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Karl Froschauer

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Ontario's Niagara Falls, 1887-1929: Reversing the Privatization of Hydro

Karl Froschauer

From 1887 to 1929, the binational Niagara Falls supported tourism and power generation in Ontario. Something went wrong with the private hydro development on the Canadian side of the falls, however. This article shows that when private hydro utilities (who had been allocated public water rights to the falls) created conditions of regional industrial backwardness in Ontario because they found exports to US industry more profitable, the state, pressured by municipal movements, intervened to reverse privatization of hydroelectric development and to strengthen export regulation. This archival study demonstrates that asymmetrical political and trade relations between Canada and the US can be overcome.

De 1887 à 1929, les chutes Niagara binationales ont desservi l'industrie touristique et produit de l'énergie. Mais des problèmes surviennent avec l'aménagement hydroélectrique privé sur le côté canadien des chutes. Le présent article montre que lorsque les services hydroélectriques privés (qui avaient obtenu les droits d'eau publics des chutes) créent des conditions régionales de retard industriel en Ontario parce qu'ils trouvent que les exportations vers les États-Unis sont plus payantes, l'État—à la suite de pressions faites par les mouvements municipaux—intervient pour rescinder la privatisation du développement hydroélectrique et pour renforcer les règlements sur l'exportation. Cette étude archivistique démontre que les rapports politiques et commerciaux asymétriques entre le Canada et les États-Unis peuvent être compensés.

What went wrong with private hydro development at Niagara Falls from 1887 to 1929? At Niagara Falls, developers of a transnational hydroelectric infrastructure stifled industrial growth in Ontario and, instead, strengthened it in New York State. The industrial growth that did occur in Ontario was not of the type and quality anticipated by theorists, engineers, utility executives, and politicians. Ontario's dependence on technology transfers, importation of entrepreneurs, and reliance on US capital showed less industrial autonomy than had been assumed (Keefer 1899; Dales 1957).

The early Niagara experience casts doubt on another assumption currently strong among Canadians and their provincial governments: that water-power rights and electricity generation should be left to the private sector. In 1899, in

order to start repatriating and later nationalizing the Niagara power necessary for the progress of Ontario manufacturers, local governments at Niagara were soon forced to reverse their 1887 allocation of water power from the falls to private, US-owned, profit-seeking utilities. The Niagara case constitutes the first major reappropriation of formerly privatized water powers, for in the 1960s British Columbia, Newfoundland, Quebec, and Manitoba followed Ontario by nationalizing their hydro utilities.

Part of the reason of this shift from private to public power was the private power companies' failure to transmit power to the small manufacturers in southwestern Ontario towns. The formation of the publicly owned Ontario Power Commission (Ontario Hydro), allowed small manufacturers to convert their factories from American-coal-fuelled steam engines to industrial electric motors. By 1910, the provincial government belatedly began bridging the transmission gap. The federal government, which controls export policy, reversed its original view that power could be treated as other exports and began to advocate that electricity exports be stopped. The threat of having Ontario water power absorbed by US industry resulted in the 1907 Exportation Act. However, the act was insufficient to repatriate power needed for Canadian war industries between 1917 and 1918. As a result of the repatriation crisis, a temporary consensus developed in power policy: electricity, Mackenzie King emphasized in 1929, "shall be utilized within the Dominion to stimulate Canadian industry and develop natural resources" (Grauer 1961, 261-62).

The theoretical notions guiding the analysis of similar historical hydro cases by John Dales and Henry V. Nelles require a fuller specification of how we should conceptualize hydro-related industrial development and the state interventionist role in privatization, its reversal, and planning. Therefore, I present the findings of this binational Niagara case to support the argument that, when private hydro owners (who have been allocated public water rights) created conditions of regional industrial backwardness because they found exports more profitable, the state as holder of public rights (pressured by social movements) had a mandate to intervene to establish control over exports in order to create (local) conditions for industrial development and to provide electricity to enhance profitable manufacturing (Offe 1975). Once the state had become an electricity producer, however, its planning ability was limited by owners in the emergent industrial market.

By answering three questions, this article shows what went wrong in the early history of Canadian hydro development (Bradford and Williams 1989). Under what conditions did private enterprises using Niagara electricity projects

to serve industry and exports engender a public response that led to state intervention and the reversal of privatization? What tends to go wrong when the state as a producer of electricity is limited in its ability to plan and build up surplus capacity? What went wrong when electricity surpluses used for exports to the United States were continued?

To demonstrate, first, how, through an export orientation at the binational Niagara Falls, the industrialization process in southern Ontario fell behind, it is important to focus on the companies—Canadian Niagara Power Company, Ontario Power Company, and the Electrical Development Company—involved in developing electricity at the falls for export. Then, I will probe whether speculators that left hydro resources undeveloped delayed Ontario's industrial development. Because it owns the water-power rights and public hydro, the state's role in binational resource development calls for archival research at the provincial level, the federal level (because it has jurisdiction over exports), and the municipal level (because Ontario towns became owners of the transmission network). Even though transmission technology changed in 1896 to allow electricity transport to southern Ontario, owners preferred the more lucrative US industrial market; however, the public-power movement by small manufacturers wanted a co-operatively owned transmission system and "power at cost." I briefly review the historical pattern of initially releasing public water power for private development and then reclaiming for public ownership these privatized hydro-power resources, often with completed power facilities (see table 1).

I present archival findings from manuscripts, correspondence, statistics, industrial surveys, and contracts, as well as secondary sources relevant for this hydro case study, to demonstrate the politics of developing a private power system (grid, generating stations, and distribution) and the development patterns that emerge: (1) the historic privatization reversal: electricity projects that serve US industry and US exports and create local industrial backwardness engender a public response that leads to state intervention and the reversal of privatization of such resource developments; (2) the planning limitations for the state as producer of electricity: the timing and size of more public hydroelectric projects, which may not coincide with industrial need; (3) exports to the US are not always in the best interest of the country as a whole: repatriation started with demands that Niagara Falls provide "Public Power at Cost," and continued with the repatriation crisis during the First World War and the claim that "Power Exported is Power Lost."

