

of primary load in Ontario last year over 1933 was 27 percent. This is the total primary consumption figure for all Ontario and comes from the Dominion Bureau of Statistics. It does not include export power, nor electric steam boiler power. We also know that Ontario has no large available power source which it can tap in the event of a power shortage which is apparently imminent in a few years. Now, how did this situation come about? Why is it that the government of Ontario is passing through a bill to repudiate these power contracts and make Ontario into a second-rate province?

Conclusions Based on Wrong Premises

It is my opinion that the Ontario government has come to conclusions which are based on wrong premises. These are, as far as I can make out, as follows: (1) Quebec power is unwanted and has been from the beginning. (2) That these Quebec power contracts were made by politicians after the depression set in. (3) That the contract prices for Quebec power are too high. (4) That the burden of the contracts will increase. (5) That the contracts are illegal.

Now I intend to show you that there has been no proof submitted that these premises are correct but, on the other hand, there is plenty of proof to show that they are incorrect. Let us take them in turn.

Only Niagara System Attacked

Note that all the criticism is directed against the Niagara system. The Commission has four other main systems, Eastern Ontario, Georgian Bay, Thunder Bay, and Northern Properties—all of which are doing very well indeed. The Commission buys power under contract for some of these other systems—but these contracts are not attacked.

We are told that this Niagara system power is and always has been unwanted. We know that Ontario is using more primary power today than it did at the peak of prosperity in 1929. Some may claim that the Niagara system's load is about the same as in 1929. I'll come back to that. We also know that in 1928 the Niagara system had not sufficient generating capacity to meet the increasing demands. Some of you may recall the power shortage of 1924 and 1925 when the Commission had to discourage various uses of power. At a time like this there are frantic telephone calls sent all over the country asking Hamilton, Kitchener or Galt and many other municipalities if there is not some way they can cut down their load. It might mean that certain industries are asked to close down for a short time, or half of the street lights might be turned off, or every other street car taken out of service. It is a frantic time for all concerned because if new sources of power are not available it becomes worse every day. You can't stop people buying new radios or electric irons, and you can't stop industry from improving its production methods. The use of electricity increases whether you like it or not.

We are told that this Quebec power was not needed and yet it is a matter of record that the Niagara system was saved from disaster by taking an additional 150,000 hp. from the Gatineau Power Company to meet its peak load requirements in 1929. This is one of the contracts to be repudiated.

Like a Rope Around our Necks

It is a matter of record also, that the trend of growth in the Niagara system demands from 1913 to

1929 was 11.4 percent per annum compounded. Instead, however, of contracting for this amount of power the Commission contracted only for a 7.7 percent per annum increase in capacity for the years 1929 to 1936. This means that if we had not experienced the depression, Ontario today would be short of power. As it is, she is taking up the slack and even if these power contracts are not repudiated the Niagara system will probably be again short of power in two or three years. If the contracts are repudiated, it will be like putting a rope around our necks.

Loose Evidence Presented

There has been so much loose evidence presented in the legislature and over the radio, that is ridiculous to any engineer who knows the situation, that it is difficult to know where to start. We have had evidence of load comparisons based on 20-minute firm peaks and statements made indicating that a small reserve above these peaks would be sufficient for the Hydro's system. Operating engineers know that such remarks are childish. In the first place, you may have peaks of less duration than 20 minutes which could not be handled with a small reserve. On the other hand, while you can meet your firm peak load you might not be able to supply energy. What I mean by this is the Commission can only use a certain amount of water at Niagara Falls. If it operates its plant there at full capacity even for a short time, it must cut them down at other times so that it does not use too much water.

Evidence of Hydro Engineers

A very interesting specially prepared report by two of the Commission's engineers was presented in the legislature by the Attorney-General to indicate that these Quebec power contracts were not needed in Ontario. As a matter of fact, this report proved that they were needed but, unfortunately, no one spotted it. The report I refer to was presented on February 27 and incidentally gave the capacity of the generating plants on the Niagara River, the normal capacity (continuous) as 810,000 horsepower. I would like to know how that word "continuous" got in that report? That figure mentioned happens to be the "maximum" capacity. However, the text of the report tells us that with the Niagara capacity and with the total Chats Falls capacity based on the November, 1934, load it might be possible to get on without any other Quebec power, although reference is made to the fact that Maclaren-Quebec power would be needed shortly and these engineers understood that a further supply of Maclaren power could be obtained on short notice. Please note that they refer to the total capacity of Chats Falls, meaning that the Hydro would have to purchase the complete output of the Ottawa Valley Power Company. The report ends up like this:

"We wish to call your attention particularly to the fact that in the estimates as set out herein, no allowance has been made for reserve plant capacity and without adequate reserve a major accident might very seriously reduce the generating capacity of the system and cause reduction in firm power load over a considerable period of time."

Another interesting comment they make is: "The DeCew Falls plant if reconstructed will be a low load-factor development and can only be of maximum service to the Niagara system when operated as a peak load plant and it appears that the next development to be proceeded with to meet the requirements of the

Niagara system would be a high load-factor development at some point on the Ottawa River, on the Niagara River or the St. Lawrence development, the final decision in regard to this matter will depend on the status of interprovincial or international relations."

