to improve: sales of hydroelectricity were on the rise. In 1977, Manitoba Hydro exported $24.6 million in power to the United States, Ontario, and Saskatchewan. In the first three quarters of 1978, sales reached over $62.8 million.[144] By September 1979, newspaper headlines announced that Manitoba Hydro had achieved gross revenues of $325 million in the 1978/79 fiscal year, a 35% increase over the previous year. In addition, the provincial government's decision to shoulder some of Manitoba Hydro's foreign debt allowed the utility company to declare a $45.7 million net surplus, its first profit in three years.[145]

This positive turn in Manitoba Hydro's fortunes was welcomed on all sides of the political spectrum. For those who supported the NDP's decision to "overbuild" the Nelson River hydroelectric project, the recent rise in export sales was proof of the utility's "sound future-oriented planning."[146] At Manitoba Hydro, the upswing in the company's revenues was vindication for the "sweat, tears and public abuse," it had experienced over the past few years.[147]

For the governing Progressive Conservative Party, the benefits were even more gratifying. On the one hand, the Inquiry's public hearings, and its soon-to-be-released report, had linked Manitoba Hydro's problems to the decision-making of the previous government. On the other hand, the ruling Progressive Conservative party was now able to preside over announcements of record sales and soaring revenues. Premier Lyon was so encouraged by the surging sales of hydroelectricity that he announced a five-year freeze in hydro rates.[148] He also started to discuss the possibility of new construction projects, including the building of a western power grid to facilitate the export of Manitoba's hydroelectricity to the other prairie provinces.[149]

On June 16, 1979, when Premier Lyon officially opened the Long Spruce Generating Station, the event was clearly designed to showcase the success of the Nelson River hydroelectric project. Over 150 guests, including foreign dignitaries and potential investors from the United States, Germany, and Switzerland, were in attendance. The commencement of operations at Long Spruce marked the end of phase one of the Nelson River hydroelectric project and the beginning of a new era of hydro profits. With its massive amounts of additional power, Manitoba Hydro and the provincial government were finally poised to reap the benefits of this costly and contentious development. In his speech to the crowd, Lyon announced that "the next step is to move on with further construction" and to secure "extra-provincial power sales and exchanges that will enable us to carry on."[150]

Long Spruce Generating Station, 1975.

CHAPTER 4

FIRST NATIONS CONSULTATION AND AGREEMENTS

Construction of the Lake Winnipeg Regulation (LWR) and Churchill River Diversion (CRD) projects altered the natural environment and had a significant impact on the people who lived and worked in the region.

In 1974, the northern First Nations communities of Nelson House, Norway House, Cross Lake, Split Lake, and York Factory formed the Northern Flood Committee (NFC) to voice their concerns. After several years of protracted negotiation, the NFC, Manitoba Hydro, and the federal and provincial governments signed the Northern Flood Agreement (NFA) on December 16, 1977. The NFA promised the signatory communities additional land, improvements to their community infrastructure, protection of traditional hunting and fishing rights, and other long-term economic benefits. The NFA also established an arbitration system to settle claims and disputes, and promised better communication between the signatories.

Unfortunately, implementing the NFA proved to be even more challenging than negotiating it, and an agreement that once held so much promise took over a decade to implement and is still contested in some regions.

THE NORTHERN FLOOD COMMITTEE: 1974–78

The NFC was formed at a meeting in Thompson, Manitoba, on April 23, 1974. It represented the First Nations communities of Nelson House, Norway House, Cross Lake, Split Lake, and York Factory.[1] The primary goal of the NFC was to coordinate collective action against Manitoba Hydro and the federal and provincial governments, in order to alleviate the anticipated negative effects of the LWR and CRD projects, and possibly even halt them outright. The NFC emerged from the earlier Cross Lake–Norway House Coordinating Committee, but was also a product of wider public dissatisfaction with hydroelectric development in the north of the province, dissatisfaction that was exemplified in the relocation of communities at Chemawawin and South Indian Lake during the preceding decade. Increasingly strong opposition to LWR-CRD from many groups bolstered the NFC and prompted the first Interchurch Task Force on Northern Flooding, in 1975. While the NFC was ultimately unable to halt the projects, negotiations over a two-year period resulted in the signing of the landmark NFA in 1977.

Concerns about the potential effects of the projects began to spread in northern Manitoba First Nations communities in the early 1970s. In 1970, the provincial government authorized Manitoba Hydro to proceed with LWR,[2] and construction went ahead despite little or no consultation with local communities. At the 1975 Interchurch Inquiry, witnesses stated that meetings with Manitoba Hydro "consisted largely of Hydro telling them what was going to happen and that the effect on them would be either nil or not much."[3] In the absence of meaningful dialogue and concrete information, fears and uncertainties over potential LWR effects multiplied. While these fears were sometimes characterized as "overstated" or as an "overreaction" to hydro development, the communities involved likely had the recent examples of Chemawawin and South Indian Lake very much in mind: Both of these communities were severely affected by northern hydroelectric development. The entire community of Chemawawin was relocated in the 1960s during the construction of the Grand Rapids Dam, while South Indian Lake was partially flooded during the construction of the CRD in the 1970s.[4]

It was against this backdrop of uncertainty and fear that the NFC began to coalesce in the early 1970s. First Nations communities in northern Manitoba did not want to be forced to relocate like the residents of Chemawawin had, or to suffer damage to their livelihoods, like the fishermen of South Indian Lake

CHEMAWAWIN

Located along the Saskatchewan River, the First Nations community of Chemawawin was inundated during the construction of the Grand Rapids Dam in the early 1960s. The project was designed to supply power to the International Nickel Company (INCO) complex in Thompson. Serious planning for the Grand Rapids Dam began in 1957, but it was only in 1960 that the residents of Chemawawin were informed that they would have to relocate. Government officials promoted a nearby site, which would be called Easterville, after Chief Donald Easter. Residents formed a small flood committee in 1962 to negotiate with government representatives, and attempted to secure the most advantageous terms for their forced relocation. The flood committee signed a letter of intent with the provincial government in April 1962, which prefigured the later NFA in many respects. It promised the band new lands in an exchange ratio of two to one, as well as improved infrastructure, much of which would be constructed with local labour. The community began to have doubts about the letter of intent almost immediately prior to relocation in 1964, however, and became embroiled in years of legal wrangling in an effort to assert the rights they believed they were promised in 1962.

had. Flood committees formed in several communities, but it was Nelson House that took the lead in forming the NFC in April 1974.[5] The NFC superseded previous flood organizations, such as the Cross Lake-Norway House Coordinating Committee, as the voice of northern Manitoba communities.[6] The federal Minister of Indian Affairs, Jean Chrétien, provided $65,000 to help fund the NFC,and Chief Henry Spence was its first Chairman. [7]

As originally formed, the NFC included the five First Nations communities that eventually signed the NFA in 1977, in addition to Fox Lake, South Indian Lake, and Ilford. The NFC held meetings in Winnipeg on July 3 and 4, 1974, and hired Charles R. Huband, from the legal firm of Richardson and Company, to represent it. In a strongly worded letter to Premier Ed Schreyer, dated July 5, 1974, Huband outlined the NFC's position. He indicated that the NFC was planning to seek a legal injunction to halt LWR outright, because it believed that flooding reserve lands was a violation of treaty rights. In no uncertain terms, the letter stated that "the northern residents are not in a position to compromise on their basic position; they wish to retain their lands in the form unaffected by any Hydro development."[8] Huband acknowledged that "there might be temptations on the part of Manitoba Hydro or the province of Manitoba to deal with individuals or communities on a separate basis," but reminded the premier that the NFC now represented the affected communities as a whole, and as such should be dealt with exclusively.[9]

The reaction on the part of the premier to this new development was one of indignation and outrage. Schreyer wrote to Prime Minister Pierre Trudeau, accusing the federal government of acting in bad faith by funding the NFC, and in a way that was contrary to the terms of the 1966 Canada–Manitoba cost-sharing agreement. Schreyer informed the prime minister of NFC's formation and its intent to seek legal action against the province, and stated that he would "hold the federal government responsible for any damages suffered by the people of Manitoba as a result of federal actions inconsistent with their contractual obligations."[10] Schreyer attempted to circumvent and marginalize the NFC with limited success, however. In August 1974, he stated that the provincial government would not negotiate with a "gun at its head."[11] In an open letter to the "Residents of Northern Manitoba," dated May 18, 1975, the premier reminded readers that their interests were represented by the provincial government, which had "no intention of transferring this responsibility to the Northern Flood Committee."[12]

Premier Ed Schreyer, 1977.

The continued refusal of the Premier and his government to recognize the legitimacy of the NFC posed a major stumbling block to negotiation. This

was likely due in large part to the outrage the premier felt over the threatened NFC injunction to halt the project. Whenever possible, the provincial government tried to bypass or dismiss the legitimacy of the NFC as the voice of affected First Nations communities. In a letter to the province's legal counsel, dated April 25, 1975, the NFC's legal team stated that "meaningful negotiation cannot, and will not, occur until there is an express recognition by the government of Manitoba that the Northern Flood Committee is the sole negotiating agent for the constituent communities."[13] The NFC was "not prepared to accept the limited role of an essentially watchdog function...while Manitoba Hydro pushes relentlessly on in attempting to negotiate a settlement of claims on an individual, ad hoc basis."[14] The increasingly strident tone of the correspondence from this period illuminates the clear animosity that was developing, and which affected both public debate and private negotiations.

The NFC attempted to keep the channels of communication with the province and Manitoba Hydro open, however. In his July 5, 1974, letter to the premier, NFC lawyer Charles Huband emphasized his willingness to meet with representatives from Hydro to discuss mitigation measures.[15] In an August 16, 1974, letter to the province's legal counsel, Huband reminded the province of another major hurdle to serious discussion: a lack of information on what effects LWR might have on northern communities. The NFC maintained that it was not in a position to negotiate on any kind of settlement until it had full access to reports outlining the anticipated effects of LWR, particularly the final report of the Lake Winnipeg, Churchill and Nelson Rivers Study Board.[16]

LAKE WINNIPEG, CHURCHILL AND NELSON RIVERS STUDY BOARD

The Lake Winnipeg, Churchill and Nelson Rivers Study Board was formed in August 1971. Its role was to study the environmental and social effects of LWR-CRD on northern Manitoba communities. The Study Board was created amidst growing concern over the possible effects of LWR-CRD, and some believe that its creation was designed to assuage this concern as well as stall for time while construction went ahead.[17] The Study Board's final report was due at the end of 1974, but the deadline was later extended to April 1975, although the Board had the power to issue recommendations at any time if they related directly to works already underway.[18]

The Lake Winnipeg, Churchill and Nelson Rivers Study Board was composed of six members: three from the provincial government and three from the federal government. The scope of the study was quite broad: the Study Board was authorized to examine changes to the water regime, specifically water levels and flows, erosion and sedimentation, and water quality. It also examined effects on "water use and related resources," which included community water supplies, fisheries, wildlife, recreation and tourism, navigation, forestry, and mining. The final part of the Study Board's mandate looked at the "social implications" of the project, which focused mainly on its employment aspect.[19]

The Study Board divided the affected region into six "study areas": Lake Winnipeg, the Outlet Lakes, the Diversion Route, South Indian Lake, the Lower Churchill River, and the Lower Nelson River.[20] It identified demography as one of the major challenges facing northern Manitoba, and claimed that, in 1975, over half of the population of northern Aboriginal communities was under the age of 15.[21] It also divided the northern economy into three parts: a traditional (hunting and fishing) economy, a modern wage economy, and a transfer payment economy.[22] The

Study Board made a number of thoughtful recommendations, many of which prefigured the eventual articles of the NFA. It proposed the creation of an advisory board to oversee hydro development, and unequivocally recommended that "Manitoba Hydro and other resource developers provide just compensation or mitigation for all damages resulting directly from the developments."[23] It also recommended improving communication between all parties involved, the development of a long-term ecological monitoring program, and mitigation measures such as debris and shoreline clearing.[24]

Although its findings were significant, the *Summary Report* of the Lake Winnipeg, Churchill and Nelson Rivers Study Board was not published until April 1975, by which time LWR construction was largely complete. Residents of affected communities therefore had little or no accurate information to rely on in the years leading up to that date. For example, although Manitoba Hydro received an interim licence to proceed with LWR in late 1970, the first consultations in northern communities were not held until 1972.[25] Testifying at the 1975 Interchurch Inquiry, Sidney Green, Manitoba's Minister of Mines, Resources and Environmental Management, asserted that the provincial government had done a much better job than it had ever done in the past in terms of providing information to northern communities. Green proudly pointed to the technical reports he had made available to the NFC as well as brochures summarizing hydro development, which he had had distributed in the affected communities.[26] Members of the NFC, however, held less charitable views about the provincial government's communication strategies. Testifying at the 1979 Tritschler Inquiry, NFC consultant Colin Gillespie claimed that Green's brochures and pamphlets were "worse than useless," and actually increased, rather than allayed, fears among First Nations residents.[27] The 1975 Interchurch Inquiry pinpointed an even clearer problem with government and Manitoba Hydro efforts to share information with northern residents. The Inquiry panel noted that "somehow, much of the information in the various reports and documents was not brought home to the Indian people, so that they understood it," and reiterated that "it is pertinent to repeat that merely supplying written or printed documents to native people is not an effective method of communication."[28] In hindsight, it is clear that First Nations residents sometimes did not fully understand the technical and legalistic language of the reports and studies. Face-to-face meetings might have been more effective tools for engaging in meaningful dialogue.