Reversing the Privatization of Niagara Falls

Although the water-power rights to Niagara Falls are apportioned between Canada and the US according to the international boundary, Ontario initially allowed US investors to monopolize power franchises at the falls. In 1887, the Queen Victoria Niagara Falls Park Commission was established with a mandate to buy the land in the vicinity of the falls and, shortly afterward, it entered the hydroelectric business (Nelles 1974, 33). Nelles specifies such water power rights in Ontario by defining that “the water, simply by virtue of passing over private property, was not itself private property; it could be used only in passage” when licensed to extract power from its flow (7). This retention of title, while leasing water-power rights for a limited period, allowed the state to “demand both a revenue from the industry and prompt performance of construction agreements” (38). To help launch the first hydroelectric enterprise, the commission granted the exclusive power rights, not to a developer, but to a speculator. As H.V. Nelles records, in 1887 the commissioners sold, for an advance of \$10,000, exclusive water power rights to the Canadian falls to Colonel A.D. Shaw of Watertown, New York (33-34). Ontario governed the hydroelectric industry by “retaining title to waterpower in the hands of the crown and by leasing waterpower privileges instead of selling them outright” (38). The Parks Commission needed such revenue to buy the property next to the falls and convert it from a gaudy tourist area into a riverfront park that would also accommodate a few stately powerhouses. Without having built such facilities, Shaw sold his monopoly franchise (his user rights to the entire Canadian falls) to the US-owned Niagara Falls Power Company. Then, in 1892, that firm incorporated its Canadian water-power rights as the Canadian Niagara Power Company.¹ Shaw, in turn, became its nominal president (34). From then on, this firm “had the first choice of location for power development works within the Park” on the Ontario bank and was expected to be “the first power company to produce power on the Canadian side of the Falls” (Davenport and AIEE 1904, 163). It had not only received the right to draw water from Niagara Falls for generating power but also to transmit and distribute electricity for sale outside the riverfront park for 100 years (163).

Table 1: Chronology of the Privatization and Its Reversal at the Canadian Niagara Falls

1887	Ontario sells A.D. Shaw the monopoly rights. He sells them to the US-owned Niagara Falls Power Co.
1896	Niagara Falls Power Co. transmits industrial power to Buffalo from its US plants at the falls.
1897	The Supreme Court of Ontario reviews Niagara Falls Power Co.'s failure to construct a Canadian plant.
1899 to 1903	Niagara Falls Power Co. retains only one-third share of the Canadian Falls. The remaining two-thirds are sold to US-owned Ontario Power Co. and Toronto-owned Electrical Power Co.
1901	Niagara Falls Power Co. starts construction of its Canadian plant.
1903	The Hydro-Electric Power Commission of Ontario (the Ontario Power Commission), which advocates public power development, is formed.
1906	Niagara Falls Power Co. exports power to Buffalo industries from its Canadian plant.
1907	Ontario Power Co. exports power to its US industrial customers from its Canadian plant.
1908	Toronto's Electrical Power Co. transports power to Toronto and sells to the US market.
1910	Two-thirds of the electricity generated at the Canadian falls is exported to the US.
1910	Ontario Power Commission delivers first Niagara Falls power over the public transmission line to Berlin, Ontario.

Although the Ontario government had privatized the water rights in 1887 subject to timely power development, Shaw and Canadian Niagara held up the building of the needed power plants from 1887 to 1901 in anticipation of higher profits from future electricity exports to New York State. The stalling tactics of the American speculators contributed to southern Ontario's falling behind in capturing early industrial benefits. For instance, until 1886, in the absence of long-distance transmission technology, industries, especially energy-intensive and electro-process industries (such as those that produced abrasives and silver plating, or processed chemicals), found it necessary to locate their operations close to power plants. The Niagara Falls Power Company, well aware

of this need, had attracted more than 20 "industrial tenants" who bought short-distance power in the town of Niagara Falls, New York (Davenport 1904, 81-86), while stalling electricity generation and industrial development on the Canadian side of the falls.²

With the invention and installation of transmission lines by 1896, electricity could be brought to industry rather than industry having to locate near generating plants (Davenport 1904, 76-77). New transmission technology, however, allowed American owners of the Niagara Falls power monopoly either to supply industrialists further afield in Buffalo and Syracuse or to initiate delivery to Ontario manufacturers in London, Guelph, and Berlin (later Kitchener). Their choice became evident on 10 November 1896 when the Niagara Falls Power Company's 20 mile-long transmission line reached its Buffalo industrial market (Denison n.d., 28). Meanwhile, on the Niagara peninsula, skepticism about the US power company grew: "The spectacular growth sparked by hydro-electric development on the American side of the Falls exasperated the residents of the Niagara peninsula who had long since grown suspicious of the endless excuses advanced by the Canadian Niagara Power Co. for the total lack of progress on its monopoly concession within the park" (Nelles 1974, 223).

