

warrant development at the present time. In Saskatchewan, large water power resources exist in the central and northern parts of the province, principally on the Churchill, Fond du Lac, and Saskatchewan Rivers. In 1963, power from the first development on the Saskatchewan River was fed into the transmission network of the provincially owned Saskatchewan Power Corporation, which serves the more settled areas of the province. Previously, these areas had been served by thermal-electric plants fuelled by coal, oil or natural gas, the hydro-electric power generated in the province being used almost exclusively for mining purposes in northern areas.

The pace of industrial expansion in Ontario since the turn of the present century has made heavy demands on the province's substantial water power potential, to the extent that hydro-electric installed capacity in Ontario is exceeded in total magnitude only by that of Quebec. The largest hydro-electric development in the province is located on the Niagara River at Queenston, where the Sir Adam Beck-Niagara Generating Stations Nos. 1 and 2 and the associated pumping-generating station have a combined capacity of 2,521,000 hp. Completion of development of most of Ontario's water power sites located within economic reach of demand areas has led, within the past few years, to an increasing dependence upon electric energy generated in thermal plants and to the building of Canada's first nuclear thermal plants. An important contributing factor is the growing recognition of the benefits offered by integrating the operation of hydro and thermal plants. Despite this growing emphasis on thermal power, development of a number of the province's more remote hydro sites is now considered economically feasible, largely as a result of recent marked advances in extra-high-voltage, long-distance transmission techniques. Several of these sites are under construction.

With more than 30 p.c. of the national recorded total, Quebec's water power resources are the most extensive in the country. Quebec leads the other provinces also in terms of installed turbine capacity with a total installation of some 13,200,000 hp.—about 47 p.c. of the total for all of Canada. The greatest concentration of hydro-electric capacity in one plant in Canada is installed in the 2,145,000-hp. Beauharnois development on the St. Lawrence River. Notable also are the Bersimis I development on the Bersimis River and the Shipshaw plant on the Saguenay River, each with an installed capacity of 1,200,000 hp. A major power scheme involving the harnessing of the headwaters of the Manicouagan and Outardes Rivers is under construction. The completed project will make available about 7,300,000 hp. of additional capacity at new and existing developments on the two rivers.

The water power resources of New Brunswick and Nova Scotia, although small in comparison with those of other provinces, are a valuable source of energy. Numerous rivers in both provinces provide moderate-sized power sites advantageously situated for urban or rural use. In Prince Edward Island there are no large streams and, consequently, water power plants are limited in size to those used for small mills. Topography and runoff conditions on the Island of Newfoundland are favourable for the development of power, even though river drainage areas are generally not large. Considerable power development has taken place on the Island, mainly to serve the pulp and paper industry. Labrador has what is considered to be one of the largest sources of water power in Canada in the Hamilton River and its tributaries.

An accurate comparison of the magnitude and state of development of Canada's water power resources with those of other countries is not possible because world statistics are incomplete and are not tabulated on the same basis. Available information would indicate, however, that Canada is exceeded only by the United States in the total amount of hydraulic turbine capacity actually installed. In terms of installed water power capacity per thousand population, Canada is second only to Norway. It is interesting to note that, with the exception of those of the United States, Canada's water power resources, fifth in order of magnitude, are more readily available to prospective markets than is the case in any of the countries that have greater power potential.

Table 1 gives, by province or territory, the estimated total water power resources of Canada and the total existing capacity of all water power plants.