By late 1974, the NFC had switched tactics and given up on its earlier efforts to seek an injunction to declare LWR illegal.[29] The NFC case was predicated on the belief that the province had no right to flood reserve lands, which were the prerogative of the Crown, and that any flooding of these lands would be in violation of Treaty 5. The provisions of this 1875 treaty were unclear, however. It reassured "the said Indians" that they "shall have right to pursue their avocations of hunting and fishing throughout the tract surrendered," guarantees that were tempered by the caveat that "such sections of the reserves above indicated as may at any time be required for public works or buildings, of what nature soever, may be appropriated for that purpose by Her Majesty's Government."[30] The official reports of the Treaty Commissioners do not refer to the Aboriginal surrender of water rights, while the 1991 *Report of the Aboriginal Justice Inquiry of Manitoba* observed that "since most reserves were situated next to bodies of water for fishing, transportation and domestic consumption purposes, it is logical to infer that the reserve included at least a portion of the surrounding waters."[31]

The passage of *The North-west Territories Irrigation Act* in 1894, however, took away many of those rights. This Act

applied to northern Manitoba and transferred all water rights to the Crown, unless individuals applied for a licence before July 1, 1896. The Department of Indian Affairs failed to apply for licences for First Nations communities, however, and thus many northern communities effectively lost their traditional water rights.[32] Those rights were then transferred to the province under the 1930 *Natural Resources Transfer Agreement*. In his detailed study of First Nations water rights in Western Canada, Richard Bartlett concluded that "the furtherance of irrigation and water use policy appears to have been developed entirely without regard for the Indian people or the treaty promises made to them," and that the provinces "continue to deny the water rights of Indian bands on outstanding reserve land entitlement."[33]

Instead of engaging in a long courtroom battle over the legality of flooding reserve lands, however, the NFC agreed to engage in formal negotiations with the federal and provincial governments. Leon Mitchell was appointed as a mediator, to help the various parties resolve disputes.[34] In a January 7, 1975, letter to the Premier, Charles Huband indicated that the NFC had created a negotiating team that wished to meet with the premier and members of his cabinet to discuss the anticipated effects of LWR.[35] Schreyer eventually met with the NFC in Thompson on February 24, 1975, but still seemed reluctant to recognize its central role in representing the interests of northern communities. In an April 25, 1975, letter to the province's legal team, the NFC's lawyer outlined the Committee's new objective. This would be "a negotiated settlement of all matters...which will ensure to the Native People in the North that they and the generations succeeding them, will be fully and adequately compensated for all effects and damages arising out of the project."[36] The NFC also outlined the issues of pressing significance to them (see Table 2 below). Many of these grievances were eventually addressed in the NFA.

NFC DEMANDS, APRIL 1975	
1	Modification of the project to minimize effects.
2	Safeguards to protect environment.
3	Transfer of lands to native people.
4	Protection of hunting, fishing, and trapping rights.
5	Adoption of social and economic programs.
6	First Nations participation in development.
7	Tax exemptions.
8	Monetary compensation, including royalties.
9	Establishment of a development corporation.
10	Recognition of collective native rights and claims.
11	Agreement not to violate native lands until all matters settled.
12	Written schedule of LWR-CRD planned developments.
13	Full disclosure of Hydro's activities in the north.
14	Right of native peoples to be heard by Hydro and government.
15	Full recognition of NFC.

Table 2. NFC demands, April 1975. Source: letter from D.C.H. McCaffrey, NFC legal counsel to Aikins, MacAulay and Thorvaldson, Manitoba legal counsel, dated April 25, 1975. PAM B-13-1-13.

Negotiations continued throughout 1976 and 1977. In September 1976, an agreement-of-principle paper was drafted at a workshop in Nelson House, while the outline of a compensation package was drafted and distributed in February 1977. Intense negotiation throughout the remainder of 1977 culminated in the drafting and eventual signing of the NFA on December 16, 1977.[37] The NFA would only take effect, however, after ratification by popular vote in the five signatory communities. This vote was originally supposed to take place within 60 days of signing,

but was eventually delayed until March 9, 1978. First Nations leaders still wanted more time before the vote in order to better understand the full implications of the agreement. A newspaper article at the time claimed that "there is a general bewilderment by the local people about what they are being offered. Some local residents complained that they couldn't understand the Cree Indian syllabics printed to explain the agreement. He said the dialect was different than that which the Cree were used to reading."[38]

The referendum went ahead as planned on March 9, 1978, and the results were publicly announced on March 17, 1978. The NFA was approved by a margin of 65% to 35%. These figures are somewhat misleading, however, because slightly less than a quarter (24.6%) of eligible voters (873 of 3,681) cast ballots. The margin of approval also varied widely by community. While 81% of voters who cast ballots in York Landing voted for the NFA, only 70% voted in favour in Norway House and in Nelson House, a margin of approval that fell to 58% in Split Lake and 57% in Cross Lake.[39] These figures suggest that approval of the NFA was hardly unanimous, although V.G. Boultbee, Director-General of the Indian Affairs Region at Thompson, suggested that voter turnout was much the same as that seen in band council elections.[40] Nonetheless, the members of the NFC could be rightfully proud of an agreement that seemed to lessen the worst effects of LWR, and promised a brighter future for the northern communities. Chief Nelson Linklater of Nelson House expressed sentiments that were likely shared in the community: "We've been fighting for this agreement for four years. It's a good one and now we need to get down to business and make it work."[41] Unfortunately, making the NFA "work" proved to be a longer and more difficult process than either Linklater or anyone else at the time imagined.

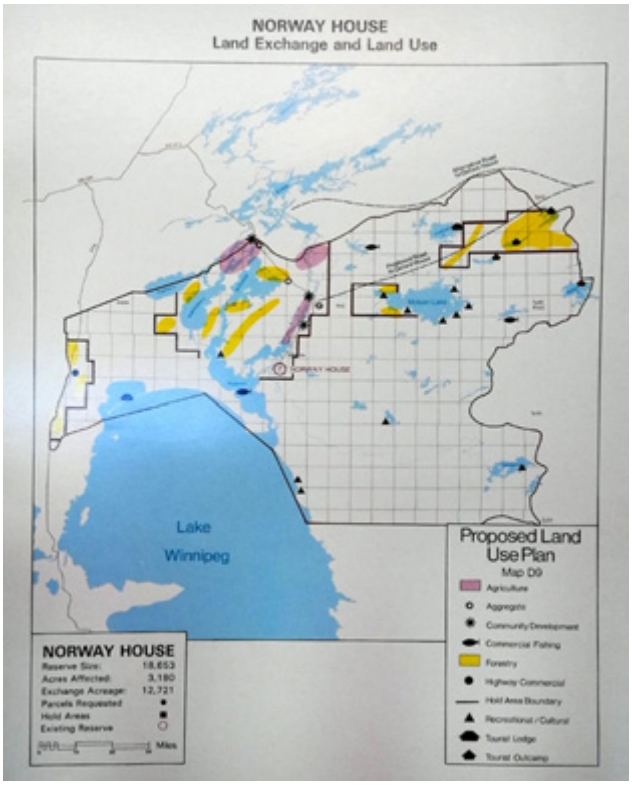
THE NORTHERN FLOOD AGREEMENT

The NFA opens by acknowledging that the water systems in the north had and would continue to be modified because of development, and that "adverse effects have occurred, and may continue to occur, on the lands, pursuits, activities and lifestyles of the residents...of the Reserves of Cross Lake, Nelson House, Norway House, Split Lake and York Landing."[42] Canada, Manitoba, and Manitoba Hydro pledged that any persons or communities adversely affected by LWR would be treated "fairly and equitably," although it was "not possible to foresee all the adverse results of the Project nor to determine all those persons who may be affected by it."[43] The preamble also reaffirmed the federal government's special obligations towards the First Nations communities, which stemmed from their existing treaty rights, and vowed that the NFA would not interfere with these traditional rights. The NFA only applied to First Nations individuals, unambiguously

Ken Macmaster (Manitoba Northern Affairs Minister), Don Craik (Manitoba Minister responsible for Manitoba Hydro), Brian Hartley (Federal Indian Affairs Department representative), Walter Monias (Cross Lake Chief), signing the Northern Flood Agreement, 1977.

warning that "nothing in this Agreement shall be deemed to extend Canada's obligations to persons not defined as Indians under the *Indian Act*."[44] This was a significant provision, because it ensured that any non-Aboriginal individuals or communities affected by LWR in northern Manitoba could not benefit from the NFA. The Agreement would "remain in force and be binding upon the parties hereto, for the lifetime of the Project."[45] This essentially meant that the NFA would apply at least for the foreseeable future, if not in perpetuity, or for at least as long as Manitoba Hydro generated hydroelectricity in the northern part of the province.

One of the first elements the NFA dealt with was flooding. Any band whose land was flooded as a result of the development would receive four acres of land for every affected acre. These "exchange lands" were usually nearby Crown land. The exchange land did not have to be adjacent to the reserve, and a band could select its own exchange lands as long as the land was not required for development by Manitoba Hydro or the province. Once selected and approved, the exchange lands would be transferred to the reserve and would then be subject to the same rights and regulations as any other reserve lands. The band would also receive mineral rights to any exchange lands it received. If a band was unhappy with the land it received, there was a five-year grace period within which the land could be returned to the Crown, in exchange for another parcel.[46] Article 3.6, however, stipulated that Manitoba Hydro would receive easement land below specified elevations at each reserve, to allow for raised water levels. The granting of easement lands was conditional on Hydro keeping water levels below certain predefined limits, which varied from reserve to reserve.[47] Hydro was also required to set aside "hold areas" for a period of five years, from which the bands could select its exchange lands.



Map of proposed land exchange and land use for Norway House.

Article 5 of the NFA dealt with navigation. It maintained that "residents of the Reserves have a right to free and normal navigation of the waterways," and stipulated that Manitoba or Manitoba Hydro had to "remove debris of any nature" resulting from construction or flooding.[48] Article 6 was also concerned with water, specifically water quality. In Article 6.1, the federal government "accepts responsibility to ensure the continuous availability of a potable water supply on each of the Reserves."[49] This water was to meet established national health and safety criteria.

Article 9, "Notice to Parties," stated that "Hydro shall not make any decisions in respect to any such future developments unless and until a process of bona fide and meaningful consultation with the communities has taken place."[50] A lack of consultation with northern communities, and an overall lack of communication regarding

future plans and the anticipated effects of LWR, had been one of the outstanding grievances of the NFC against Manitoba Hydro and the provincial government.[51] The 1979 Tritschler Report noted that "Hydro has often failed to provide timely and accurate information," and concluded that Manitobans had "a right to a disclosure of all the facts — not just 'good news.'"[52]

Article 10, "Minimization of Damage," committed the province to try to minimize the destruction of wildlife by "controlling the water levels and flows to the extent that it is practical to do so."[53] The northern communities that signed the NFA were deeply concerned about any potential damage to wildlife, such as that which had been reported at South Indian Lake, where residents complained of reduced numbers of beavers and fish.[54] The communities depended on local game not only for subsistence and as a way to earn a living, but as an important part of their spiritual traditions. The NFC included an excerpt from an anthropological report in a letter it sent to the Manitoba Minister of Mines, Resources and Environmental Management Sidney Green in August 1975. The report noted that the Norway House Cree "identify with hunting and fishing and gathering as a source of pride and security and direction," and warned "that one should not underestimate the amount of traditional animism that still structures the way the Cree perceive their natural resources and react to projects which affect their resources."[55]

Article 12 committed Manitoba Hydro to providing compensation for existing infrastructure damaged by LWR, as well as to funding a substantial number of new community projects.[56] Anticipated projects included measures for shoreline protection, restoration, and clearing, as well as new docks, beaches, roads, ferries, and recreational facilities.[57] Whenever possible, the parties agreed that the work should be carried out by local band members.[58]

Article 15, "Wildlife Resources Policy," outlined the hunting and fishing rights that the residents of the NFC communities would continue to enjoy. Residents of the reserves would receive first priority to all game and fur-bearing animals in their trapline zones, which had been established in 1975 under the Registered Trapline Program. Residents would also receive first priority to fish in the lakes and rivers they traditionally used.[59] Manitoba Hydro would make new resource areas available to band members, and the province claimed that it had "encouraged and will continue to encourage the residents of the Reserves to achieve the maximum degree of self sustenance [sic] in food supplies and to maximize the opportunity to earn income."[60] This was essentially confirming the rights that most NFC communities already enjoyed under Treaty 5 of 1875, which ensured "that they, the said Indians, shall have right to pursue their avocations of hunting and fishing throughout the tract surrendered."[61]

Warren Allmand, federal Minister of Indian Affairs and Thomas Beardy, Chief of York Landing.