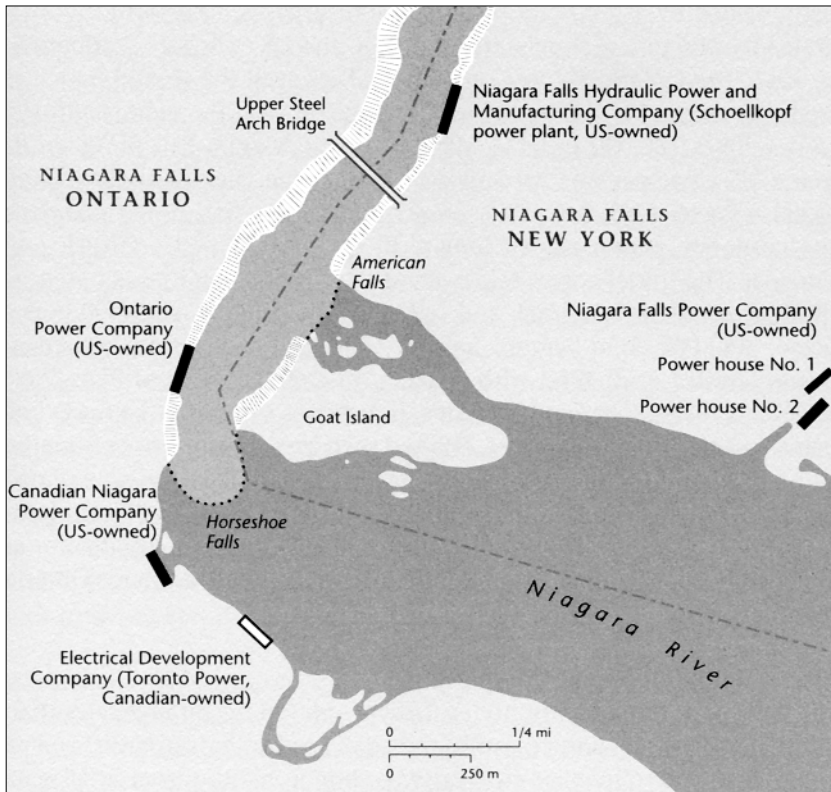
It was then that Ontario's Liberal premier, A.S. Hardy, "asked the Supreme Court of Ontario to rule whether the total absence of construction prescribed by the agreement at the 1897 deadline constituted a breach of contract" (Nelles 1974, 225). The court found the terms of the original agreement could not be cancelled until 1899 (225). Before the final showdown, the government and the US utility company found a compromise when "in July of 1899 the company relinquished its monopoly on the Canadian side of the Falls" (225); yet, despite its dismal record, Canadian Niagara retained power rights to one-third of the Canadian falls (100,000 hp, or 75 MW), the other two-thirds being available to other private utilities (Grauer 1961, 250 n3).

By 1903, the Queen Victoria Niagara Falls Commission had granted all available power franchises. Foreign ownership of such power rights was well hidden behind corporate names. While the Canadian-owned Electrical Development Company (EDC, or Toronto Power) referred in its name neither to nation nor province, the two US-owned subsidiaries, the Canadian Niagara Power Company and the Ontario Power Company, had added "Canadian" and "Ontario" to their names (see fig. 1), adjectives which in fact disguised their US ownership.

Canadian Niagara Power Company

After having its monopoly reduced to one-third of the water power at the Canadian falls, the Canadian Niagara Power Company became the first utility to build a power plant on the Ontario side. Harold Buck, electrical director of its American parent firm (the Niagara Falls Power Company), simply conceived the Ontario plant as an extension of the two New York State plants (Belfield 1981, 88). Construction began in 1901, and the first power was transferred from branch to parent by 1905 (Grauer 1961, 250). That is, the parent utility directed its Canadian subsidiary to export nearly all the power from its new Canadian plant back to the US parent utility's market (Belfield 1981, 94).³

Figure 1: Power Plants on the Niagara River, 1900-10



Source: Davenport 1904; Burton 1992, 281.

By 1906, some of this exported energy supplied the short-distance industrial market in Niagara Falls, New York, but the bulk of it went to its long-distance industrial market in Buffalo.⁴ The Niagara Company dominated both these industrial markets. One was located less than two miles from the company's plant in Niagara Falls, New York, and consisted of 22 industries; the other was between 15 and 35 miles from the same Niagara plant in Tonawanda, Lockport, Olcott, and Buffalo, and included more than 60 industrial customers (Davenport 1904, 81-86). With a lucrative US industrial market, this American utility shunned the riskier and less profitable Canadian manufacturing market.

Ontario Power Company

In a similar way, the Ontario Power Company, the other US power company owned by a syndicate of Buffalo industrialists, also vertically integrated its structure of generation, international transmission, and US customer distribution. In 1900, this company had received the second franchise from the Queen Victoria Falls Park Commission to develop eventually a 180,000 hp (134 MW) facility at Niagara Falls (Grauer 1961, 250 n3; Nelles 1974, 227). Again, its major US customer was its corporate parent, the Niagara Lockport and Ontario Power Company. To assure continued internal power transfers, the parent company signed long-term contracts with its subsidiary in Canada: "the initial contract between the subsidiary and parent companies was dated 16 July 1904, and called for the delivery of 60,000 horsepower [45 MW] on or before 1 January 1907. This contract was to remain in force until 1 April 1950, with certain provisions for renewal" (Grauer 1961, 250). As Belfield found, "Niagara Lockport's strategy was to build first a trunk line between Lockport and Syracuse, New York, and then install branch lines from the trunk to smaller urban centers in the region—rather like a general railroad track strategy" (1981, 110). Both US utilities connected their Canadian power plants to their US transmission systems, treated their Canadian subsidiaries as electricity suppliers, and showed little interest in small southern Ontario manufacturers.

Electrical Development Company

Canadian utility executives showed no more loyalty than their American counterparts to Canada's nascent industry's energy needs. The only Canadian company developing hydro power at Niagara Falls similarly failed to supply industrial electricity to southwestern Ontario towns. On 29 January 1903, the Queen Victoria Niagara Falls Park Commissioners had granted the Electrical Development Company the right to generate up to 125,000 hp (93 MW) of electricity (Davenport 1904, 169-70). Its owners, formerly obsessed with railway

projects, had formed the MacKenzie syndicate, made up of William MacKenzie, a railroad man, Frederic Nicholls, an electrical engineer and head of Canadian General Electric, and Henry Mill Pellatt, a general financier-entrepreneur (Nelles 1974, 227-28; Grauer 1961, 250). They “represented what was in fact the foundation of a private utility monopoly in Toronto: the head of the traction [electric street car] business, the head of the electric light business [the Toronto Electric Light Company], and the head of the major Canadian electrical manufacturer.”⁵ Because it had become less costly to transport electricity to factories than to move factories and supplies close to generating sites, however, they built their plant at Niagara too late to replicate the industrial growth of their US competitors.

