

# Central Electric Station Industry in Canada

Analysis by Dominion Water Power Branch—Summary of Principal Features—Primary Power Equipment—Equipment Per Capita—Hydro-Electric Power—Employees, Salaries and Wages—Financial Statistics—Capital Invested in Hydro-Electric Systems

**E**LECTRICAL energy, through its ease of transmission and its broad adaptability to domestic, industrial and commercial use, has become of paramount importance in our modern life. The generation of electricity, dependent for the greater part upon coal and water power, has offered outstanding advantages to the efficient utilization of the latter, and Canada has been quick to appreciate the peculiar advantages possessed by her strategically-located water powers and to realize in their development for hydro-electrical purposes, one of her greatest natural resources. In this development the central electric station industry has played a most important part, and in view of its exceptionally rapid development, particularly during recent years, a record of its present standing is of special interest.

## Scope of Analysis by Dominion Water Power Branch

The Dominion Water Power Branch, Department of the Interior, in co-operation with the Dominion Bureau of Statistics is publishing an analysis of the results of the second census of central electric stations in Canada, showing the status of this important industry at January 1st, 1919. The report includes statistics relative to central electric stations only, as defined for census purposes; i.e., stations which sell or distribute electrical energy for lighting, heating or general power purposes, other than that generated by industrial organizations for their own direct use in the operation of some other industry. The statistics, therefore, deal only with the generation and distribution of electrical energy in so far as such energy is not used directly by the station reporting. In each case where the central electric station operations are combined with those of some other industry, special care was taken to secure statistics relating only to

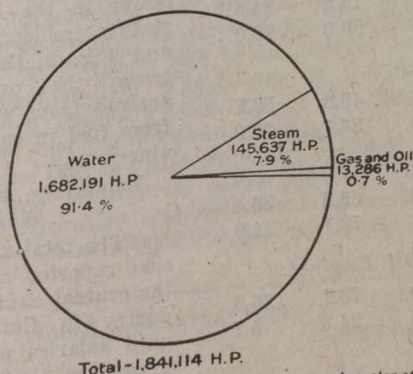


FIG. 1. Central Electric Stations.—Primary Power by character of Power not including the 117,528 h.p. installed in auxiliary fuel plants 1918

that part of the operations which are chargeable solely to the central station activities.

The central electric stations are divided into two fundamental classes; (a) generating stations, which include stations generating all or part of the power they sell or distribute, and (b) non-generating stations which purchase from some other station all the energy they sell or distribute. The analysis further divides the stations according to ownership and type of power used, into the following classes; municipal, commercial, hydro-electric power, and fuel power stations. The statistics are given for the Dominion as a whole, and by provinces. As the analysis has just been completed and some time must necessarily elapse before the report is ready for general distribution, the following brief summary of the statistics has been prepared.

The principal items reported, together with a comparison between the totals for commercial or privately-owned and municipal or publicly-owned stations are summarized in table 1. The total number of stations reporting is 795, of which 515 or 64.8% generate their own power, and 280 or 35.2% are of the non-generating type. The commercial stations numbered 377, and the municipal stations 418. Of the generating stations 332 are commercial and 183 municipal, while of the non-generating stations 45 are commercial and

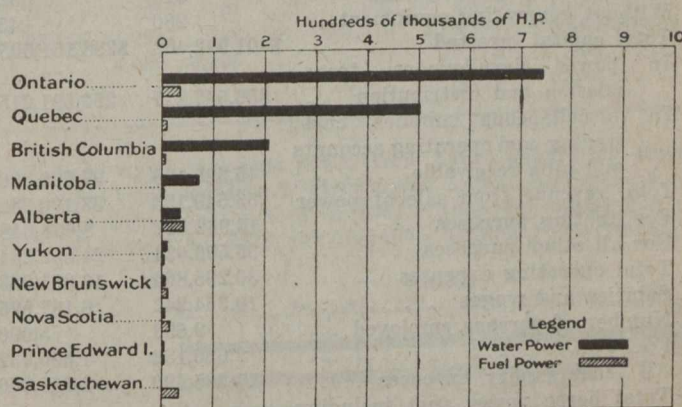


FIG. 2. Central Electric Stations.—Water vs Fuel Power by Provinces (not including the primary power equipment of auxiliary power plants 1918)

235 municipal. As noted in the results of the last census the system of the Hydro-Electric Power Commission of Ontario with its extensive distribution, selling blocks of power to local municipal commissions, accounts for a large proportion of the municipal non-generating stations.

The aggregate capacity of all primary power machines reported is 1,958,642 h.p., of which 1,841,114 h.p. is installed in main plants and 117,528 h.p. in auxiliary or stand-by plants. Of the total for the main plants 1,434,196 h.p. or 77.9% was reported by commercial stations, and 406,918 h.p. or 22.1% by municipal stations, while of the auxiliary plant equipment, the former accounted for 110,853 h.p., and the latter 6,675 h.p. Table 2, presents by provinces, the total capacity of prime movers of different types and the dynamos installed in central electric stations. The figures are also given separately for main plants and for auxiliary or stand-by plants. According to source of power the total for all prime movers is divided as follows: From water, 1,682,191 h.p.; from steam, 262,562 h.p., and from gas and fuel oil, 13,889 h.p.

## Power Equipment Per Capita

The relation of the installed primary power and dynamo capacity to population is given in table 3. The per capita analysis is given by provinces as this is the only feasible basis upon which such a comparison may be made in connection with the central electric station industry. Consideration of other elements, such as the varying density and the occupation of the population, will assist in a better understanding of the variations in the per capital development. The average primary power installation of the main plants per thousand population for the Dominion is 209 h.p.

The provincial averages on this basis are as follows:—Yukon, 1,135 h.p. per thousand population; British Columbia, 302 h.p.; Ontario, 277 h.p.; Quebec, 263 h.p.; Alberta, 129 h.p.; Manitoba, 121 h.p.; New Brunswick, 50 h.p.; Saskatche-