

"The absence of coal resources in Ontario and the advance in the art of transmitting electrical energy, as well as the recognition of the manufacturing potentialities of the country, were the chief factors which, about the year 1900, prompted a number of leading manufacturers in southwestern Ontario to examine whether it would be possible to obtain hydro-electrical energy at rates cheaper than the cost at which power could be generated locally from coal, gas or oil.

"It was realized that if the large waterpower of the Niagara river could be used as a basis for the wholesale distribution of electrical energy throughout the more populous portions of Ontario then importations of coal would be substantially reduced and Ontario would, thereby, be rendered less dependent upon foreign resources."

Speaking in Kingston on May 24, 1924, Sir Adam said:

"If you say use coal for your power it means a dependence on the United States and sending our money there. Millions of dollars have been saved to consumers by the non-installation of steam."

On April 11, 1924, on the floor of the legislature, Sir Adam Beck said:

"I am afraid from the attitude of the 'powers-that-be' at Ottawa that further development of Hydro will be prevented in any respect whatever in the province unless it comes to steam power which would, of course, be a calamity."

Earlier, on November 15, 1923, Sir Adam advised the Ontario Hydro Municipal Association that:

"After full consideration of steam power I would not be averse to entering into a friendly arrangement with Quebec to take all its surplus power for sale in Ontario."

Those were Sir Adam Beck's published statements on this question. As one in continuous contact with him for seventeen years, and as remaining with the Commission subsequent to his death until 1934, a total period of twenty-seven years, I was aware of the consideration by Sir Adam and other Commissioners as to the possibility of utilizing steam plants, and I think I may be allowed to say what were the facts of the case and to assert that these facts will be fully vouched for by the records in the files of the Commission.

Steam plants were considered only as an undesirable alternative, and when Sir Adam created a steam branch of his staff for the purpose of studying this alternative, it was not a proceeding with the definite object of going ahead with the construction of such plants. This staff was installed for investigating the possibilities of steam, and Sir Adam was quite prepared to proceed with construction of such plants, if other sources failed. When he himself opened negotiations for the supply of the first Quebec power of 260,000 h.p. from the Gattineau River power sites, he knew that this action involved the suspension for the time being of steam plants.

Sir Adam had two purposes in his preparation of data on steam plants:

1. He believed in obtaining, well in advance, whatever legislation or other authority was necessary, in order to afford him the maximum of flexibility in pursuing any course he might select. Therefore, in case the water power sources should fail him, he obtained the sanction of the Government to proceed with steam plants if he were forced into such a course. This is what he meant when he used the words:

"the construction of auxiliary steam plants is the only alterna-

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tive which appears to furnish an immediate and sure method of meeting the impending power crisis at the present time."

Significance is attached to the phrase that "steam plants afforded the only alternative." It was, however, an alternative that Sir Adam was reluctant to adopt, and he and those who were associated with him, were greatly relieved when, being able to obtain Quebec power, the construction of steam plants was made unnecessary.

2. He had definitely in mind that these preparations gave a lever which he used to bargain with the Quebec power companies. As an actual fact, he employed this lever and it was in the end an important factor in obtaining the ultimate reduction to \$15.00 per horsepower.

There is therefore no justification for any assumption that steam plants formed a part of Sir Adam's Hydro program, that year or any other time, or for the assumption that the failure to construct these plants has resulted in the present power situation in Ontario.

May I outline some of the factors that show how undesirable steam, as an alternative to water generated power, would be in Ontario. *First:* steam power during the period under review would have cost from \$7.00 to \$8.00 per horsepower more than Quebec power under the same conditions as to supply and delivery. *Second:* coal must be imported from the United States, and is subject to embargo in times of war, such as was the case in the Great War. We therefore could not be at all times assured of an adequate supply of fuel. Strikes frequently occur, and even to-day there is a possibility of a tie-up in the bituminous coal fields in the United States. *Third:* coal prices fluctuate, and an increase of \$1.00 per ton in the price of coal would mean an increase of at least \$2.50 per horsepower in the cost of electric energy produced, if the plant was to operate 70% of the time. *Fourth:* the coal would have to be paid for in United States funds. In the past, the premium on U. S. funds has reached as high as 25%. No stability of prices can be secured with fluctuating exchange rates. I therefore say to you that for the reasons above, and as an engineer who has lived with this subject for many years, that steam power was not, having regard to the trend of growth for the then previous fifteen years and having regard to the circumstances of the day, in any way comparable to the source that was eventually chosen in Quebec.

We have thus considered the various alternatives which presented themselves in this period of impending power shortage. In 1924, a report based on studies of the engineers was submitted to the Commission giving estimates of the power requirements of the Niagara System, each year up to and including the year 1932. This report was based upon a thorough study of the power requirements of each Municipality.

The growth of load rapidly exceeded the estimates, causing Sir Adam Beck to make the following public statement on January 2, 1924:

"Moreover, statistics prepared by the Commission's Engineers show that all the power now available at Niagara, including the maximum possible capacity of the great plant at Queenston, will be exhausted by the year 1926, and, all the available additional power that can be commercially developed in the Trent district will be in use on the Central Ontario System by the same date.

"We are, therefore, actually face to face with a power crisis and within the next two or three years, drastic, if not desperate

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