Copying US efforts in creating local industrial parks and promoting its own market, “the Mackenzie Syndicate purchased a huge plot of land (530 acres) in the vicinity of its generating plant at Niagara Falls. It [was] expected that this land would be taken up by manufacturers using electro-chemical processes, or [by] other large power-using businesses” (Belfield 1981, 118-19).⁶ That strategy failed because, years before, the US-owned Niagara Company had “established a grip” upon the industrial market in Niagara, Ontario (119). To strengthen their corporate integration, the owners of the Electrical Development Company established two transmission subsidiaries: the Toronto and Niagara Power Company to serve “Toronto and the intermediate territories” and, in 1906, the Niagara Falls Electrical Transmission Company to compete with Niagara Lockport in the safe, established markets of upstate New York (Belfield 1981, 115, 121). By 1908, they transmitted electricity from their Niagara plant to their Toronto Power Company (in turn controlled by the Toronto Railway Company) and thereby vertically integrated supply, transmission, and distribution (Nelles 1974, 285-86, 288).

That turn of events was not what Ontario government officials had hoped for; they had expected private owners to use Niagara electricity to help implant new industries and modernize the emergent small manufacturers in southern Ontario. Privatizing water-power licences had failed as an indigenous industrial development strategy: private owners were simply uninterested in, even opposed to, the wishes of smaller Ontario manufacturers. Private utility owners were pre-occupied with the more lucrative industrial markets in Toronto, Buffalo, and Syracuse.

Reversal of Privatization

Ontario's small manufacturers wanted no additional Niagara power exported to Buffalo; they wanted it transmitted to Berlin (now Kitchener). During the first years of the twentieth century, electricity generated on the Canadian side of the falls was Canadian only by virtue of geography; as Nelles points out, commercially and practically it belonged to American manufacturers (1974, 324). By 1910, 64% of the power generation was committed for export.⁷ Ontario's small business people became aware of that after the fact; as Nelles writes: "It was not until Ontario businessmen took envious notice of the industrial revolution brought by cheap electricity across the Niagara River in the state of New York that they discovered that their Niagara waterpower had been gobbled up by Americans" (35).

Earlier, in 1903, the threat of industrial stagnation had become very real for southwestern Ontario. Small manufacturers started a public power movement whose aims were clear: they did not want regulated power for profit; they wanted power at cost. They did not want a private urban power monopoly running the hinterland; they wanted their own co-operative utility supplying their communities and industries. To realize their goals, they called for a public power company to co-ordinate both community and corporate goals. Members of the public power movement envisaged the following steps: negotiating contracts with the private power suppliers, raising capital for public transmission lines and plants, and reversing the privatization of Niagara Falls.

Small-town manufacturers met not only among themselves but also with key politicians and the public as early as 1902, with the aim of forming the Ontario Power Commission as their progressive utility. For them, bringing progress to towns and factories meant receiving electrical power from municipal circuit plants rather than from coal-fired steam plants and running electrically powered equipment rather than steam-powered machinery. At the Waterloo Board of Trade meeting on 11 February 1902, E.W.B. Snider suggested that if the members of the board of trade banded together to create an attractive, co-operative market for Niagara power, the community of Waterloo "could offer cheap power to manufacturers that would greatly assist [the community's] further progress." The co-operative utility would help bring a power line from the plants at Niagara Falls to prevent the scattered towns of southwestern Ontario from being left behind (Nelles 1974, 237). One year later, on 17 February 1903, at a meeting in the Berlin YMCA, Snider recommended to 67 delegates from the main towns and cities in the region "that the municipalities should build a transmission system only, purchasing their power from one of the existing generating plants at Niagara," which at \$8 plus transmission,

would cost \$15 per hp per year at municipal boundaries (242). During the same month, he led a group of 12 men to meet Ontario Premier G.W. Ross and “begged the province either to distribute hydro-electricity itself or permit the municipalities to do it themselves” (244). He objected to the monopoly of Niagara water power and warned that a lack of cheap power would deindustrialize southwestern Ontario. Ross found their arguments persuasive, and the subsequent provincial Act to Provide for the Construction of Municipal Power Works and the Transmission, Distribution and Supply of Electrical and Other Power and Energy permitted the creation of the Ontario Power Commission (245). On 12 August 1903, at a general meeting of the interested municipalities and manufacturers in the Toronto City Hall, Snider, P.W. Ellis (a Toronto wholesale jeweler), W.F. Cockshutt (a farm implement manufacturer from Brantford), and Adam Beck (factory owner, mayor of London and Conservative MPP), were selected commissioners (245-46). Beck took over the leadership of the Ontario Power Commission in 1904.

Faced with continuing opposition from the Toronto Syndicate and its Electrical Development Company, Snider headed a commission of inquiry and filed his report in March 1906. The Snider Commission recommended that, since small southwestern Ontario towns could not afford to build a generating station of their own at Niagara, they should propose (because the Power Act allowed the commission to proceed with its own transmission network) to buy and distribute electricity “at cost” by means of a municipal co-operative that would build and operate the transmission system linking the major towns with Niagara (Nelles 1974, 263). The commission signed, first, a supply contract with the American-owned Ontario Power Company on 21 March 1908, and then a transmission contract on 13 August 1908 with municipalities in the southwest (237-38).⁸ On 11 October 1910, with great fanfare in Berlin, the first “switching on” ceremony took place (231). In this way, Ontario Power commissioners helped bridge the infrastructural gap and thereby belatedly remedied the failure of private enterprise to supply industrial energy to southern Ontario’s producers. This new supply of hydroelectric power allowed manufacturers with an interest in developing Ontario to use more sophisticated machinery in their small factories.

Until that point, private power companies built their Canadian plants for electricity export to US industries. With the public power movement gaining strength, such continentalism in energy integration was temporarily stymied. Southern Ontario manufacturers resisted electricity exports because they needed electricity to replace their steam-powered technology with electrical machinery. In this way, they initiated the reversal of US ownership of power utilities in Ontario. Resistance to US ownership in the hydro sector, however,

did not extend to other industrial sectors, and public power continued to serve branch plant expansions and foreign-directed resource processing; however, the uncertainties of foreign-directed economic development caused significant co-ordination problems for the Ontario Power Commission. It became evident that the changing electricity needs of foreign industry were difficult to anticipate.