Article 16 of the NFA committed the federal and provincial governments to fund the creation of a "comprehensive Community Development Plan" for each community.[62] This significant provision aimed to restore a considerable level of autonomy to the affected communities. The goals of the community development plans were wide-ranging. They aimed to enable the residents to "provide continued opportunity to carry on their traditional lifestyles to the maximum extent practical, to deal with social and economic problems that may be identified, to take advantage of opportunities that may be identified, and to recommend the practical means that may be available for implementation of the Plans formulated."[63] The First Nations communities that signed the NFA had suffered from a fundamental lack of autonomy ever since they came under the jurisdiction of the Department of Indian Affairs. This situation was aggravated during the years of struggle and negotiation that preceded the NFA, during which the communities felt routinely ignored and marginalized.[64] The ability to have a broader say in determining their own destinies was a provision welcomed by northern First Nations communities.

The title of Article 18, "Miscellaneous Policy," was deceptively simple, yet it made some of the most wide-ranging commitments in the entire Agreement. These commitments would later come to haunt generations of federal and provincial negotiators. In Article 18.2, for example, Canada and Manitoba acknowledged "that it is in the public interest to ensure that any damage to the interests, opportunities, lifestyles and assets of those adversely affected be compensated appropriately and justly." Article 18.5 sought to improve economic conditions in the signatory communities. It asserted that:

> it is in the public interest to employ, to the maximum possible extent, residents of the subject Reserves in all works and operations related to the Project and to implement forthwith practical measures necessary to implement that objective, including opportunities for education, training, and particularly on-the-job training of any able and willing resident.[65]

This clause seemed to offer a remedy for the under- and unemployment that was endemic in First Nations communities in Manitoba's north. Anthropologist James Waldram noted, however, that "hydro employment characteristically offers short-term benefits with virtually no opportunity for employment when the labour-intensive construction phase is completed."[66] Waldram's conclusions were supported by available labour statistics: Manitoba Hydro had a poor record of hiring First Nations northerners. In 1975, only 12% of Hydro's workforce on five major northern construction sites were members of northern Manitoba First Nations.[67]

The significance of Articles 15 to 18 lay in their broad commitments vis-à-vis wildlife resources, planning, environmental impacts, and overall compensation. The authors of the Agreement acknowledged "that the policies set forth in Articles 15, 16, 17 and 18 have implications that require clarification to ensure greater certainty."[68] They also acknowledged the potential for future disagreements over implementing the NFA, and proposed a formal arbitration process to resolve disputes. Article 14 of the NFA, for example, gave the arbitrator the power to award damages if Articles 15, 16, 17, or 18 were not implemented.

Article 23, "Other Matters," assured the signatory communities that "no community shall be compelled to relocate in order to escape the impacts of the project," and that if they did decide to relocate, they would not lose any of the

benefits guaranteed by the NFA.[69] Article 23.2 indicated that the onus would be on Hydro to prove that no adverse effects had occurred whenever a claim for damages was made.

Article 24, "Arbitration," established that all parties would agree upon a single arbitrator to settle claims.[70] Significantly, however, Hydro still retained the right to settle individual claims as it saw fit.[71] This was an important loophole, with both benign and potentially troubling implications. Hydro would still need to settle individual claims to administer the Registered Trapline Program. The utility, however, had a history of trying to bypass First Nations attempts at collective action by offering small, individual payouts to members of affected communities. Manitoba Hydro had previously employed this tactic in 1974, when it began making these kinds of payments to residents of South Indian Lake, rather than attempting a larger settlement with the community's flood committee and legal team.[72] Collective action by First Nations communities therefore became difficult, if not impossible, in this situation. A number of commentators have called this the "divide and conquer" strategy.[73] From its inception, however, the NFC had demonstrated its preference for collective action. In a July 1974, letter to Premier Schreyer, the NFC emphasized that it would prefer "if Manitoba Hydro and the province of Manitoba would deal directly with...the Northern Flood Committee...rather than with the individual communities participating...or the various individual residents of the north country."[74]

THE NORTHERN FLOOD AGREEMENT, 1977		
Article	**Title**	**Key Provisions**
	Preamble	Identifies reason for Agreement: to compensate affected communities for altered water regime caused by LWR.
		Long-term responsibility to improve the "social and economic conditions of the communities."
1	Definitions	Defines terms of and parties to the Agreement.
2	General Provisions	Provincial and federal governments agree to implement the NFA, once ratified.
		The NFA only applies to First Nations individuals.
		The NFA will not affect existing First Nations treaty rights.
3	Land Exchange	Bands will receive four acres of Crown land in exchange for each flooded acre.
		Manitoba Hydro agrees to maintain water levels below certain established limits.
4	Land Use	Province will set aside hold areas, from which bands will select exchange lands.
5	Navigation	Residents have a right to "free and normal navigation of the waterways."
		Province or Manitoba Hydro will remove debris.
6	Quality of Water	Federal government will ensure that clean water is available on reserves.

7	Cemeteries and Objects of Cultural Significance	Manitoba Hydro will pay to move cemeteries affected by flooding.
8	Maps	Manitoba Hydro will provide maps showing affected areas, as well as maps indicating areas where it may be unsafe to travel.
9	Notice to Parties	Manitoba Hydro will not engage in any future development without "bona fide and meaningful consultation with the communities."
10	Minimization of Damage	Province agrees to minimize damage to wildlife, whenever possible.
11	Accident, Disability and Life Insurance	Arbitrator will decide if a group insurance policy for affected communities is practical.
12	Community Infrastructure	Manitoba Hydro will pay for a variety of infrastructure improvements in the affected communities, although this work will be carried out by band members, whenever possible.
		Anticipated works include shoreline protection, shoreline restoration, beaches, new docks, recreational facilities, and transport (roads and ferries).
13	Additional Clearing	Parties acknowledge that other areas may need to be cleared of standing trees, if flooded.
14	Policy Matters	Arbitrator has authority to award damages, as Articles 15–18 "have implications that require clarification."
15	Wildlife Resources Policy	Reserve residents have first priority to all wildlife resources in their trapline zones, and in lakes and rivers traditionally used.
		Hydro will make new resource areas available.
16	Planning Policy	Federal and provincial governments will pay for each community to create a comprehensive community development plan.
17	Environmental Impact Policy	Federal and provincial governments will implement the recommendations of the Lake Winnipeg, Churchill and Nelson Rivers Study Board.
18	Miscellaneous Policy	Canada and Manitoba recognize that "it is in the public interest to ensure that any damage to the interests, opportunities, lifestyles and assets of those adversely affected be compensated appropriately and justly."
		Federal and provincial governments and Manitoba Hydro agree to employ local residents in work connected with LWR, and provide training if necessary.
19	Registered Trapline Program and Fishing Program	The Registered Trapline Program (from 1975) is only an interim program.
		The program will be reviewed and amended if necessary.
		The province and Manitoba Hydro will fund and implement a similar program to compensate fishermen for any losses.

20	Community Liaison Committee	A committee will be formed, comprising two members from each band plus representatives from the provincial government and Manitoba Hydro.
		Committee will share information and facilitate communication.
21	Employment Task Force	Task force will be created to achieve employment goals established in Article 18.
22	Remedial Works	Manitoba Hydro will pay for agreed-upon works, including a control weir at Cross Lake.
23	Other Matters	No community will be forced to relocate because of flooding, and if it chooses to move, it will not lose any NFA benefits.
		When claims arise, the onus will be on Manitoba Hydro to prove that LWR did not cause damages.
24	Arbitration	Parties will agree on a single arbitrator to settle disputes.
		Manitoba Hydro still retains the right to settle claims on an individual basis.
25	Duration and Successors	The NFA "shall remain in force and be binding...for the lifetime of the Project."

Table 3. Summary of the Northern Flood Agreement's Provisions, 1977.

IMPLEMENTATION OF THE NORTHERN FLOOD AGREEMENT, 1978–98

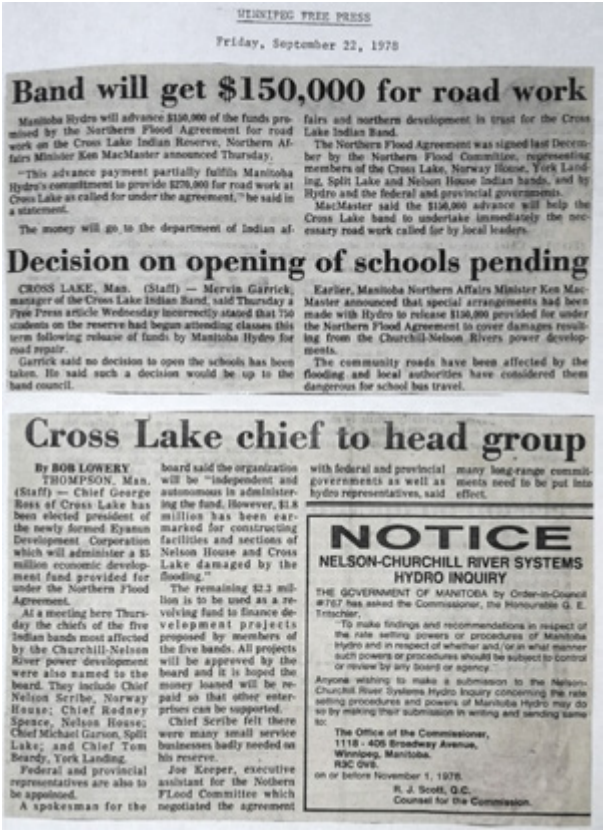
Initial progress in implementing the NFA seemed promising. Planned infrastructure improvements went ahead, some compensation was paid, and planning and advisory committees were formed. The federal and provincial governments carried out major, multi-year environmental impact assessments, and provided substantial funds to upgrade water and sewer facilities in NFA communities. Community planning committees formulated policies on economic and community development, and on wildlife use. New employment task forces made efforts to hire more Aboriginal workers on northern hydroelectric projects, and claims for compensation were submitted to the Office of the Arbitrator. Major efforts in NFA Implementation are summarized in Table 4, below.

NFA IMPLEMENTATION	
Year	**Event**
1978	Neyanun Development Corporation incorporated.
1979	Wildlife Planning and Advisory Board created.
1980	Judge Patrick Ferg appointed as first NFA Arbitrator.
1982	Major land-use study initiated.
1983	Land-use study completed.
	Canada-Manitoba Mercury Monitoring Agreement (CMMMA) signed.

1985	Canada/Manitoba Limestone Project and Employment Training Agreement (LETA) signed, to increase number of Aboriginal workers on the project.
1986	Federal Ecological Monitoring Program (FEMP) begins.
	NFA communities receive $7.8 million to upgrade water and sewer facilities.
1987	CMMMA study completed.
1988	Canada provides $88.5-million settlement to NFA communities to upgrade potable water systems.
1992	FEMP completed.

Table 4. NFA Implementation, 1978–92.

In April 1978, the federal and provincial governments, Manitoba Hydro, and the NFC incorporated the Neyanun Development Corporation, to promote economic growth and employment in the signatory communities. Neyanun was the result of a separate economic development agreement signed by the four parties in September 1977.[75] Chief George Ross of Cross Lake was the first head of Neyanun, which administered a $5-million development fund. The corporation budgeted $1.8 million for infrastructure improvements at Cross Lake and Nelson House, while the remaining funds would be kept in trust and dispersed as necessary to finance development projects.[76]



WINNIPEG FREE PRESS

Friday, September 22, 1978

Band will get $150,000 for road work

Manitoba Hydro will advance $150,000 of the funds promised by the Northern Flood Agreement for road work on the Cross Lake Indian Reserve, Northern Affairs Minister Ken MacMaster announced Thursday.

"This advance payment partially fulfils Manitoba Hydro's commitment to provide $270,000 for road work at Cross Lake as called for under the agreement," he said in a statement.

The money will go to the department of Indian affairs and northern development in trust for the Cross Lake Indian Band.

The Northern Flood Agreement was signed last December by the Northern Flood Committee, representing members of the Cross Lake, Norway House, York Landing, Split Lake and Nelson House Indian bands, and by Hydro and the federal and provincial governments.

MacMaster said the $150,000 advance will help the Cross Lake band to undertake immediately the necessary road work called for by local leaders.

Decision on opening of schools pending

CROSS LAKE, Man. (Staff) — Mervin Garrick, manager of the Cross Lake Indian Band, said Thursday a Free Press article Wednesday incorrectly stated that 750 students on the reserve had begun attending classes this term following release of funds by Manitoba Hydro for road repair.

Garrick said no decision to open the schools has been taken. He said such a decision would be up to the band council.