Now what does this mean? It means that they do not recommend a steam plant. It also means that Ontario has no immediate prospects of generating power on a large scale anywhere. The Ottawa River where the Chats Falls plant is located is interprovincial. Do you think that the province of Quebec will be agreeable to Ontario building another joint plant on the interprovincial boundary when it has repudiated its contract with the Ottawa Valley Power Company owning half the Chats Falls plant? Is there any hope of getting St. Lawrence power when the Beauharnois plant within a few miles can install tomorrow another million and a half horsepower and export it to the United States?

I think this engineering report clearly indicates that Ontario today needs a lot more of that Quebec power than we are led to believe.

As far as the Niagara system is concerned, therefore, it can be easily proved that Quebec power was a necessity during 1928, 1929 and 1930. I have also given you evidence that some Quebec power is needed today and a great deal more will be needed this year because of the fact the load is rapidly climbing.

Ottawa Would be in Darkness

How about the Eastern Ontario system? Quebec power is used there also, but those contracts are not attacked because that system has not suffered the loss in load the Niagara system has. Take away Quebec power from Eastern Ontario and the city of Ottawa would be in darkness. Where would you get sufficient power for Ottawa and other cities in Eastern Ontario?

The only reason why the Niagara system is subjected to this criticism is because its load started to fall away at the tail end of 1930 and did not begin to increase until the end of 1932. With increasing power commitments and a dip in load it is having a time to catch up in revenue.

Why Niagara System's Load Dropped

Now then, why did the Niagara system act like this when other systems held their own? Simply because of the fact that the Commission supplied a small number of large power consumers which stopped production entirely. Take the Cyanamide plant which used 105,000 primary hp. in 1929 and uses 5,000 primary hp. today. That is the true answer to all this criticism. Hamilton had the same experience and its large industrial plants are not yet back to normal operating capacity. These large plants are coming back and if the Hydro Commission has no large reserve in power it is going to be caught short.

Why Contracts Were Made in 1930

Now, let us answer the criticism that certain power contracts were made after the depression set in. The stock market crash occurred in October, 1929. The Beauharnois contract was completed in November, 1929, the Chats Falls contract in February, 1930, and the Maclaren in December, 1930. If you look at a set of load charts for any central station system in Canada you will find that system loads were not affected until twelve months after the stock market crash.

What would you have done under those circumstances? You must remember that a power contract takes anywhere from twelve months to two years and in some cases three or four years to negotiate and terms are agreed upon long before the final signatures are given. In most cases the power companies had their construction work started, millions of dollars had been spent and apparently at that time the depression had no significant effect upon power system loads. Furthermore, the year 1930 was the biggest one in the Canadian central station industry's history.

Incidentally, during the year 1934 total primary power used in Canada was 14 percent above 1933 and 4.6 percent above the previous all-time record made in 1930. Note that the 14 percent gain last year does not include secondary power.

Now then, were these contracts made by politicians? I cannot say; I do not believe they were. I was on the Commission's staff from 1923 to 1926 and have since kept in close touch with its operations. I know that its engineers were studying the question of load growth and considering buying Quebec power as early as 1923. The operating engineers made out very complicated load growth tables and I am convinced that the power was bought upon their recommendations. I am also convinced that they went into costs very thoroughly and I know that all these power purchase agreements were the subject of much work by the Commission's engineering and legal staff.

An Engineer is Attacked

Some very unkind things have been said about a former chairman, C. A. Magrath, one of Canada's best-known engineers. It is due to Mr. Magrath's management in large part, that the Commission built up tremendous reserves, called contingency reserves, for the stabilization of rates, etc., which has enabled the Commission to carry on without any increases in power rates over the last three years. This engineer is now attacked and there is no one to defend him. The late J. R. Cooke would have been the first to come to his defence but he is not here now.

I can remember going to see him after the first contracts had been signed and I can remember complimenting him on his astuteness in obtaining Quebec power to build up Ontario's industries. He hadn't much to say but he asked me not to make the point too strong otherwise Quebec would get wise and political feeling might prevent us from getting any more power. Yet today Ontario has that power, and the opportunity to use it. In a few days perhaps, that opportunity will be gone forever.

If the Quebec government takes Ontario at its word, that all Quebec power contracts were illegal, and passed a bill prohibiting the export of power to Ontario, Ontario would be absolutely sunk.

Contract Prices Too High—Rubbish!

We are given to understand that the Ontario Hydro Commission is paying too much for Quebec power. On what grounds, may I ask?

The only comparison made was that of the Chats Falls plant where the Commission and the Ottawa Valley Power Company built a joint plant spanning the interprovincial boundary. We are told that the Hydro's power costs last year based on the full plant's capacity amounted to \$7.00 per horsepower. We are told that power is bought from the same plant at \$15 per horsepower and that therefore there is a profit of \$8 per horsepower to the private company. Such