Predicting Power Use for Unpredictable Firms

What tends to go wrong when owners in the industrial market limit the state's ability as a producer of electricity to plan for the future? The Ontario Power Commission expanded its infrastructure to serve small manufacturers, US branch plants, and the export-oriented natural resource-based industries in Ontario, and this attempt to serve a varied customer base contributed to severe planning difficulties, including the over-construction of the hydroelectric infrastructure.⁹ The publicly owned Power Commission was faced with demands from manufacturers that electricity be turned on for branch plants and turned off for consumption in small towns.

In order to supply municipalities and industries, which increasingly demanded benefits from the cheaper public "power at cost," rather than the more expensive private "power at profit," the Ontario Power Commission initially signed private supply contracts and subsequently bought power plants and power companies. The commission's first purchase in 1914 was the Big Chute plant (4 MW), built in 1909 on the Severn River (Fram 1980, 31). By 1917, it had integrated into its system the Ontario Power Company's plant at Niagara Falls, Ontario, built in 1905 to supply industries in Buffalo, New York (32). By 1920, in the Thunder Bay service area, the commission had added the Cameron Falls development on the Nipigon River to serve pulp and paper companies and to supply the twin cities of Port Arthur and Fort William (now Thunder Bay). In 1921, the public utility officially inaugurated its Queenston-Chippawa plant, at the time hailed as the largest in the world (Denison 1960, 131). By 1922, the commission had negotiated to purchase the Toronto syndicate's Toronto Power Company, which included the Electrical Power Company's plant at Niagara Falls. It had taken 35 years to reverse the privatization of hydro development at the falls.

Before long, the Ontario Power Commission faced accusations of having built surplus capacity and of having overestimated industrial demand. The 1925 report of a hydroelectric inquiry commission, known as the Gregory Commission, revealed that by October 1921, Chief Engineer Gaby's "estimates of a demand for from 25,000 [19 MW] to 30,000 h.p. [22 MW] were far from reached" (Gregory 1925, 31). On the one hand, the Ontario Power commissioners tried to meet

resource company requests; on the other hand, their industrial power consumption estimates were unreliable and made planning power-plant capacity problematic. In one instance, when the commission's chair was accused of overbuilding the system, he deflected blame to the Ontario government's failure to make a "binding contract with the Carrick interest," also known as the "old Tory Timber Ring," which included the former mayor of Port Arthur.¹⁰ The Power Commission generated a surplus capacity of "10,000 to 15,000 horsepower [8 to 11 MW]," whereas the Carrick interests had not honoured their request for electricity (Gregory 1925, 31).

Large transnational corporations requested similarly inflated energy demands from the commission, as in the case of the Goodyear Tire and Rubber Company of Canada. Goodyear's manager, C.H. Carlisle, was one of 10 representatives of the Canadian Manufacturers' Association who, together with four representatives of the Hydro-Electric Commission, attended a meeting in Toronto on Tuesday, 4 May 1920. The key advocates for the interests of large industrial power consumers were Carlisle and J.G. Perrin, manager of the Willys-Oberland Company. Sir Adam Beck, chair of the Hydro-Electric Power Commission of Ontario, defended the commission's approach to hydro planning and to the distribution of electricity.

Supporting Perrin's contention that industry should get priority access to "power at cost" instead of wasting it by supplying small Ontario towns, Carlisle demanded a larger allocation of power for Goodyear (Hydro-Electric Power Commission 1920, 4-6):

Our present plant is one twelfth of the plant we planned for in New Toronto, our Company is employing about three thousand people, and this new development will call for about six thousand five hundred people. I have been informed that we can get no increase of power. When I located in New Toronto, I took it up with some of your representatives and was assured of continuous power and plenty of power. We have made an investment at the present time of \$6,842,000. The additions mean two and a half million dollars more, so we have quite an investment. In planning this plant we made no provision for space for [sic] steam plant.... We will need by January 1st, [1921], 6500 H.P. and we get a promise of 2300. That is one reason that I think we should first see that the manufacturing interests that employ the people of this Province and the concerns that are practically the backbone of commerce should be first considered, and their future extensions be provided for. (5; my emphasis)

Perrin thought it a waste that small communities (he did not even mention the small manufacturers in them) should have electric lighting, and he felt that, instead, more reliable power should be supplied to his factory and to Goodyear. Perrin observed that "a short time ago I had occasion to pass through a number of hamlets and small villages in the Province. Now it is very nice to see them all lighted up and all that but it seems a waste and this power should be devoted to industrial [transmission] lines" (Hydro-Electric Power Commission 1920, 7-8).

Responding to his fellow manufacturers, Beck explained the difference in the obligations of a co-operative public utility and a private utility in supplying electricity: "You [large-scale manufacturers] are getting power at cost, and I think we have [a]lways made an equitable adjustment as between the manufacturer, street lighting service, and the individual householder. You say the manufacturer should have some preference, but as I have already explained, this is not possible. It is a municipal affair, and we cannot say as a private company might say that we will not take on this town or that village, because the manufacturers pay us a better price and it is cheaper and more convenient to render one bill instead of 10,000 bills" (Hydro-Electric Power Commission 1920, 21).

Since the power commission could not supply the requested power, and the Goodyear management did not want to wait for the industrial supply that would come on line from the Queenston plant, Goodyear signed a contract with the Toronto Power Company (also called the Electrical Development Company), which sold power for profit rather than at cost (Carlisle 1922b, 4). As indicated in Goodyear memoranda, the cost of power under the Hydro Commission contract was \$22.75 per hp per year and that of the Toronto Power Company was more than triple the rate at \$72.51 (4). Goodyear signed a contract in 1920, and "under its terms, the Toronto Power Co. agreed to supply and hold in reserve for the Goodyear Company, 3,000 hp ('Firm Power') during 24 hours of every day for a period of five years from 1st January, 1921, to 31st December, 1925" (4). Just two months later, Goodyear no longer needed the power. In the company's defence, Carlisle explained to the commission, "As you know, the American Goodyear became involved with losses of upwards of \$70,000,000.00 [70 million], causing us a loss through the contracts we had with them for foreign business of somewhat over \$5,000,000.00 [5 million]; this loss made our company insolvent, and it was necessary to refinance and reorganize" (Carlisle 1922a, 1).