Earlier, Manitoba Northern Affairs Minister Ken MacMaster announced that special arrangements had been made with Hydro to release $150,000 provided for under the Northern Flood Agreement to cover damages resulting from the Churchill-Nelson Rivers power developments.

The community roads have been affected by the flooding and local authorities have considered them dangerous for school bus travel.

Cross Lake chief to head group

By BOB LOWERY

THOMPSON, Man. (Staff) — Chief George Ross of Cross Lake has been elected president of the newly formed Eyanun Development Corporation which will administer a $5 million economic development fund provided for under the Northern Flood Agreement.

At a meeting here Thursday the chiefs of the five Indian bands most affected by the Churchill-Nelson River power development were also named to the board. They include Chief Nelson Scribe, Norway House; Chief Rodney Spence, Nelson House; Chief Michael Garson, Split Lake; and Chief Tom Beardy, York Landing.

Federal and provincial representatives are also to be appointed.

A spokesman for the board said the organization will be "independent and autonomous in administering the fund. However, $1.8 million has been earmarked for constructing facilities and sections of Nelson House and Cross Lake damaged by the flooding."

The remaining $2.3 million is to be used as a revolving fund to finance development projects proposed by members of the five bands. All projects will be approved by the board and it is hoped the money loaned will be repaid so that other enterprises can be supported.

Chief Scribe felt there were many small service businesses badly needed on his reserve.

Joe Keeper, executive assistant for the Nothern FLood Committee which negotiated the agreement with federal and provincial governments as well as hydro representatives, said many long-range commitments need to be put into effect.

NOTICE

NELSON-CHURCHILL RIVER SYSTEMS HYDRO INQUIRY

THE GOVERNMENT OF MANITOBA by Order-in-Council #767 has asked the Commissioner, the Honourable G. E. Tritschler,

"To make findings and recommendations in respect of the rate setting powers or procedures of Manitoba Hydro and in respect of whether and, or in what manner such powers or procedures should be subject to control or review by any board or agency."

Anyone wishing to make a submission to the Nelson-Churchill River Systems Hydro Inquiry concerning the rate setting procedures and powers of Manitoba Hydro may do so by making their submission in writing and sending same to:

The Office of the Commissioner,
1118 - 405 Broadway Avenue,
Winnipeg, Manitoba.
R3C 0V8.

on or before November 1, 1978.

R. J. Scott, Q.C.
Counsel for the Commission.

Media reports relating to the implementation of the NFA.

In 1982, the NFC commissioned a major land-use study, with support from the federal government, which was completed in 1983. In 1984, the federal government began a review of potable water systems in each community, to fulfill its obligations under Article 6 of the NFA. This eventually resulted in an $88.5-million settlement to ensure the availability of potable water on each of the five reserves. Upgrades to water and sewer systems were done by the Northern Flood Capital Reconstruction Authority (NFCRA), which attempted to maximize local employment, as outlined in Article 18 of the NFA. The federal and provincial governments implemented Article 17 of the NFA, "Environmental Impact Policy," by commissioning major, multi-year environmental-impact studies. The Canada Manitoba Mercury Monitoring Agreement (CMMMA) of 1983 provided $760,000 over a four-year period to investigate mercury levels in the waterways of CRD, while the Federal Ecological Monitoring Program (FEMP) studied water quality and aquatic ecosystems from 1986 to 1992.[77]

Although politicians in Winnipeg and Ottawa could point to these achievements with pride and claim that they were making progress in implementing the NFA, residents in the northern communities were far from happy with both the pace and the spirit of NFA implementation. They felt they were not being properly compensated for lost land and revenues, while unemployment remained rampant and social problems grew. They also felt that Hydro was using its old tactic of "divide and conquer" by offering small compensation payments to individual communities and stalling for time whenever possible. The relationship between the northern communities, the province, and Manitoba Hydro remained adversarial.

The NFA communities expressed their discontent through the formal arbitration process. The first claim was made in 1980; the most recent dates from 2011. Currently, over 200 claims have been filed with the Office of the Arbitrator. They range from claims for lost fishing or trapping revenues, to substantial claims for millions of dollars in damages.[78] The sheer number of claims is indicative of widespread dissatisfaction with NFA implementation. Paradoxically, the mechanism designed to settle disputes arising from the NFA became one of the chief vehicles for implementing it. As the Manitoba Minister of Northern and Aboriginal Affairs, David Newman, observed at the 1999 Interchurch Inquiry, "the main beneficiaries of the arbitration process were lawyers, advisers and consulting firms, not the parties or the people of the NFA First Nations communities."[79]

By the mid-1980s, it was clear to the chiefs representing the five NFA communities that the arbitration and existing NFA implementation processes were not working. In 1986, the NFC approached the federal government in an effort to resolve outstanding claims arising from the NFA. Negotiations between the NFC, Canada, Manitoba, and Manitoba Hydro began in earnest in 1988, and by 1990 the negotiators had developed a Proposed Basis of Settlement (PBS) to settle outstanding NFA claims. Implementation agreements based on the PBS were then offered to each of the five NFA communities in turn, which provided money and land to settle outstanding NFA claims. Four of the five NFA communities accepted implementation agreements between 1992 and 1997.[80] The details of each agreement are summarized in Table 5, below.

NFA IMPLEMENTATION AGREEMENTS, 1992–97			
Community	Date	Settlement	Land Component
Split Lake	June 1992	$47.4 million	34,100 acres
York Factory	December 1995	$25.2 million	19,000 acres
Nelson House	January 1996	$64.9 million	60,000 acres
Norway House	December 1997	$78.9 million	55,000 acres
Totals		$216.4 million	168,000 acres

Table 5. NFA Implementation Agreements, 1992–97. Source: 1999 Interchurch Inquiry, Appendix A. Letter from Lorne Cochrane, Department of Indian and Northern Affairs Canada, to Thomas Novak, Manitoba Aboriginal Rights Coalition, dated July 22, 1999.

The implementation agreements, also known as Comprehensive Implementation Agreements (CIAs) or Master Implementation Agreements (MIAs) were hugely divisive in the First Nations communities.[81] Representatives

from the provincial government and Manitoba Hydro claim that the agreements were drafted and signed in good faith, and that they did not necessarily supersede previous obligations under the NFA. First Nations groups and some academics, however, assert that the implementation agreements are disingenuous and dishonest attempts to evade further NFA obligations. Andrew Orkin, legal counsel to the Grand Council of the Crees, called the implementation agreements "treaty extinguishment or treaty termination instruments" that "modified, eliminated, or liquidated the majority of rights and benefits of the Aboriginal parties that were contained in the NFA."[82] Orkin believed the effects of the implementation agreements to be so catastrophic that "no informed Aboriginal people could possibly have freely consented to their terms."[83] David Newman, the Manitoba Minister of Northern and Aboriginal Affairs, outright rejected these allegations at the 1999 Interchurch Inquiry, stating, "here's the big myth, here's the misrepresentation; and, I don't know why its persisted. The NFA 1977 agreement is not terminated by the MIAs and that release. It continues."[84] Newman claimed that the agreements only compensated communities for outstanding claims, and that they did not necessarily absolve the province and Manitoba Hydro from all future obligations under the NFA.

Much of the controversy surrounding the implementation agreements of the 1990s came about because of fundamental differences in interpreting the scope and intent of the original NFA. Testifying at the 1999 Interchurch Inquiry, Manitoba Hydro Chief Executive Officer Bob Brennan explained the corporation's understanding of the agreement. In his view, the NFA was designed to compensate the NFC communities for specific damages arising from northern hydroelectric development. The NFA was not "one document through which all of the needs of the five NFA First Nations would be satisfied forever."[85] The First Nations who signed the NFA in 1977 have taken a substantially different viewpoint, however, and considered the NFA to have the same validity as the treaties they signed with the Crown in the 19th century.[86] The 1991 Aboriginal Justice Inquiry of Manitoba recommended that "the governments of Manitoba and Canada recognize the Northern Flood Agreement as a treaty," and "as a treaty, the Northern Flood Agreement must be interpreted liberally from the Indian perspective so that its true spirit and intent are honoured."[87] The parties, however, seem unable to agree on the "true spirit and intent" of the NFA. Manitoba Hydro and the provincial government have generally viewed it in more narrow, legalistic terms, as a mechanism for providing compensation to groups affected by hydroelectric development, while the NFA communities have instead seized upon the more open-ended promises of the NFA to improve social and economic conditions in their communities, and ensure the continuing viability of their way of life. Unfortunately, the assessment of the Royal Commission on Aboriginal Peoples seems nearly as valid today as it did in 1996: "The NFA itself…has become the model of how not to reach resolution, as its history has been marked by little or no action in implementation of NFA obligations, and a long, drawn-out (and continuing) process of arbitration to force governments to implement their obligations."[88]

CHAPTER 5

NELSON RIVER HYDROELECTRIC PROJECT IMPACTS

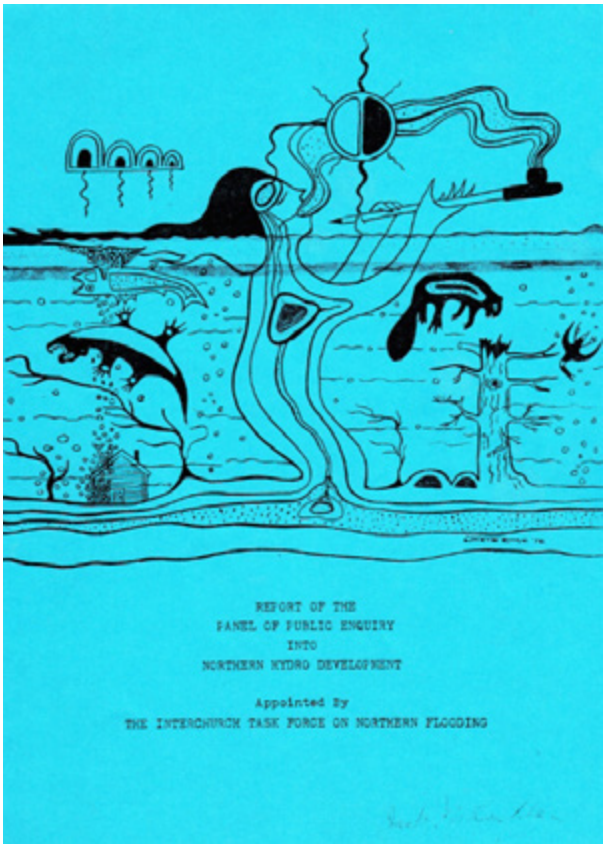
Hydroelectric development has had a significant impact on the people and communities of northern Manitoba, as well as on its landscape, environment, and wildlife. Dozens of major studies, and hundreds of smaller ones, have examined the effect of the Nelson River hydroelectric project on the northern environment, although the lack of accurate pre-project data makes it difficult to compare the pre- and post-development impacts. These studies have looked at water quality issues as well as the effects on fish and wildlife populations, and have tended to focus more on the impact of changes to the water regime than on the effects of associated works like transmission lines.

The findings of the environmental studies have been generally positive: water quality is acceptable, and fish and wildlife populations appear to be healthy. Although factors such as water's quality or the number of fish in a lake are more easily quantified, changes associated with people's culture, identity, and traditional ways of life can be more difficult to identify. First Nations communities in particular have been critical of northern hydroelectric development. Although the Northern Flood Agreement (NFA) and its implementation agreements offered restitution, many First Nation communities continue to suffer from high rates of unemployment and social problems which they attribute, at least in part, to Nelson River hydroelectric project.

THE DEBATE

Since the late 1960s, Manitobans have been concerned about the impacts of hydroelectric development in the north of the province. Aboriginal people in particular feel a deep connection to the land and remain extremely concerned about the potential effects that hydroelectric development may have on their reserve lands and on traditional hunting and fishing rights.

Debate and studies during the mid-1970s focused on the environmental, social, and economic impacts of the Lake Winnipeg Regulation (LWR) and Churchill River Diversion (CRD) projects. With little precedent to draw upon, initial predictions about the long-term effects of LWR-CRD varied wildly, however. In 1975, Premier Ed Schreyer optimistically stated that "time may indicate that the total consequence of this project taken in its entirety [will have] a beneficial rather than a detrimental effect on the quality of life of our northern citizens."[1] In contrast, "all of the Indians and Metis" who testified at the 1975 Interchurch Inquiry "were worried, concerned and fearful of the impact of the Project upon their economic and social life — upon their whole way of life."[2] A general lack of consultation with Aboriginal communities during LWR planning and construction magnified fears, as did the absence of any accurate data on anticipated effects from the project. Although the province licensed Manitoba Hydro to proceed with LWR construction in late 1970, it was only in 1972 that many northern First Nations communities learned that they might be affected. Early hearings tended to be one-sided and lacked much of the dialogue that characterizes modern pre-project consultation. Often, government and hydro officials would arrive in a community and inform residents about what was about to would happen, without really listening to local concerns and ideas. The potential environmental, social, and economic effects of Nelson River hydroelectric project were also largely unknown when construction began. The Lake Winnipeg, Churchill and Nelson Rivers Study Board was formed in August 1971 to study potential environmental and social effects, but it did not issue its final report until April 1975, by which time the LWR project was largely complete.



