

policy which permits the exportation of electric energy really required for use in Canada. The Federal Government has been memorialized upon this subject. It has been urged that no large power projects such, for example, as those on the international portion of the St. Lawrence River, should be developed without reserving Canada's share of the power for use here; and, further, that powers situated wholly in Canada should be reserved against the day of Canada's need. This statement is made having in mind the fact that it is not the policy of Canada to embargo her exports, but that commodities of national importance should not be exported without an adequate *quid pro quo*.

[The speaker at this part of his address made use of charts, corresponding to the diagrams reproduced herewith, showing situations of the respective power sites and profile of the river.—EDITOR.]

On the St. Lawrence River below Lake Ontario the first site where development involving the whole flow of the river could be made is in the vicinity of Morrisburg. With a dam near the foot of Ogden Island, a head of about 11 feet could be obtained, or, by taking in a portion of the Galop rapid, it has been thought possible to obtain a total effective head of about 15 feet. It is at this Morrisburg site—the Rapide Plat—that the New York and Ontario Power Company develops power in a small plant at Waddington, N.Y., under rights extending back for one hundred years. This company desires to reconstruct this plant and increase the development, thereby providing power for disposal in the United States as well as in Eastern Ontario. The company offers to have this project made conformable to any scheme for the development of the river as a whole.

Possible Developments

The next possible development is that at the Long Sault Rapids, where the possible head is variously estimated to be about 35 to 40 feet. This is the site near Cornwall, where the Long Sault Development Company, a subsidiary of the Aluminum Company of America, intended to erect its dams had not their charter rights been cancelled by the State of New York—a cancellation which was confirmed by the Supreme Court of the United States.

Descending the river, we have next, in a stretch of about 14 miles between Lakes St. Francis and St. Louis, three series of rapids: the Coteau, the Cedars, the Split Rock and Cascades. The Coteau site is the one for which the Power Development Company, Limited, has been seeking rights. Of this company the "Montreal Star" states:

"There was incorporated, by letters patent a modest company, with a capital of \$500,000, the incorporators being the bookkeepers of a well-known law firm in Montreal, closely associated with certain existing companies. . . . A modest notice appeared in an obscure newspaper with a small circulation . . . and there was quietly filed a declaration in the Registry Offices of the counties where the proposed development is to be made, indicating that no less a scheme is on foot than the building of a dam across the St. Lawrence River."

Reliable assurances, however, have been given that rights for this development cannot be obtained without full public notice and discussion when all interested parties will have the opportunity of being heard.

The Cedars Rapids Manufacturing and Power Company utilize at Cedars rapids a head of about 32 feet developed by means of a diversion canal some two miles long. The power house has been designed for an ultimate development of 180,000 h.p. This company exports some 65,000 h.p. to Massena, N.Y.

The Soulanges plant of the Civic Investment and Industrial Company is situated a short distance below the Cedars

plant. Power is obtained by tapping the Soulanges canal. The head is 50 feet.

The St. Timothee plant of the Canadian Light & Power Company is on the south side of the St. Lawrence directly opposite the two last mentioned developments. The water is led through a portion of the old Beauharnois canal. The head is 50 feet, and the development has an ultimate capacity of about 75,000 h.p.

I shall omit description of some other smaller plants, such as those at Mille Roche and in the vicinity of Morrisburg.

To summarize, we may place the estimated low-water power of the international portion of the River St. Lawrence at about 800,000 h.p., of which Canada is entitled to one half, or 400,000 h.p. The potential low-water power on the portion of the river which lies wholly within Canada would be 1,400,000 h.p. This, with its share of power along the International Boundary, makes an estimated total for Canada of 1,800,000 low-water continuous horse-power. It is detailed in the following table:—

Site	Head available	Estimated low-water 24-hr. h. p.	Average estimated 24-hr. low-water h. p.
Morrisburg-Rapide Plat	11-15	170,000-230,000	200,000
Long Sault rapid	30-40	500,000-650,000	575,000
Coteau rapid	15-17	230,000-260,000	250,000
Cedars rapid†	30-32	490,000-525,000	500,000
Split Rock and Cascades rapids	14-18	220,000-280,000	250,000
Lachine Rapid	20-30	300,000-450,000	375,000
Total		1,910,000-2,395,000	2,150,000

*In this table, to have the estimates fairly representative of the possible quantities which might be expected under representative low-water flow conditions, some allowances have been made for efficiency and other factors.

†Under development for about one-third of the low-water flow of the river. Consideration would be given to the possibility of combining the Coteau, Cedars, Split Rock and Cascades; also of increasing the Lachine power.

The above estimate, excluding ice conditions, is conservative. Under a "diversity load factor," such as is experienced by the Hydro-Electric Power Commission of Ontario, Canada's 1,800,000 h.p. would take care of a power demand of some 2,400,000 h.p.

Canada's share of this power belongs respectively to the provinces of Ontario and Quebec. The Federal Government has the rights in and jurisdiction over navigation. When the time comes for international questions in connection with the development of this river to be adjusted to admit of proper development, there is no doubt that the various interests involved, whether federal, provincial, corporate or private, will, respectively, be fully taken care of. Perhaps, for example, some arrangement may be made by which the Federal Governments shall provide the dams for navigation purposes, making available for each province its share of water-power under an arrangement by which the provinces would assume such financial and other responsibilities as were purely incident to the power assets.

I trust I have adequately emphasized the absolute necessity for statesmanlike dealing with our resources of boundary waters, the wise conservation, utilization and administration of which will help build up Canada and pay our future taxes.