Carlisle argued that for these reasons, “the Goodyear Company was in no position to take the additional power specified in the contract with the Toronto Power Company” (Carlisle 1922b, 2). The value of the legal and collectible contract, a sum of \$360,000 was scheduled as one of the assets of the Toronto Power Company, which the Hydro-Electric Power Commission was negotiating to purchase (Carlisle 1922a, 2). The compromise acceptable to Goodyear was to suspend its contract with the Toronto Power Company and obtain a power rate of \$29.27 per hp per year from 1921 to 1926 (reduced from \$72.51 per hp per year) from the commission (Carlisle 1922b, 4). Such events demonstrate the serious problems that emerge when a public power company tries to meet the electricity needs of manufacturing in small towns, foreign-directed branch plants, and natural resource processing. Attempts to supply public energy for such varied paths of industrial growth often result in power surplus capacities. Schemes to export such surplus electricity became a contentious issue during the second decade of the twentieth century when shortages developed.

Repatriation Crisis: Power Exported is Power Lost

What went wrong with electricity exports to the United States? Although the federal government has jurisdiction over exports, its regulation of electricity exports varied. The government had instituted controls in 1907 but allowed them to slacken prior to the First World War. That led to what is known as the repatriation crisis of 1917 when Canada was unable to reclaim electricity exports from the US to supply electricity for her own production (Grauer 1961).

The federal government’s earliest position appeared to have been that electricity should be treated as any other good; in other words, it could be exported at the discretion of the electric utility that owned the power. Then unexpectedly, Canadian subsidiaries signed long-term export contracts—of up to a century—with their US parent utilities. Dal Grauer, a political economist and former professor of Social Science in Toronto, reviewed Ontario’s export history in “Export of Electricity from Canada,” an essay he published while he was chair of the BC Electric Company (table 2). In that essay, he indicates that “the Ontario Power Co. in 1904 envisaged the export of 45,000 horsepower of electrical energy to the US for a period of 99 years.” The threat of Canadian water power being absorbed by the US led to the federal government in 1907 to pass An Act to Regulate the Exportation of Electric Power and Certain Liquids and Gases. Grauer reasons that this act essentially restricted exports out of concern that Niagara Falls and other sites would not be available for future Canadian power needs. Now, exports of electricity, as well as international power lines,

came under federal jurisdiction. Every export licence needed a government permit; electricity diversion through export was not permanent; and licences were revocable when required by purchasers in Canada after approval by the governor-in-council (the cabinet) (Grauer 1961, 251).¹¹

US attempts to divert more Niagara electricity from the Canadian side of the international boundary led the federal government of Wilfrid Laurier to establish the National Commission of Conservation under the minister of the Interior, Clifford Sifton, in 1909. His commission reported that, should water power be exported to the US, the vested interests that it would create there would prevent its subsequent withdrawal to meet future needs of Canadian industries (Grauer 1961, 251 n4). US companies in Canada now had to obtain an export licence to send electricity back to their home markets. The New York State Public Service Commission, however, showed little respect for Canadian restrictions on export. The commission wrote in 1914 that when "affecting so important a subject as the means of continuing great industries [the] time has long since passed when governments proceed ruthlessly from pure national rashness or anger to destroy the settled accepted commercial relations" (Grauer 1961, 255). This US position raised a storm in Ottawa, and the Canadian Privy Council sent His Majesty's Ambassador in Washington to the US government with a carefully worded minute outlining Canada's energy export laws and regulations, including the stipulation that export licences are revocable, valid for only one year at a time, and not permanently binding in case of exports to US industry (255). Nevertheless, as shown in table 2, exports had risen steadily until 1914, levelled off in 1915-16 (the two years after the protest), and returned to higher levels again in 1917-19: "Having allowed export agreements to be made ... they were unable to repatriate firm power [once] exported" (251). Canadian administration, both at the provincial and federal levels, was found wanting (251).

The crisis intensified when Canada needed electricity for war production in 1917-18. During the war, the federal government's inability to enforce repatriation of Canadian electricity through legislation became clear. The power comptroller, Henry Dayton, found that export commitments and industrial demands had absorbed existing capacity. Grauer maintains that "the real explosion [of anti-export sentiment], if it can be described as such, was heard in 1917" (1961, 256). It occurred at a time when Canadians most needed electricity, when so much of the power in the Niagara area was used for war manufacturing that power needed to be rationed by the power comptroller. When the Imperial Munitions Board consulted the Niagara Falls hydroelectricity producers, it "found that export commitments, together with the already inflated demands of industrial and other consumers in Canada, had absorbed practically

Table 2: Annual Quantity of Electricity Exported to the United States, 1908-20

(GWh)

Year	From Ontario	From Quebec	From Other Provinces	Total Exports
1908	113			113
1909	358		1	359
1910	474		1	475
1911	536		2	538
1912	536		2	538
1913	656		6	662
1914	746		27	773
1915	605	29	22	656
1916	647	359	16	1,022
1917	779	429	17	1,225
1918	730	381	16	1,127
1919	731	396	16	1,143
1920	643	283	24	950

Sources: 1908-10, Canada, Department of Inland Revenue, *Publications in Dominion Bureau of Statistics Library*; 1911-20, Canada Year Book (Cited by Dal Grauer 1961, 257).

all of their existing capacity” (256). Adam Beck described the situation in the following way: “Industries [in Canada] either had their power cut off, or reduced to a point which entailed great financial losses; in many cases almost complete paralysis of business was experienced. At this period the Hydro Electric Power Commission was supplying power for the operation of over 360 plants manufacturing munitions and war supplies, and these plants were using over 80% of the entire power supply in the Niagara district” (Murray 1922, 34). In a letter to T.J. Hannigan and S.R. Clement, he added, “One can hardly find fault with our neighbours to the south for desiring to have such a valuable commodity to aid in building up their industries and communities, but it is scarcely to be expected that Ontario citizens can be induced to part with a commodity so essential to their own necessities and welfare” (Beck 1925, 3).