Cover of the Interchurch Inquiry Report depicts the environment and way of life of First Nations drowning. 1975.

Assessing the full extent of the environmental impacts of hydroelectric development in northern Manitoba is complicated by the acrimonious, adversarial character of the debate that has developed over the years and which

remains sharply polarized, with various camps holding wildly divergent views about the true effects of the project. First Nations groups, often supported by academics, have been highly critical of the development's environmental, economic, and social consequences. Their concerns are pitted against the findings of scientists hired by the province and Manitoba Hydro. Studies produced by these scientists have found localized problems but do not support the negative views of First Nations communities vis-à-vis the environmental effects. The generally positive message from these environmental assessments has done little to alleviate First Nations concerns, which are rooted in the history of hydroelectric development in the province. The lack of consultation with affected communities, and the protracted and often tense negotiations between the Northern Flood Committee (NFC), Manitoba Hydro and the province, created a mutually antagonistic relationship between the parties from an early date, which continued through the arbitration process of the 1980s and the negotiation and signing of implementation agreements in the 1990s. The testimony of William Osborne, from the Pimicikamak Cree First Nation, given at the 2004 Manitoba Clean Environment Commission (CEC) hearings prior to the Wuskwatim Generation Project highlights the tenor of First Nations grievances:

> Since the hydro projects on our territory, our environment has become dangerous. It injures and kills. It cannot support the fish, birds, and animals that we live with and by. The water is polluted... the water is filled with dead and rotting trees and plants....Where my people once lived in a climate of self-respect, pride, and joy in pursuing our Creator-granted way of life of fishing, hunting and trapping, many have now been forced onto welfare and into unspeakable poverty, their souls and pride crushed, caught in a cycle of despair.[3]

Osborne's testimony is typical of dozens of similar submissions presented at the 1975 and 1999 Interchurch inquiries, which were essentially forums in which First Nations groups could air their grievances over hydroelectric development. First Nations critiques of Nelson River hydroelectric project have also been legitimized and strengthened by academic support. Anthropologists James Waldram and Ronald Niezen, in particular, have both been highly critical of LWR and CRD, and entire conferences and books have been devoted to criticizing hydroelectric development in northern Manitoba.[4] In contrast, Manitoba Hydro and the provincial government have argued in the past that First Nations claims are exaggerated and out of touch with reality.[5] They claim that they have acted in good faith and have made serious efforts to ameliorate the social, economic, and environmental effects of hydroelectric development, as outlined in the 1977 Northern Flood Agreement (NFA), and that they can point to numerous studies and initiatives that they have funded during the intervening years. Although the large body of environmental impact studies prepared in the last three decades seems to support Hydro's position, the lack of accurate baseline data makes it difficult to draw firm conclusions about the long-term environmental effects of LWR-CRD. As well, the enormous divergence of opinion between the opposing camps makes it difficult to determine where the truth lies: Were the environmental effects of LWR largely insignificant, and social problems merely the result of pre-existing conditions, as Hydro contends? Or did LWR truly devastate Aboriginal communities and ways of life, as First Nations groups argue?

ENVIRONMENTAL IMPACTS

The effects of hydroelectric development on the environment, ecosystems, and wildlife of northern Manitoba have remained an ongoing concern for all parties involved and have resulted in several major, multi-year environmental impact assessments. Areas of interest have generally focused on water quality and the potential effects on fish and wildlife. These assessments have concluded that the effects of Nelson River hydroelectric development on the environment seem to have been less severe than anticipated, although the ability to draw firm conclusions is hampered by a lack of pre-project baseline data in most study areas.

FLOODING AND EROSION

Over time, Nelson River hydroelectric development has altered the water regime of Lake Winnipeg, the Nelson and Churchill rivers, and their tributaries. Some areas were flooded, while others were exposed. Flooding and increased water flow led to increased erosion and sedimentation, while control structures altered natural seasonal water levels in some areas.[6] Southern Indian Lake increased in size by nearly 300 square kilometres, for example, while up to 300 square kilometres of Cross Lake bottomlands were exposed in the summer months during the 1980s before the construction of a weir, in 1991.[7] The 1992 Federal Ecological Monitoring Program (FEMP) *Summary Report* noted that erosion along the CRD route had not been as serious as predicted. Ten times the pre-diversion level of sediment was delivered to Split Lake during the study period, but this amount was still six times less than had been predicted.[8] Shoreline erosion became a persistent issue at South Indian Lake, however, as permafrost created unanticipated problems.[9]

Erosion along the shores of Lake Winnipeg, 1977.

Changes also occurred to the water regime of Lake Winnipeg, which supplies the Nelson River. The Lake Winnipeg, Churchill and Nelson Rivers Study Board predicted that "with Lake Winnipeg regulated, flood levels will be reduced, shoreline erosion rates will increase, beach widths will be narrowed, and marshes around the lake will tend to stagnate. On the other hand, navigation conditions will improve."[10] These predictions, however, proved to be only partially correct. Flooding, shoreline erosion, and concerns over water quality in Lake Winnipeg are still outstanding issues, although recent studies suggest that natural phenomena, rather than LWR, are largely to blame for these changes.

Besides producing hydroelectricity, one of the major purposes of Lake Winnipeg Regulation (LWR) was to regulate water levels on the lake, to reduce flooding and shoreline erosion. Lake Winnipeg's water level has been of vital interest to residents along its shores since the earliest European settlement in the area. The "Great Flood" of November 1880 destroyed crops and threatened houses and livestock in the vicinity of Gimli.[11] Lake levels rose dramatically again in 1916, 1927, 1947, 1950, and 1954. High water levels from floods in 1966 and 2011 forced hundreds of cottagers and residents to flee.[12] Clearly, LWR has been unable to eliminate record high-water-level events on Lake Winnipeg, but a recent study concluded that it has likely reduced the severity of these occurrences. This study further states that the average monthly mean water level in Lake Winnipeg could vary by as much as two metres prior to LWR, a fluctuation that was cut in half after LWR. The study argues that the chief factors influencing water levels on Lake Winnipeg are natural — particularly precipitation, evaporation, inflow, and waves caused by wind setup. Isostatic rebound is also thought to raise lake levels by two centimetres each century.[13]

Grand Beach under two feet of water after Lake Winnipeg flooded, 1966.

Erosion caused by high water levels is another major concern for residents along Lake Winnipeg, because it damages both beaches and lakefront properties. The shoreline study admits that erosion can be a serious problem, but primarily blames natural phenomena, such as increased wave activity during times of unusually high water, for any significant shoreline changes.[14] These conclusions were endorsed in a recent report by the Lake Winnipeg Implementation Committee, which concluded that "erosion, flooding, and dynamic beach change at the shoreline are primarily, or at least to a great extent, the result of naturally-occurring processes related to the geology and lake history."[15] These studies suggest that while LWR has been unable to reduce the frequency or severity of floods and shoreline erosion along Lake Winnipeg, it is not to blame for continued problems in these areas.

WATER QUALITY

The Federal Ecological Monitoring Program (FEMP) has conducted detailed studies of water quality in northern

Manitoba, mostly along the CRD system. In the two-year period between 1987 and 1989, FEMP found that water in the study area generally met federal guidelines, with some exceptions. Turbidity remained high at all sites, and levels of aluminum and copper exceeded guidelines for the protection of aquatic life.[16] A 1993 report commissioned by Manitoba Hydro summarized the findings of five previous studies on water quality in northern Manitoba, focusing on the communities of South Indian Lake, Nelson House, Norway House, Cross Lake, Split Lake, and York Landing. Levels of phosphorous increased at some sites and declined at others, although the study noted that increased levels of phosphorous were not necessarily a negative phenomenon. Increased phosphorous can lead to increased algal growth in community water supply systems, creating problems with the taste and smell of drinking water, but this same algal growth can also improve the productivity of local fisheries. Turbidity increased at Southern Indian Lake, but the authors noted that turbidity there had historically exceeded provincial guidelines, and that "additional water treatment processes would have been required to be in place regardless of... CRD."[17] Levels of trace elements such as arsenic, copper, lead, nickel, and zinc were all below provincial guidelines for drinking water, although levels of copper often exceeded guidelines for the protection of aquatic life. The study noted, however, that the lack of pre-project data meant that it was impossible to determine if these conditions were the result of LWR-CRD or of naturally occurring factors.[18]

In recent years, water quality in northern Manitoba has been monitored by the Coordinated Aquatic Monitoring Program (CAMP). Its report for the years 2008 to 2010 found that phosphorous levels exceeded provincial guidelines in the Outlet Lakes (Playgreen, Little Playgreen, and Cross Lakes), while levels of aluminum and iron exceeded provincial guidelines for the protection of aquatic life. The study also noted, however, that aluminum and iron are two of the most abundant naturally occurring elements, and high levels of these metals have also been recorded in undisturbed environments.[19] A comparison of on-system (part of LWR) with off-system (not part of LWR) water bodies found that off-system water bodies were generally clearer and contained less phosphorous.[20]

Blue-green algae, Lake Winnipeg, 2010.

The majority of studies on LWR tended to focus on effects in northern Manitoba and often ignored Lake Winnipeg, although of course the latter lake is the source of the majority of water that flowed through the system further upstream. In 2005, attention was refocused on Lake Winnipeg after thick blooms of blue-green algae covered more than half of the lake's surface. The algae bloom filled fishing nets, impeded recreational boating, and posed a health risk.[21] The bloom was likely caused by an influx of phosphorous and nitrogen into the lake, the byproduct of runoff from agricultural and livestock production.[22]

MERCURY

Elevated levels of mercury in water, fish, and humans has been one of the most significant environmental concerns stemming from LWR. The issue first came to light in the late 1970s after the flooding of the community of South Indian Lake. A 1979 study by Fisheries and Oceans Canada found that levels of mercury had increased in whitefish and pike in the lake. The study also noted that while the relatively high concentrations of mercury were not unusual by themselves, the increase in mercury levels after flooding was significant.[23] Although the authors hypothesized that the increased mercury levels were a product of bacteria processing naturally occurring mercury found in the soil, the lack of pre-project data made it impossible to identify a causal relationship between impoundment and increased mercury levels in fish.[24] At the time of LWR-CRD, in the early 1970s, the relationship between reservoir creation and elevated mercury levels was not fully understood. As recently as 1967, in fact, scientists discovered that bacteria could convert naturally occurring inorganic mercury in soils and bottom sediments into more toxic methylmercury.[25] Methylmercury is then absorbed by plankton and tiny invertebrates, which are consumed by juvenile fish; these, in turn, are consumed by larger fish, which are then eaten by humans or other animals. Organisms further up the food chain live longer and therefore consume more mercury-laden organisms, and thus accumulate more mercury in their tissues, in a process known as bioaccumulation. Larger, predatory fish will have higher mercury levels than smaller, younger fish.[26] The level of methylmercury in hydro reservoirs is a product of the types of soils and vegetation flooded, as well as local conditions such as temperature, pH levels, and dissolved oxygen.[27]

The mercury levels found in the fish of Southern Indian Lake raised concerns about the potential effects on human health and the environment, which spurred the signing of the Canada-Manitoba Mercury Monitoring Agreement (CMMMA) in 1983. The CMMMA Study Board examined mercury levels in fish, water, soils, and humans between 1983 and 1986. The Study Board focused primarily on the CRD route, but carried out some work in the Outlet Lakes areas as well. It found that:

- Elevated mercury levels were caused by naturally occurring mercury in the ecosystem.
- Mercury levels in the soil, sediments, and water were within normal ranges.
- Mercury levels in fish along the CRD route exceeded federal guidelines, although mercury levels varied by fish and species.
- Mercury levels in people tested were generally within the normal range of 0–20 parts per billion (ppb).
- Mercury levels in mink and otter were elevated, but below toxic levels.
- Elevated mercury levels were caused by mercury methylation, a product of bacterial processes.
- The amount and type of flooded material were the most important factors controlling the rate of methylation.

- Dissolved oxygen and other environmental factors also played a significant role in mercury methylation.
- It might take decades for mercury levels in northern reservoirs to return to pre-impoundment levels.
- Many factors influence mercury methylation, which makes it difficult to predict the severity of the problem in advance.

After examining the causes of elevated mercury levels, the CMMMA Study Board determined that elevated fish mercury levels were the result of naturally occurring mercury in the soil and vegetation, which was then methylated by bacteria after flooding. The rate of methylation was dependent on the type of material flooded, as well as on environmental factors such as temperature, pH levels, and dissolved oxygen. Experiments showed that moss, peat, black spruce, prairie sod, and freshwater algae stimulated mercury methylation, as did low levels of dissolved oxygen. Mercury levels in water, soils, and sediments in the study area were found to be within acceptable limits, but mercury levels in fish generally exceeded federal guidelines. Mercury levels in pike and walleye in Southern Indian Lake increased after flooding; mercury levels in whitefish increased immediately after impoundment, but then declined. The level of mercury in fish was also dependent on the type and size of fish. Fish that consumed other fish (piscivorous) exhibited higher mercury levels than fish that consumed different prey, and larger fish generally had higher mercury levels than smaller fish.[28]

Demonstrators hold a funeral for the mercury contaminated fish from Lake Winnipeg, as Lady Pollution cackles and dances, 1970.

