

# CHAPTER XIII.—POWER GENERATION AND UTILIZATION IN CANADA.\*

## CONSPECTUS.

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This chapter of the Year Book has been broadened to cover all power, however generated, and its utilization. Certain sections, such as those dealing with power utilization in industry and power generated from fuel, are based on material formerly appearing in the Manufactures Chapter, combined with similar but new data covering the mining industry. Other sections are entirely new and cannot be regarded as complete owing to insufficiency of available data. The purpose has been to co-ordinate all information respecting power generation and utilization instead of limiting this chapter, as in the past, to water power as a natural resource and a review of central electric stations.

### Section 1.—Water Power.

The fresh-water area of Canada is officially estimated at 228,307 square miles an area nearly twice as large as the whole land area of the British Isles, and certainly larger than the fresh-water area of any other country in the world. As many parts of this well-watered country are situated at considerable heights above sea-level, there are great sources of potential energy in the rapids and waterfalls of the rivers conveying the waters from these areas to the sea. Water power, therefore, is among the chief natural resources of Canada, and its development has in recent years contributed materially to swell the volume of Canadian production.

#### Subsection 1.—The Water-Power Resources of Canada and Their Utilization.

In considering the relative importance of different natural resources, the inherent quality of inexhaustibility by use that water power possesses places it in a unique position—its use by industry in no way limits the ever-recurring cycle of evaporation, condensation, precipitation, and run-off by which its supply is renewed.

Another significant feature, as affecting Canada, is the fortunate occurrence of large water-power resources in what has been termed "the acute fuel zone" where native coal is not conveniently or economically available. The Provinces of Ontario and Quebec, without native coal, include the principal centres of population and manufacturing, and abound in many raw materials of industry; they contain

\* Section 1 of this chapter has been revised under the direction of J. T. Johnston, Controller, Dominion Water and Power Bureau, Surveys and Engineering Branch, Department of Mines and Resources, and Sections 2, 3 and 4 (except as otherwise stated) by G. S. Wrong, B.Sc., Chief, Transportation and Public Utilities Branch, Dominion Bureau of Statistics.