The 1917-18 power shortage in Canada made clear to utility executives, industrialists, and residential customers the near impossibility of repatriating power. Leading politicians all “spoke to much the same effect, namely, *that Canada should never again export firm power*” (Grauer 1961, 260; my emphasis). In 1929, Prime Minister W.L. Mackenzie King summarized rethinking about the

use of hydroelectricity in Canada since the turn of the century: "Public opinion in Canada ... is insistent that such power ... shall be utilized within the Dominion to stimulate Canadian industry and develop the natural resources" (Grauer 1961, 261-62). The experience of the Niagara Falls power export trap strengthened the perception of electricity as Canadian industrial energy; however, because of interprovincial and federal-provincial conflicts, that experience did not lead to a comprehensive national energy or industrial policy.

Conclusion

At the outset I have proposed that, when hydro owners who have been allocated public water rights create conditions of regional industrial backwardness because they find exports more profitable, then the state (at the provincial level) as holder of public rights (and pressured by social movements) has a mandate to intervene in order to create (local) conditions for industrial development by establishing some control over exports at the federal level and by providing electricity inputs at the provincial level to enhance profitable manufacturing. Once the state has become an electricity producer, however, it is limited in its planning ability by owners in the industrial market and by the fact that provinces tend to produce periodic surpluses. If the state at the federal level continues to treat such temporary surpluses of electricity as an export commodity, such export may pose a risk in times of shortages and prove not to be in the national interest.

The historical findings in this article demonstrated that after Ontario privatized the public (Crown) water-power rights for developing hydroelectric power on the assumption that these initiatives would modernize Ontario industry on the Canadian side of the binational Niagara Falls, US speculators on Canadian water-power rights stalled power development on the Canadian side. Once power plants were installed, both US and Canadian power companies favoured exporting Canadian electricity to the more profitable US industrial markets, leaving Ontario industries behind. In order to allow small-town manufacturers in southern Ontario to modernize their plants by replacing their steam-powered equipment with electrically powered machinery, the Ontario power movement, as well as the provincial and federal governments, analyzed and resolved this problem by reversing the earlier privatization and gradually repatriating the electricity generated at the Canadian falls, first through contracts, and later through utility acquisition, for transportation over the co-operatively established public electricity transmission network. Providing public power for the industrial market does have its limits when decision-makers try to plan and

build for the electricity needs of manufacturing in small towns, less predictable foreign-directed branch plants (such as the Goodyear case), and natural resource processing (such as for the Garrick interests). As shown, attempts to supply public energy for such varied unpredictable paths of industrial growth often result in temporary power surplus capacities. Schemes to export such surplus electricity became a risky and contentious issue between Canada and the US during the First World War when industrial shortages developed in Canada.

Although the historical findings in this article support these propositions, they also can be used to evaluate and further develop other analyses of hydro development from the 1890s to 1940s. For instance, T.C. Keefer and John Dales examined hydro-related industrial development. Keefer was optimistic about how the development of electricity at Niagara Falls would bring a new energy-invigorated and value-added industrialization to Ontario. Giving the value-added manufacture of spruce as an example, he argued that “in the future Canada’s own ‘white coal’ of falling water would deliver the Dominion from its ‘hewer of wood’ servitude to American industry and its bondage to American coal” (Keefer 1899). John Dales, based on the history of power systems in Quebec from 1898 to 1940, argues that hydroelectric development constitutes a major industrializing force. He claims that the “power station succeeded the railway as the main development agency” in Canada and that diversification had been most successful where power companies had to develop their own local industrial markets (Dales 1957, 182, 184). In such situations, Dales argues, hydroelectric development has been a powerful agent in the transition to a more self-reliant diversified manufacturing sector (182). The actual hydro-related industrial development in Ontario demonstrates that both analysts were far too optimistic; some power companies at Niagara Falls were not interested or willing to foster Ontario’s industrial market, nor would the introduction of Canadian hydro at the falls bring a transition to secondary industry that is more self-reliant and autonomous from the United States. In fact, Keefer and Dales failed to anticipate the possibility that power companies at Niagara Falls could contribute to Ontario’s industrial backwardness by exporting Ontario’s electricity to the US and thereby propel municipal, provincial, and federal governments (the state) to intervene.

I have argued above that the state as holder of public rights (and pressured by social movements) has a mandate to intervene in order to create local conditions for industrial development; however, my analysis pays insufficient attention to public support through the urban reform movements. In other words, a future examination could benefit from Doug Owram’s observations that not only the small-town manufacturers who started the Ontario Power

Commission, but a publicly minded growing middle-class spirit rooted in the urban reform movement fostered “a growing willingness on the part of many otherwise-conservative citizens to abandon the doctrine of laissez-faire in such areas in favour of increased municipal regulation and perhaps even public ownership” (1986, ix, 53-57). From the 1890s to 1940s, this new political will was, therefore, compatible with the dramatic expansion in the responsibilities and size of Canadian government at all levels. The middle class argued that street railways, electric power, and other essentials were being run ineffectively in the corporate rather than public interest, and “were too important to allow control to be vested in selfish or corrupt individuals who put private gain ahead of public service” (53-57). Thus, the urban utilities, such as those in Toronto, became part of Ontario’s privatization reversal. As the Niagara case has shown, the more interventionist state also regulated railway and power companies through commissions, such as the Ontario Power Commission, to whom business leaders applied for favourable decisions (Cruikshank 1991, 5, 201).

James Mavor, one analyst of the state’s role in the Niagara Falls development, believes that public ownership was a form of socialism and stifling of industrial development (Mavor 1925); another analyst, H.V. Nelles, argues that the public interventionist philosophy and public power movement (led by small Ontario manufacturers) behind public power “made it easier for business to establish a firm grip upon the instruments of the state. In this Hydro was not an exception, for it was run by businessmen, for businessmen, in what was always referred to as a ‘businesslike manner’ and functioned to promote industry” (Nelles 1974, 490). As some of the findings in this article have shown, however, planning for industry was also problematic. At least one former Ontario Power Commissioner, Sir Adam Beck, favoured serving small-town Ontario over the big corporate interests of Goodyear Tire. Beyond the philosophy and instrumental use of public power, Nelles identifies as a key determinant behind reclaiming public ownership to Niagara power rights and establishment of transmission infrastructure “the energy requirements of the provincial manufacturers, their fear of economic stagnation, and the metropolitan tensions of the provincial economy” that favoured electricity supply to Toronto rather than the smaller manufacturing towns of southern Ontario (491). I share this aspect of Nelles’s interpretation.