The mercury levels in fish from other lakes tested by FEMP and the Manitoba Department of Natural Resources during the 1980s were generally below federal guidelines for marketing and consumption, although the levels in fish along the CRD route remained unacceptably high. Fish mercury levels also varied by species. Mean mercury levels of all whitefish were below the federal limit of 0.5 parts per million (ppm). Mercury levels of pike and walleye in Cross Lake were also below 0.5 ppm. Mercury levels in pike and walleye from Southern Indian Lake, Isset, Sipiwesk, and Stephens Lake ranged between 0.5 and 1.0 ppm, while those from Rat and Threepoint Lakes were even higher, ranging between 1.0 and 1.5 ppm.[29] More recent analysis by CAMP suggests that mercury levels have declined substantially during the intervening years. Fish from the upper and lower Nelson River had low levels of mercury, although fish from the Churchill River and CRD route still contained higher levels. The CAMP report also noted, however, that the highest fish mercury levels recorded during its research was at the off-system Manigotagan Lake; this finding serves as a reminder that elevated mercury levels can also be the result of natural processes.[30]

Between 1976 and 1985, Health and Welfare Canada tested individuals for mercury in the communities of South Indian Lake, Nelson House, Norway House, Cross Lake, Split Lake, and York Landing. The department found that the majority of individuals had mercury levels that were below federal guidelines (20 ppb), excluding the years 1978–79. The majority of individuals tested at South Indian Lake in 1979 had mercury levels in the range of 20–99 ppb, as did those tested at Nelson House in 1978. The remainder of individuals tested during the study period had mercury levels within the normal range, below 20 ppb. Comparisons between communities showed that the residents of South Indian Lake and Nelson House had the highest mercury levels, while those in York Landing and Split Lake had "intermediate" levels, and those in Cross Lake and Norway House had the lowest levels.[31] Health and Welfare Canada conducted a total of 4,668 tests between 1976 and 1985, and found 833 people to be at "potential risk," while eight people (0.2% of the study population) were at "higher risk" of mercury poisoning.[32] Ongoing testing showed that no individuals were still identified as a "higher risk" by 1985. Unfortunately, the battery of tests likely increased fears among community members, rather than allaying them. Since there was no word for "mercury" in Cree, it was often translated as "poison" in communications with northern residents.[33] So even though scientific tests showed that there was no real danger of mercury poisoning after 1985, the tests themselves created a legacy of mistrust and worry among First Nations residents, and affected their attitudes toward the safety of locally caught fish.

FISH POPULATIONS

The harvesting of fish features prominently in the history of northern Manitoba. People fished for commercial sale, domestic consumption, and as an integral part of traditional culture.[34] Commercial fisheries operated on Lake Winnipeg and Southern Indian Lake, while fishing on other lakes was generally for subsistence. Consequently, a major concern over northern hydroelectric development was its possible effects on fish populations, and numerous studies have been carried out in the intervening years to determine what effects there may have been on Nelson River's fish.

There is disagreement between First Nations groups and scientists about the effects of hydroelectric development on fish populations, however. First Nations groups continue to protest that the quality and quantity of fish have been negatively affected by this development.[35] In contrast, scientific studies show that the mercury levels in fish have declined to acceptable levels, although a lack of reliable pre-project baseline data makes it difficult to quantify any potential reduction in overall catches. The 1975 *Summary Report* of the Lake Winnipeg, Churchill and Nelson Rivers Study Board predicted that the commercial fisheries of the affected areas would "experience some long-term losses in productivity," but that it anticipated only "minor short-term disruptions" to the fisheries in the Outlet Lakes area.[36] More recent studies have largely confirmed these predictions. The Southern Indian Lake commercial fishery was severely affected by CRD, but the impact on fisheries in the Outlet Lakes and along the LWR route has been less significant. The Southern Indian Lake commercial fishery had been one of the largest and most viable in northern Manitoba before flooding in the mid-1970s. Rising mercury levels and debris in nets and along shorelines after impoundment, however, pushed the fishery into a steep decline.[37] The dam at Missi Falls was also responsible for declining numbers of fish in Southern Indian Lake, because the fish could not swim past the dam to spawn.[38] By 1988, however, the commercial fishery at Southern Indian Lake was judged to be

viable once again, although over a third of the fishery income that year was in the form of compensation and subsidy payments.[39]

Fishermen sort through the day's catch to be dressed at their fishing camp on Lake Winnipeg's east shore, 2013.

Further to the south, numerous studies were carried out on fish populations in the Outlet Lakes. Studies by FEMP showed that there were two genetically distinct populations of whitefish in the area, one of which spawned in the north basin of Lake Winnipeg, and the other of which spawned in Little Playgreen Lake.[40] Fish populations grew in Cross Lake after the construction of a weir in 1991, which mitigated the effects of fluctuating water levels. Catches of whitefish grew throughout the 1990s, although catches of walleye decreased in some areas.[41] The numbers of whitefish in Cross Lake declined during the 2000s, while the numbers of pike remained relatively consistent. Conversely, catches of walleye increased dramatically during the last decade.[42] Since 2008, CAMP has studied fish populations in Manitoba waterways. The populations varied by region, but CAMP found that walleye was generally the most abundant species, followed by northern pike, whitefish, and sauger.[43] The commercial fishery on Lake Winnipeg has operated continuously since the late 19th century. A 2011 study concluded that "the fisheries of Lake Winnipeg are generally in a healthy state," but cautioned that "the lack of adequate information means that there are environmental uncertainties in the future."[44] This study found the production levels at Lake Winnipeg fisheries were at an all-time high, but it was unable to make predictions about the future because of a lack of accurate baseline data.[45]

OTHER WILDLIFE

Other concerns over potential LWR effects on wildlife focused on waterfowl, aquatic furbearers, and moose. These species were all significant for northern communities in terms of First Nations subsistence-level needs, and hunting these animals also had important social and spiritual implications. Hunters in Norway House reported fewer numbers of ducks on local lakes during the early 1980s. Waterfowl surveys were conducted in 1986 and 1987, and the results published in 1991. The study concluded that elevated water levels caused by LWR had likely reduced habitat quality in the area, and thus fewer numbers of diving ducks were present.[46] The 1992 FEMP *Summary Report* cautioned that "it is risky to draw broad conclusions about waterfowl numbers on the basis of these two sets of surveys" since "large between-year changes are not uncommon in waterfowl counts derived from aerial surveys."[47]

Changes in the populations of aquatic furbearers and large ungulates have also been difficult to determine accurately, and have been hampered by the lack of historic baseline data. Aquatic furbearers include species such as beaver and muskrat, which are trapped for their pelts. Altered water regimes can reduce these animals' numbers by flooding dens, or by blocking their dens with ice. Manitoba Hydro created the Registered Trapline

Program in 1975 to compensate trappers for lost revenues, and had paid out over $600,000 in compensation by 1978.[48] A detailed impact assessment of Cross Lake in the early 1980s found that fur production actually increased after the construction of the nearby Jenpeg Generating Station, despite claims from local trappers that construction had damaged their traplines. The study concluded that fur production is dependent on much larger socio-economic forces, including the market for furs and community and individual interest in trapping as an economic activity.[49]

Muskrats are trapped for their pelts.

The hunting of large ungulates, especially moose, was an integral part of Cree culture and an important source of food.[50] The significance that northern communities attached to hunting was reflected in Article 15 of the Northern Flood Agreement (NFA), which established resource areas where bands could hunt, and which confirmed traditional hunting rights. Article 15.5 called for the creation of a Wildlife Advisory and Planning Board to manage wildlife resources. In 1982, the Board asked the Manitoba Department of Natural Resources to conduct a monitoring program to evaluate and manage moose populations.[51] Aerial surveys conducted between 1983 and 1987 covered over 100,000 square kilometres of the NFA territory in an effort to better understand moose populations.[52] Aerial surveys of the Resource Areas around Cross Lake and Norway House in 1983 and 1984 estimated that local herds contained approximately 1,500 animals.[53] This study found there was "room for cautious optimism about the future of the herd," since "the data on calf recruitment and survival, although not comprehensive, indicate that this herd has one of the highest reproductive rates in the province."[54] The study recommended ongoing monitoring of moose populations and close consultation with local hunters to effectively manage the resource.[55] A more recent survey of moose populations in north-central Manitoba estimated that there were nearly 9,000 animals in the study area.[56] These data suggest that LWR has not adversely affected moose populations.

SOCIAL AND ECONOMIC EFFECTS

SOCIAL IMPACTS: FIRST NATIONS

Potential environmental damage from hydroelectric development in northern Manitoba was not the only concern. Residents, especially those in the north, were also worried about the social and economic effects of LWR. First Nations groups testifying at the 1975 Interchurch Inquiry were fearful that the project "would destroy their whole way of life."[57] The Panel of Inquiry judged that this was "something of an overstatement," but acknowledged that "to the Indian, he and his fellows are one with their environment," and that "any substantial interference with his environment is tragic. It upsets his whole way of life and raises sharp fears for the future."[58]

It is difficult to analyze the effects of LWR on First Nations communities using discrete "environmental," "social," and "economic" categories, because these categories are all inextricably linked. Any environmental factors that might affect the numbers or health of fish and wildlife, for instance, would have significant economic and social impacts as well. As the 1992 FEMP study observed, "because subsistence harvest activity is not simply an addition to available income but, rather, is inherent to the maintenance of social relations, subsistence-based economies may be affected by industrial development in a way which is fundamental, not peripheral, to their functioning."[59] Historically, the formation and very existence of First Nations groups in northern Manitoba were based on resource abundance. Regional groups coalesced seasonally around areas of good fishing or hunting.[60] Any disruption of the environment and to the fish and wildlife therein would have profound economic, social, and spiritual implications for northern First Nations communities.

The protracted and acrimonious negotiations to create and then implement the NFA produced a legacy of lingering resentment and mistrust of Manitoba Hydro and the federal and provincial governments amongst First Nations communities, which only exacerbated existing grievances and attitudes. Cross Lake resident John Miswagon's grievances reflected the attitudes of many First Nations in northern Manitoba, when he stated:

> Our rights under many laws have been violated by this development and by the destruction of Cree lands....A treaty was signed afterwards, the NFA, which was supposed to restore our communities, our health, and the health of the environment. Since 1977, when the NFA was signed, almost nothing it promises has been provided to my people....To this day the three crown parties continue to talk about "ongoing negotiations," about a process of "give and take" relieving them of their "remaining obligations." This is bad faith. The process of give and take happened long ago, before the NFA was signed. My people gave their livelihood, and in some cases their lives for the hydro project. My people gave their prosperity and their blood."[61]

Miswagon's complaints identify specific and recent grievances, but hint at deeper undercurrents of frustration and resentment — "the process of give and take happened long ago." First Nations perceived the government's inaction on NFA implementation as part a broader issue of outstanding land claims and treaty obligations. The 1977 NFA attempted to defuse some of these outstanding grievances over land by providing four acres of Crown land in exchange for every affected acre, in addition to large resource areas for hunting and fishing.[62] The implementation agreements signed in the 1990s provided an even more generous 16:1 land-exchange ratio to the four communities that accepted them: Split Lake, York Factory, Nelson House, and Norway House received a combined total of over 170,000 acres of land.[63] While these agreements were certainly an improvement over the original NFA provisions, the new land allotment for the four communities is still 10,000 acres less than the amount claimed by Norway House and Nelson House alone in 1990.[64] While Manitoba Hydro CEO Bob Brennan optimistically asserted that "trust and mutual respect are being developed as we continue to work side by side to create a better future," most northern First Nation residents likely continued to view their interactions with provincial and federal bodies as part of what legal scholar Brian Craik identifies as a "processes of displacement and dispossession that, over time, left the Aboriginal nations with little, or nothing."[65]

The true social effects of LWR are more difficult to quantify than any environmental or economic effects. It is easier to monitor mercury levels in fish, count moose populations, or assess employment figures than it is to evaluate a community's social and spiritual health. The 1975 Lake Winnipeg, Churchill and Nelson Rivers Study Board acknowledged this when it lumped social stress, nutrition, and cultural change into a category labeled "Intangible Impacts."[66] The Study Board was able to make few predictions about the social and cultural impacts of LWR, beyond speculating that nutrition was likely to suffer as people moved away from traditional foods. It did, however, acknowledge that hydroelectric development was a "significant factor" in cultural change, which "could result in a serious loss to the communities concerned, to Indian culture as a whole, and to the Province generally."[67]

The social impact assessment attempted by the Study Board was a relatively new phenomenon in 1975. Anthropologist Peter Usher has conducted numerous social impact assessments in northern Canada, and observed that impact assessments of the period "when conducted at all, [were] then funded and controlled exclusively by government and industry who perceived it as a technical, positivist exercise."[68] Early social impact assessments were often carried out by engineers or other personnel who had little knowledge of the people they were trying to understand. They tended to restrict themselves to a "cost–benefit" approach, measuring quantifiable data such as employment figures.

