

The Canadian Engineer

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Canada's Water Powers and Their Relation to the Fuel Situation

Canada Abounds in Valuable Water Powers—Location of Waterfalls Admirably Suited to Commercial Centres and Related Raw Materials—Paper Read Before the First General Professional Meeting of the Canadian Society of Civil Engineers, Toronto, March 26-27, 1918

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THE subject assigned to me in connection with this fuel-power symposium meeting of the Canadian Society of Civil Engineers is the relation of water power to the fuel situation in Canada. At first "blush" it might appear that water power has only an indirect and limited connection with the recent critical fuel shortage which through suspended effort has caused temporary industrial stagnation and local domestic hardships of enormous extent and involving great financial loss. Even a casual general survey of our fuel-power requirements, however, will indicate that not only has water power a very direct and important bearing on the present situation, but that water power must, in the future, take a very much greater share in our fuel-power burdens.

Heat, Light and Power Needs—One Problem

It is axiomatic that our heat, light and power needs must be considered as one great national problem, and also that Canada's domestic and industrial development depends primarily on the coordinated use of all the fuel-power resources of the Dominion.

Development along independent and divergent lines has, in the past, prevented adequate correlation of the great Canadian industries of fuel production and hydro power supply. There is now, however, as a result of the fuel shortage, developed a consensus of opinion among men familiar with fuel and hydro power matters in Canada, that there is between these allied industries, enormous scope for national co-operation which would be conducive to their mutual advantage, as well as to the common weal.

I propose to show: First, that water power must take a very prominent part, if the best use of the varied fuel-power resources of Canada is to be achieved; and second, that there must be evolved a national master fuel-power policy which will realize the best possible co-ordinated

and concomitant development and use of all the fuel-power resources of the Dominion.

Interdependence of Water Power, Coal, Wood, Peat, Oil and Gas

Within the last two days we have had recognized experts describe the possibilities and proper functions of our different available fuels—coal, wood, peat, oil and gas.

SOURCES OF DATA	CONSUMPTION	BRITISH COLUMBIA	ALBERTA	SASKATCHEWAN	MANITOBA	ONTARIO	QUEBEC	PRINCE EDWARD IS.	NEW BRUNSWICK	NOVA SCOTIA	GRAND TOTALS	RE MARKS	
This data obtained from: Alberta. Dept. of Public Works, Annual Report, 1916. British Columbia. Bureau of Mines, Annual Report, 1916. Canada. Dept. of Mines, Bureau of Production of Coal & Coke in Canada, 1916. Quebec. Dept. of Mines, Annual Report, 1916-17. New Brunswick. Dept. of Mines, Annual Report, 1916-17. Nova Scotia. Dept. of Public Works and Mines, Annual Report of the Commissioner, 1917-18. U.S. Geological Survey, Coal Fields of the United States, 1917. U.S. Geological Survey, Part 2, Production and Consumption, 1916.	Domestic											This compilation is based on 1916 figures. Consumption where known amounted to 2,000,000 tons, or about 1/2 of the amount in 1917. The balance is assumed from previous to previous as indicated hereafter. (1) Are from mine and other reports of previous years. (2) Are from coalfields of reports of previous years. (3) Are from coalfields, including the tonnage reported in previous and current consumption, both reported and domestic, production and distribution, and including the tonnage reported in water to arrive at a Domestic figure. Three figures cannot be obtained from New Brunswick reports. Differences in totals are accounted for partly by having arbitrary figures in some cases for purposes of tabulation and by different methods of tabulation and statistics. 1917. Same data available and published by the U.S. Bureau, Mining Department.	
	Anthracite	10,342	112,130	28,897	1,638	—	—	—	—	—	—		
	Bituminous	1,311,432	1,981,822	140,443	17,716	—	99,594	82,924	891,031	282,630	—		
	Lignite	21,142	959,522	13,424	39,252	—	—	—	—	—	—		
Total Domestic	1,342,616	3,053,484	132,364	58,606	—	99,594	82,924	891,031	282,630	—	10,701,530		
Imported													
Anthracite	—	Small	208,000	325,000	2,942,872	179,410	—	Small	Small	—			
Bituminous	—	Small	718,879	1,827,822	6,459,100	4,174,810	—	—	—	—			
Total Imported	—	Small	926,879	1,852,822	8,701,972	5,369,260	—	Small	Small	—	17,580,603		
Total Consumption	1,342,616	3,034,469	2,229,835	2,051,627	8,701,972	6,364,204	82,924	891,031	282,630	—	28,282,133		
Total Production	258,061	4,539,034	281,300	—	—	—	—	143,540	6,812,140	—	14,800,095		
Production over consumption	1,240,941	1,534,565	—	—	—	—	—	—	4,088,840	—	4,088,840		
Consumption over production	—	—	1,948,535	—	—	—	—	747,491	—	—	2,696,026		
Consumption no production	—	—	—	2,051,627	8,701,972	6,364,204	82,924	—	—	—	17,200,727		
		BRITISH COLUMBIA	ALBERTA	SASKATCHEWAN	MANITOBA	ONTARIO	QUEBEC	PRINCE EDWARD IS.	NEW BRUNSWICK	NOVA SCOTIA			



Plate No. 1.—Coal Consumption and Production in Canada

Practically every speaker has indicated their interdependence and their interchangeability of use. It remains for me to demonstrate the relation of "white" coal to all other fuel-power agencies, and to point out that they must all "coalesce" in meeting the fuel-power requirements of the country.

To furnish a quick general summary "bird's eye view" of the "white" and black coal situation in Canada, and to indicate their integrality, I have had several maps and diagrammatic statements specially prepared for submission at this meeting.