To understand more specific patterns of privatization reversal, however, by first allocating development to private and then to state enterprise, I have argued that Claus Offe’s emphasis on criteria of state intervention when the provision of a service or goods is “not profitable but necessary” can also guide the analysis of governments’ reversals of privatization (Offe 1972, 54). Should,

for instance, a regional hydroelectric system not be profitable to an entrepreneur, yet be necessary for enhancing a region's growth, social pressures can arise for nationalization so that the government may provide the needed infrastructure. Second, the findings show that Offe's differentiation between allocative and productive state intervention, permitting a distinction between merely allocating natural resources, including water-power rights, to private developers (privatization) and directly intervening in the market to reclaim such rights and produce hydroelectricity (reversal of privatization) in order to improve or create private accumulation conditions for a variety of industries is valid (Offe 1975). Third, the findings show that his insight that the interventionist state's limited ability to plan because it may not be allowed to do so by those to whom it is supplying goods or services is relevant; the state may overbuild infrastructure (the railways, public hydro) because state planning can become unco-ordinated when it tries to match the size and timing of infrastructure with industrial growth (Offe 1972, 55).

In addition, as a binational hydro-power project, Niagara Falls provides an insightful case study that differs from other sites. Because Niagara Falls had to serve the tourist sector, the falls could not be drained completely for power production as Churchill Falls was in 1972. The binational nature also meant that asymmetrical power politics developed between Canada and the United States, with Canada asserting its interests during the repatriation crisis in the First World War. Nearly one century later, in August 2003, when a private sector transmission system failed in the US with "blackout" repercussions in Ontario, the power failure showed the new risks inherent in power networks that straddle the Canadian and US border. Since then, the provincial and federal energy policy agenda has been preoccupied by initiatives towards an East-West Canadian power grid to bring reliability of supply and, (by replacing polluting thermal generation with "clean" domestic hydroelectricity), to meet emission requirements under the Kyoto accord and to improve southern Ontario's air quality.

Notes

An earlier version of this article has appeared in *White Gold: Hydroelectric Power in Canada* (Froschauer 1999). I would like to thank the reviewers of this article for their recommendations to broaden the theoretical discussion and for their valuable comments. Further, I would like to express my gratitude to John Marriott for proofreading and to Jane Koustas, Christl Verduyn, and Kerry Cannon for their editorial contributions that brought this essay into print.

1. "The Canadian Niagara Power Company was incorporated by an Act of the Legislature of the Province of Ontario in the year 1892"; this act confirmed the 100-year agreement, dated 7 April 1892, between the Canadian Niagara Power Company and the Commissioners for the Queen Victoria Niagara Falls Park (Davenport 1904, 163).
2. Gordon Laxer, in *Open for Business* (1989), employs Gerschenkron's concept of "late industrialization" to explain why industrialization in Canada was delayed. I argue here, by contrast, that US speculators held up development of hydro-generated electricity, a process that delayed the progress of southern Ontario manufacturers who fell behind in installing electric motor drives for their factory machinery.
3. Wallace Clement argues that Canada's ruling economic interests assumed the US branch plants would Canadianize, just as many earlier entrepreneur immigrants had fully integrated their businesses within the Canadian economy; however, such branch plant firms were vertically and often horizontally linked to their US parent companies (1975, 79).
4. Belfield found that Canadian Niagara had hopes to supply the Toronto market but faced competition from the Electric Development Company (1981, 91, 111).
5. Nelles gives an extensive account of the syndicate's stockwatering habits [diluting assets] of floating South American and Caribbean utilities and of the public animosity towards its electrical operations (1974, 228-37).
6. For a map of the Electric Development Company's manufacturing sites, see Davenport (1904, 171).
7. At that time, "the Ontario Power Company had the right to develop 180,000 h.p. Of this, it had installed 52,000 h.p. and exported 35,000 h.p. to the United States. The Electrical Development Company had the right to develop 125,000 h.p. It was then producing 42,800 h.p. and exporting 10,000 h.p. The Canadian Niagara Power Company enjoyed the right to develop 100,000 h.p. on the Canadian side. Its plants were capable of producing 46,000 h.p., all of which was being exported" (Grauer 1961, 250 n3).
8. Grauer indicates that "on April 12, 1917, all the assets in Canada of the Ontario Power Company were purchased by the Hydro-Electric Power Commission of Ontario [Ontario Power Commission]" (Grauer 1961, 250).

9. The Ontario Power Commission conducted two surveys of its potential industrial customers: one in 1911 in communities north of Berlin (including Palmerston and Harriston) that were characterized by settler craftshops and small manufactures; and another survey in 1919-20 in towns south of Kitchener (Berlin's new postwar name) that revealed a mix of domestic manufacturers and US branch plant industries (Hydro-Electric Power Commission 1911; Beck 1919).
10. Nelles describes the members and influence of the Timber Ring thus: "Between 1911 and 1920 no one cut anything in the northwestern part of the province without first doing business with Col. J.A. Little or some member of what came to be known as the 'old Tory Timber Ring.' The colonel's associates were Gen. Don Hogarth, provincial organizer of the Conservative party, banker, mining promoter, and timber speculator; W.H. Russel, a young Detroit lawyer turned pulpwood exporter; and J.J. Carrick, a former mayor of Port Arthur, Conservative MP, MPP, real estate promoter, and mining speculator" (Nelles 1974, 376-77).
11. An alternative source for the history of federal regulation by the National Energy Board can be found in "Regulations of Electricity Exports: Report of an Inquiry By a Panel of the Energy Board Following Hearing in November and December 1986" (Canada 1987, 5-6).

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