David Young was a resource management specialist with approximately 20 years of experience in the north when he testified at the 1975 Interchurch Inquiry. He claimed that the researchers who carried out pre-project impact assessments in northern Manitoba had "the best of intentions but they lacked technical qualification, they lacked qualification in the area of anthropology to the most woeful extent," with the result that "this Study done by the government is of no value."[69] Young also identified the difficulty of trying to determine value when researchers and subjects have substantial cultural differences. Peter Usher summarizes this conflict in relation to hunting and fishing, areas of great concern to First Nations groups in northern Manitoba:

> Development advocates placed little or no economic value on "country food"....Yet native people regard this as a major value at risk from the environmentally and socially disruptive effects of the project....Properly accounted for, hunting and fishing were neither irrational nor the last-resort pursuit of the otherwise unemployed, but contributed a large proportion of the effective income of most Native households.[70]

Anthropologist Martin Loney has studied the social impacts of hydroelectric development for a number of years. He argues for the use of the "community trauma" model for understanding northern Manitoba communities affected by Nelson River hydroelectric development. Loney suggests that the "corrosive effect of the apparent indifference of the project's proponents to the damage they have caused" is as important as any physical effects to the landscape or environment.[71] He also suggests that the "corrosive effects" will become visible in "pervasive and escalating social problems in communities impacted by hydro regulation."[72]

The community of Cross Lake has long been vociferously opposed to northern hydroelectric development; as well, it suffered from "pervasive and escalating social problems." Anthropologist Ronald Niezen lived in Cross Lake from

1998 to 2000, and studied social conditions first-hand. Niezen described an "angry community," with the "highest per-capita crime rate in the province."[73] According to Niezen's statistics, Cross Lake reported nearly 1,800 crimes in 1998, including over 500 assaults in a community of just over 4,000 people.[74] During his stay in Cross Lake, there were nine suicides, most occurring in a six-month period from 1999 to 2000. These deaths recalled a similar rash of eight suicides in 1986–87, suggesting that the deaths were occurring in "clusters." Niezen argued that "the

The community of Cross Lake continues to oppose northern hydroelectric development, 2014.

absence of almost any channel for productivity or creativity can contribute to a distinct form of identity…that goes on to give positive sanction to self-harm and self-destruction."[75] Bobby Brightnose, a community member whose brother committed suicide in 1986, echoed these sentiments at the 1999 Interchurch Inquiry: "It's hard to see the future sometimes when all you see is the devastation and poverty and hopelessness around you."[76]

The position of Manitoba Hydro and the provincial government has often been that, while deplorable, these social problems were merely part of wider problems in Aboriginal communities as a whole, and that the problems existed prior to LWR.[77] Testifying at the 1999 Interchurch Inquiry, the Manitoba Minister of Northern and Aboriginal Affairs, David Newman, argued that the Hudson's Bay Company was ultimately to blame for current First Nations problems. Newman stated that "it is the Hudson Bay Company that had the impact originally in [sic] the Native people. The industry — everything from the introduction of alcohol to disease and the habits and the control of the white man. That's what happened at the Hudson Bay Company."[78] Newman also reminded listeners that Cross Lake was isolated and already suffering from high unemployment in the early 1970s, immediately prior to LWR, implying that the community's current state of affairs was really no worse than it had been previously.[79] Manitoba

Hydro President Bob Brennan echoed similar sentiments when he stated that "poverty and unemployment were pre-existing realities and concerns in the NFA communities when the Hydro project was developed in the 1970s," so he "would not accept that the NFA was meant or designed to guarantee a particular standard of living...or a particular level of employment."[80]

ECONOMIC IMPACTS

While clearly lacking in empathy, Brennan and Newman's testimony was not necessarily incorrect: levels of unemployment and poverty had indeed been high in northern Manitoba First Nations communities prior to northern hydroelectric development, and remain a problem today. The 1975 *Summary Report* of the Lake Winnipeg, Churchill and Nelson Rivers Study Board noted the "urgent need for more employment opportunities and community responsibility in decision making."[81] The Study Board predicted that Nelson River hydroelectric development would alleviate northern unemployment by creating "large numbers of short-term construction jobs."[82] It estimated that hydroelectric projects would generate approximately 2,000 jobs annually until the year 1990. The Study Board was extrapolating from 1974 employment figures, when there were approximately 1,385 workers on the LWR project. Of these workers, 360, or 26%, were northern residents, in addition to the 880 CRD workers, of whom 200, or 23%, were reputedly northern residents.[83] These employment figures are actually fairly favourable, given the small proportion of the total provincial population made up by northern residents, and seemed to be a promising precursor to Article 18.5 of the NFA. This article stated that "it is in the public interest to employ, to the maximum possible extent, residents of the subject Reserves in all works and operations related to the Project."

Lake Winnipeg, Churchill, and Nelson Rivers Study Board, *Summary Report*, 1975.

While hydroelectric construction did seem to be alleviating northern unemployment, the key phrase in the Study Board's assessment was "short-term construction jobs." Once the projects were finished, there were typically few further opportunities for northern Native residents. Writing in 1985, anthropologist James Waldram observed that "the simple fact is that, in the past, Native people have typically filled only the lowest paying, short-term positions in hydro construction, those requiring the least skills, and they have rarely received extensive, certifiable training."[84] Writing about the construction of the Limestone Generating Station, Waldram lauded Manitoba Hydro for making a serious effort to hire and train more Native workers, but he also criticized the program's implicit assumption that northern Aboriginal workers would

behave similarly to southern workers. Specifically, Waldram felt that northern Aboriginal workers were less mobile than southern workers, and thus were less likely to be rehired on future, more distant projects.[85]

The 1975 Study Board identified demography as another obstacle to reducing unemployment in northern communities. With nearly half the population under the age of 15 in 1975, the Study Board predicted that the existing resource base would be unable to support the rapidly rising population.[86] The demographic trends already apparent in 1975 have not altered substantially in the intervening decades. The Aboriginal population of Manitoba more than doubled between 1981 and 2001.[87] Of the approximately 150,000 First Nations people living in Manitoba in 2001, slightly over a third (57,445 people) lived in the northern part of the province.[88] The Aboriginal population of the province also remains overwhelmingly young: 36% were under the age of 15 in 2001, while 61% were under 30.[89] As well, unemployment among Aboriginal people in Manitoba remained disproportionately high. The 2001 unemployment rate for First Nations people in Manitoba was 19.1% — more than three times that of the province as a whole.[90] While these rates are alarmingly high, analysis of recent census data showed that "contrary to common belief, there is little overall difference in employment figures for northern and southern reserves," although "unemployment among non-Aboriginal people in the north is scarcely higher than in Winnipeg. Exceptional rates of unemployment here are found entirely among the Aboriginal population."[91]

These data support Manitoba Hydro's and the province's contention that unemployment and poverty are wider problems among First Nations communities as a whole, and do not necessarily result from Nelson River hydroelectric development. Nonetheless, province-wide figures are merely averages, and can be skewed by outlier variables in different communities. While the provincial unemployment rate for Aboriginal people was recorded as 19.1% in 2001, residents of Cross Lake complained of 85% unemployment in their community during the same period.[92]

The anger and frustration felt by the residents of Cross Lake and other northern communities is not merely the result of high rates of unemployment and poverty. It is anger over a future that they feel they were promised, but that never materialized. Cross Lake and other northern communities based their hopes for the future on statements such as those found in the preamble to the NFA, which acknowledged that the parties had a responsibility for "improving social and economic conditions of the communities." Perhaps their optimism was misplaced, for the anticipated benefits of Nelson River hydroelectric development failed to materialize for many northern First Nations communities.

ENDNOTES

CHAPTER 1

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9 Ibid., 1.

10 Ibid., 18.

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12 Lake Winnipeg Stewardship Board, *Reducing Nutrient Loading*, 45.

CHAPTER 2

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2 Alvin Finkel and Margaret Conrad, *History of the Canadian Peoples: 1867 to the Present: Volume II*, 3rd ed. (Toronto: Addison Wesley Longman, 2002), 123.

3 Manitoba Hydro, *A History of Electric Power in Manitoba* (Winnipeg: c2010), 2.

4 Minnedosa Generating Station was built by the Brandon Electric Line Co. and remained in operation until 1924. Ibid.,8.

5 Graham Taylor and Peter A. Baskerville, *A Concise History of Business in Canada* (Toronto: Oxford University Press, 1994), 265.

6 Ibid., 268.

7 Ibid., 269-271.

8 Manitoba Hydro, *Electric Power*, 2-8.

9 Ibid., 8-9, 11-12; Christopher Armstrong and H.V. Nelles, *Monopoly's Moment: The Organization and Regulation of Canadian Utilities*,

1830-1930 (Philadelphia: Temple University Press, 1986), 94-96.

10 Taylor and Baskerville, *History of Business*, 269; Armstrong and Nelles, *Monopoly's Moment*, 156.

11 Manitoba Hydro, *Electric Power*, 9; Armstrong and Nelles, *Monopoly's Moment*, 313.

12 The Pointe du Bois generating remains in operation today making it the oldest operating generating station alongthe Winnipeg River. Ibid., 12.

13 Taylor and Baskerville, *History of Business*, 269-271.

14 Karl Froschauer, *White Gold: Hydroelectric Power in Canada* (Vancouver: UBC Press, 1999), 145.

15 Although the new borders broadened the province's area of administration and development, Manitoba did not obtain authority over the natural resources until May 1930. Under the British North America Act of 1867, natural resources were administered by the federal government. In May 1930, the federal government transferred this responsibility to the provinces.

16 Froschauer, *White Gold*, 142.

17 The Great Falls Generating Station was built by the Manitoba Power Company, a subsidiary of the Winnipeg Electric Power Company. Manitoba Hydro, *Electric Power*, 14.

18 The Seven Sisters Generating Station was built by the Northwestern Power Company but the company merged withthe Winnipeg Electric Company in 1927. The Winnipeg Electric Company agreed to sell power from the Seven Sisters Generating Station to Manitoba Power Commission in 1931. Up until that point, the Manitoba Water Commission purchased all of its hydro power from City Hydro. Ibid., 15.

19 Ibid., 15.

20 The Pine Falls and McArthur Generating Stations were built by the Manitoba Hydro Electric Board, which was a provincial crown corporation formed in 1951. Ibid., 24-25.

21 Ibid., 13-15, 18-19.

22 Ibid., 16, 18-19.

23 For a discussion on the use of electricity on western Canadian farms see: Joan Champ, "Rural Electrification in Saskatchewan during the 1950s," Prepared for Saskatchewan Western Development Museum's 'Winning the Prairie Gamble' 2005 Exhibit, (December 2004), accessed February 2015, *http://wdm.ca/skteacherguide/WDMResearch/RuralElectrification.pdf*.

24 Manitoba Hydro, *Electric Power*, 23.

25 The commission was chaired by Dr. T.H. Hogg of the Ontario Hydro-Electric Power Commission.

26 T.H. Hogg, *Report of the Manitoba Water Power Commission*, 1948; also Manitoba Hydro, *Electric Power*, 21.

27 James Muir, "Douglas L. Campbell, 1948-1958," *Manitoba Premiers of the 19th and 20th Centuries*, ed. Barry Glen Ferguson and Robert A. Wardhaugh (Regina: University of Regina Press, 2010), 224-226.

28 Manitoba Hydro, *Electric Power*, 27-28.

29 Ibid., 31, 33.

30 Ibid., 30.

31 Froschauer, *White Gold*, 22-23.

32 Cass-Beggs' association with the federal government foreshadowed his later work with the Manitoba government and his eventual appointment as General Manager of Manitoba Hydro from 1970 to 1972. Cass-Begg's 1959 paper, "The Economic Feasibility of Trans-Canada Electrical Interconnection" was influential to Dinsdale's recommendations for a national power grid. Ibid., 24-25.

33 Ibid., 29.

34 Ibid., 30-33.

35 Ibid., 33.

36 The engineering firms of A.G. Acres & Company, and the Montreal Engineering Company were hired to undertake the initial study which included identifying problems, proposing options and writing the Terms of Reference. Ibid., 32.

37 Ibid., 38.

38 Ibid.

39 Ibid., 34.

40 Ibid., 35-38.

CHAPTER 3

1 Karl Froschauer, *White Gold: Hydroelectric Power in Canada*. (Vancouver: UBC Press, 1999), 27.

2 Ibid., 138; Manitoba Hydro, "Kelsey Generating Station," accessed February 2015, *http://www.hydro.mb.ca/corporate/facilities/brochures/kelsey_1107.pdf*; L.A. Bateman, "A History of Electric Power Development in Manitoba" in *IEEE Canadian Review*, Winter 2005, 23.

