

The Canadian Engineer

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2,305,310 H.P. Developed from Water in Canada

That Is the Installed Capacity of Canadian Hydro-Electric Plants According to Census Just Completed by Ottawa Authorities—Installation of Additional Units in Present Plants Would Add 530,000 H.P.—Queenston and Other Developments Under Way Not Included

IN co-operation with the Dominion Water Power Branch, and aided by the Ontario Hydro-Electric Power Commission, the Quebec Streams Commission and other provincial organizations, the Dominion Census Bureau has just completed a census of the developed water power in Canada, the returns indicating a total of 2,305,310 h.p.

The accompanying table analyzes the installed turbine or water-wheel capacity by provinces and by use of power. The total of 2,305,310 h.p. is several hundred thousand horsepower in excess of any previous estimate, and proves that Canada's utilization of hydro-electric power is even more marked than had been realized.

Of the total water power developed, 1,727,471 h.p. is installed in central electrical stations,—that is, in stations developing electrical energy for distribution and sale; 352,214 h.p. in plants owned and operated by pulp and paper companies; and 225,625 h.p. in other manufacturing and industrial establishments.

vicinity of the sources of supply), has a direct bearing upon the amount of power developed. The exceptionally high ratio in the Yukon is accounted for by the extensive use of hydro power in the mining industry, in conjunction with the comparatively small population.

The per capita figures of hydro power developed in the Dominion, when compared with similar figures for other countries, are indicative of the leading position of this country, both in the extent and in the utilization of its water power resources.

Norway, and possibly Sweden, are the only countries where the per capita utilization of water power exceeds that of Canada. The most recent figures available for the United States indicate a utilization of less than 100 hydraulic horsepower per thousand of population.

The fundamental reason underlying the extensive use of water power in Canada is that practically every commercial centre from coast to coast, excepting only a few in

INSTALLED TURBINE HORSE-POWER IN CANADA

	*Central Electric Stations. H.p.	†Pulp and Paper. H.p.	Other Industries. H.p.	Total H.p.	H.p. per 1,000 Population.
Yukon	10,000	.....	3,392	13,392	1,574
British Columbia	221,625	46,450	44,348	312,423	506
Alberta	32,580	.....	300	32,880	63
Saskatchewan . . . . .	.....	.....	.....	.....	.....
Manitoba	64,100	.....	12,072	76,172	133
Ontario	791,163	133,952	59,945	985,060	359
Quebec	597,601	155,512	89,648	842,761	376
New Brunswick	6,878	2,800	5,191	14,869	41
Nova Scotia	3,354	13,500	9,170	26,024	51
Prince Edward Island	170	.....	1,559	1,729	19
	1,727,471	352,214	225,625	2,305,310	276

*Includes only stations which develop hydro-electric power for sale.

†Includes only the water power owned by pulp and paper companies.

The central stations already constructed throughout the Dominion are designed for the development of 530,000 h.p. more than the capacity of the machinery now installed. Of this amount, the installation of about 270,000 h.p. is at present under contemplation. These figures do not include the 300,000 h.p. Queenston plant which the Hydro-Electric Power Commission of Ontario has under construction, nor any of a number of smaller entirely new developments that are either planned or under construction.

Column 5 of the table discloses interesting figures concerning the development in the various provinces on a per capita basis. The hydro power developed per thousand of population ranges from 1,574 h.p. in the Yukon to 19 h.p. in Prince Edward Island and none in Saskatchewan. The average for the entire Dominion is 276 h.p.

Of course, the availability of hydro power (that is, the distribution, density and occupation of the population in the

the middle Prairie Provinces, has an abundance of water power available, not only for present needs but also for all anticipated requirements for many years to come.

The estimate of developed water horse-power in Canada that was published in the preliminary report of the British Conjoint Board of Scientific Societies (Water Power Committee) was 1,735,560 h.p. It is now seen that this figure was no less than 569,750 h.p. too low. The estimates for other countries, as included in the Conjoint report, were as follows:—

Austria-Hungary, 566,000 h.p.; France, 650,000 h.p.; Germany, 618,100 h.p.; Great Britain, 80,000 h.p.; Italy, 976,300 h.p.; Norway, 1,120,000 h.p.; Russia, 1,000,000 h.p.; Spain, 440,000 h.p.; Sweden, 704,500 h.p.; Switzerland, 511,000 h.p.; United States, 7,000,000 h.p.

The Conjoint report estimates that about 16 millions of the world's industrial horse-power are developed from