3 Lakes Winnipeg and Manitoba Board. *Report on Measures for the Control of the Waters of Lakes Winnipeg and Manitoba*, Province of Manitoba, June 1958.

4 Ibid., 6.

5 Ibid., 9.

6 Ibid., 56.

7 Nelson River Programming Board, *Nelson River Investigations: Nelson River Hydro-Electric Development – Phase 1: Interim Report of the Nelson River Programming Board to the Government of Canada and the Government of Manitoba*, December 1965: 1.

8 G.E. Crippen and Associates Ltd., *Report on Nelson River Development*, Vancouver, BC, March 1964, I-1

9 Ibid., I-1-2.

10 Ibid.

11 Ibid., I-5.

12 Ibid., I-4.

13 Nelson River Programming Board, *Nelson River Investigations*, 1.

14 It is unclear why the Programming Board believed the decision on Manitoba's next source of generation was urgently required. While new sources of power generation were needed for the early 1970s, the urgency of a decision might also be related to the federal-provincial cost-sharing agreement that would be announced in February 1966. Nelson River Programming Board, *Nelson River Investigations*, 1.

15 The interim report examined the possibility of building thermal generating stations to provide an immediate supply of new power. The Programming Board concluded that thermal generators could be built quickly and relatively inexpensively, but would be unnecessary once the Nelson River hydroelectric development project was completed. Consequently, building thermal stations to meet a short term need might prove to be an unnecessary expense in the long run. Nelson River Programming Board, *Nelson River Investigations*, 1-6.

16 Nelson River Programming Board, *Nelson River Investigations*, 7.

17 Agreement between the Government of Canada and the Province of Manitoba, 15 February 1966.

18 Gillam is located on the Lower Nelson River about half 700 km from Winnipeg by air. For most of the 20th century Gillam was a small railway community of only a few hundred people. The population swelled to 3000 during the building of the Kettle Generating Station and modern amenities such as paved roads, water, sewage, electricity, and a hospital were built. The population of the town has since dropped to about 1,500. Manitoba Hydro. "Kettle Generating Station," accessed February 2015, *http://www.hydro.mb.ca/corporate/facilities/brochures/kettle_2013.pdf*.

19 Manitoba Hydro, *A History of Electric Power in Manitoba*, (Winnipeg MB, c2010), 34.

20 Manitoba Hydro. *Kettle Generating Station*. [Retrieved: February, 2015], *http://www.hydro.mb.ca/corporate/facilities/brochures/kettle_2013.pdf*.

21 G.E. Crippen, *Report on Nelson River Development*, I-4.

22 Manitoba Hydro. "Long Spruce Generating Station," accessed February 2015, *http://www.hydro.mb.ca/corporate/facilities/brochures/long_spruce_1107.pdf*; G.E. Tritschler, *Commission of Inquiry into Manitoba Hydro: Final Report. Presented to Hon. D.W. Craik, Minister Charged with the Administration of the Manitoba Hydro Act*, (Winnipeg, Manitoba: December 1979): 6, 23, 173-177.

23 Manitoba Hydro. "Limestone Generating Station," accessed February 2015, *http://www.hydro.mb.ca/corporate/facilities/brochures/limestone_1107.pdf*.

24 The word "Bipole" refers to the use of positive (+) and negative (-) poles. The poles are linked by a set of conductor cables (two cables per pole) and are held up by steel transmission towers.

25 The Henday and Radisson converter stations are located near the Kettle Generating Station. The Dorsey converter station is located 27 km northwest of Winnipeg. Bipole I carries high voltage direct current 895 km from the Radisson converter station to the Dorsey station. Bipole II transmits direct current 937 km from the Henday to Dorsey converter stations. IEEE Global History Network. "Milestones: Nelson River HVDC Transmission System, 1972," accessed November 2014, *http://www.ieeeghn.org/wiki/index.php/Milestones:Nelson_River_HVDC_Transmission_System,_1972*; and Manitoba Hydro, *Electric Power*, 42.

26 Ibid., 42.

27 The Churchill River is a 1609 km long river that sits approximately 160 km north of the Nelson River. It flows in an easterly direction from eastern Alberta, across Saskatchewan and Manitoba and into Hudson Bay by the town of Churchill, Manitoba. In its natural state, the Churchill River maintains an average discharge rate of 42,378 cubic feet per second. Such a large flow capacity meant the Churchill had the potential to generate its own hydro electricity. Manitoba Hydro decided against developing stations on the Churchill because of its distance from southern markets. In addition, because the headwaters of the Churchill River lie outside of Manitoba, there was

the potential for cross- border jurisdictional problems. Manitoba. Water Stewardship Division, "Churchill River Diversion," accessed November 2014, *http://www.gov.mb.ca/waterstewardship/licensing/churchill_river_diversion.html*.

28 E. Kuiper, *Lake Winnipeg Regulation: Outline of a Study*, prepared for the Manitoba Water Commission, Winnipeg Manitoba, April 1968, 14.

29 Southern Indian Lake is located in north central Manitoba. It has a surface area of 2015 km².

30 Described in David Cass-Beggs, *The Proposed Churchill River Diversion and Associated Problems: Report to the Minister of Mines and Natural Resources*, Government of Manitoba, 9 September 1969, 5.

31 Kuiper, *Lake Winnipeg Regulation: Outline of a Study*, 14-15.

32 Ibid., 15.

33 Ibid.

34 C. Booy, *Lake Winnipeg Regulation: Interim Report to the Manitoba Water Commission*, Winnipeg, Manitoba, January 11, 1969, 1.

35 Especially the reports of the Lakes Winnipeg and Manitoba Board (1958), Crippen and Associates (1963 & 1964), and Manitoba Hydro (1966).

36 Kuiper, *Lake Winnipeg Regulation: Outline of a Study*.

37 Manitoba Water Commission, "Stage Hydrographs, 1913-1967" (May 1968) cited in E. Kuiper, *Lake Winnipeg Regulation*, Figure 2.

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43 Manitoba Water Control and Conservation Branch-Planning Division, *Effect of Lake Winnipeg Regulation on Flood Damages*, Winnipeg, Manitoba, December 1968; R. Buie, *The Effect of Lake Winnipeg Levels on Tourism and Recreation Values*, prepared for Manitoba Parks Branch, Winnipeg, Manitoba, February 1969; *Booy, Lake Winnipeg Regulation: Interim Report*, January 11, 1969; and Booy, *Lake Winnipeg Regulation*, June 1969.

44 Booy, *Lake Winnipeg Regulation*, June 1969, 45.

45 Kuiper, *Lake Winnipeg Regulation: Outline of a Study*, 14-15.

46 Van Ginkel Associates and Hedlin, Menzies and Associates Ltd., *Transition in the North – The Churchill River Diversion and the People of South Indian Lake*, prepared for Manitoba Development Authority, (Winnipeg, MB: May 1967), 2-4.

47 Letter from H.P. Daniel van Ginkel and Ralph Hedlin to Dr. B. Kristjanson, May 15, 1967, found in Van Ginkel Associates and Hedlin, Menzies and Associates Ltd., *Transition in the North – The Churchill River Diversion and the People of South Indian Lake*, prepared for Manitoba Development Authority, (Winnipeg, MB: May 1967), n.p.

48 Ibid., n.p.

49 Ibid.

50 Van Ginkel Associates et al., *Transition in the North*, 7

51 Ibid., 7.

52 Testimony of Kris Kristjoanson, Assistant General Manager of Manitoba Hydro, "Public Hearings on Manitoba Hydro's Proposal for the Churchill River Diversion," Transcript of Proceedings in the United Church, South Indian Lake, 10:30-3:15, January 7, 1969. [Provincial Archives of Manitoba (PAM), Records of the Commission of Inquiry into Manitoba Hydro, A0064, GR2022, File B-13-2-16].

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54 Ibid., 11-13.

55 Testimony of Ed Overguard, Manitoba Hydro engineer, "Public Hearings on Manitoba Hydro's Proposal for the Churchill River Diversion," Transcript of Proceedings in the United Church, South Indian Lake, 10:30-3:15, January 7, 1969: 7-8. [PAM, Records of the Commission of Inquiry into Manitoba Hydro, A0064, GR2022, File B-13-2-16].

56 Ibid., 7-20.

57 The Winnipeg Auditorium and Concert Hall was located across the street from the Norquay Building. It was built in 1932. In 1970 it was sold to the province. After extensive renovations, the building re-opened in 1975 as the Provincial Archives of Manitoba and Legislative Library.

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60 The "secret documents" were later identified as "Transition in the North" Volumes 1 and 2 and "The Churchill River Diversion – A Preliminary Investigation of Resource Implications" by Hon. Leonard S. Evans (Minister of Mines and Natural Resources) of the recently elected NDP government. Legislative Assembly of Manitoba, *Debates and Proceedings*, Vol. XVI, No. 15, August 29th, 1969, (Winnipeg: Queen's Printer for Province of Manitoba, 1969), 314; See also Ferguson and Wardhaugh, Premiers of Manitoba, 273-274; Wayne Skene, *Delusions of Power: Vanity, Folly and the Uncertain Future of Canada's Hydro Giants* (Vancouver & Toronto: Douglas & McIntyre, 1997), 167-168.

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62 Legislative Assembly of Manitoba, *Debates and Proceedings*, Vol. XV, No. 96, May 22nd, 1969, (Winnipeg: Queen's Printer for Province of Manitoba, 1969: 2305; See also Ferguson and Wardhaugh, *Premiers of Manitoba*, 273-274.

63 Frances Russell, "Finding a Focus," *Winnipeg Tribune*, date unknown, likely November 15 or 16, 1978. [PAM, Records of the Commission of Inquiry into Manitoba Hydro, A0064, GR2022, File B-13-2-10].

64 David Cass-Beggs, *The Proposed Churchill River Diversion and Associated Problems*, report to the Minister of Mines and Natural Resources, Government of Manitoba, September 9, 1969.

65 Ibid., 5.

66 Ibid., 7.

67 Ibid.

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72 Tritschler, *Commission of Inquiry into Manitoba Hydro*, 38-39.

73 Interim License for the Regulation of Water Levels for Water Power Purposes. Signed by Minister of Mines and Natural Resources, November 18, 1970.

74 Ibid., Articles 5 and 6.

75 Tritschler, *Commission of Inquiry into Manitoba Hydro*, 39-40.

76 The Commission of Inquiry into Manitoba Hydro (1979) identified $50 million as the "original" estimate for the Lake Winnipeg regulation and $55 million for the Jenpeg control structure, however, budget projections varied over time. The estimate of $50 million for Lake Winnipeg regulation was provided in the interim report of the Hydro Task Force in July 1970. The Task Force increased its estimate to $56.6 million in its final report on October 1972. In June 1972, Manitoba Hydro Chairman, David Cass-Beggs identified the cost as $56 million in a report to the Legislative Standing Committee on Public Utilities. This amount was re-iterated by Len Bateman, Manitoba Hydro's General Manager of Engineering. The Commission of Inquiry suggested that Cass-Beggs and Len Bateman had intentionally misled the Legislative Standing Committee. Cited from Tritschler, *Commission of Inquiry into Manitoba Hydro*, 6, 122-123.

77 Tritschler, *Commission of Inquiry into Manitoba Hydro*, 6.

78 Cited from Joe Wiesenfeld, "Lake Level talks bring hot words," *Winnipeg Tribune*, February 12, 1972; The public meetings into LWR took place in Norway House (February 1972), Gimli (Feb. 13, 1972), Selkirk (Feb. 14, 1972), and in three different locations in Winnipeg (Feb. 16, 18 & 19, 1972). [PAM, Records of the Commission of Inquiry into Manitoba Hydro, A0064, GR2022, File B-13-1-].

79 Tritschler, *Commission of Inquiry into Manitoba Hydro*, 131-150.

80 Ibid., 151-172; See also, George Jacub, "Jenpeg boss faults Soviets," *Winnipeg Tribune*, February 28, 1979.

81 Tritschler, *Commission of Inquiry into Manitoba Hydro*, 17.

82 Ibid., 183.

83 Ibid., 197.

84 The estimated and final costs of the different developments vary. The numbers referenced in the text are found in documents prepared by Manitoba Hydro and are the most often referenced. The Commission of Inquiry into Manitoba Hydro (1979) identified the cost of the Kettle Generating station as $324 million, and Long Spruce as $510.2 million. The Commission identified the original cost estimates for Lake Winnipeg regulation as $50 million, Jenpeg as $55 million, Kettle as $171 million, and Long Spruce as $416 million. "Kettle Generating Station."; "Long Spruce Generation Station."; Tritschler, *Commission of Inquiry into Manitoba Hydro*, 6, 69, 177.

85 Frances Russell, "Cass-Beggs sheds new light on probe," *Winnipeg Tribune*, December 6, 1978.

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