

Dec. 31, 1959 by the inclusion of new installations completed during the year and by deletions of old units that were dismantled.

3.—Developed Water Power, by Province, as at Dec. 31, 1959

Province or Territory	Turbine Installation		Total ¹
	Utilities ¹	Industries ²	
	hp.	hp.	hp.
Newfoundland.....	269,015	101,120	370,135
Prince Edward Island.....	240	1,420	1,660
Nova Scotia.....	168,375	14,793	183,168
New Brunswick.....	227,945	26,930	254,875
Quebec.....	8,110,678	3,204,729	11,315,407
Ontario.....	7,503,310	478,841	7,982,151
Manitoba.....	763,000	15,900	778,900
Saskatchewan.....	125,500	3,335	128,835
Alberta.....	311,530	1,065	312,595
British Columbia.....	1,711,887	1,797,573	3,509,460
Yukon and Northwest Territories.....	31,540	19,700	51,240
Canada.....	19,223,020	5,665,406	24,888,426
Percentage of total installation.....	77	23	100

¹ Includes only hydro-electric stations that develop power mainly for sale.
developed by industries mainly for their own use.

² Includes only water power
³ Includes all water wheels and hydraulic turbines installed.

Section 2.—Thermal Power*

Thermally produced electric power capacity has expanded at a phenomenal rate since World War II. It has been estimated that the ratio of generating capacity in central thermal and hydro stations has sharply narrowed from 1:15 to 1:7 in the ten-year interval prior and subsequent to 1945. In 1959, this ratio approached 1:5 with the probability that by 1980 it would be as little as 1:2.

The accelerating trend toward thermal power developed significantly within the years 1950-59, particularly in the Atlantic and Prairie Provinces and in British Columbia. While Quebec, Ontario and the Northwest Territories depend less on thermally generated power than the remainder of Canada, these regions too will eventually have need for such power.

This trend has been brought about for a number of reasons, mainly of economic expediency. Canada's rapidly expanding economy demands ever-increasing supplies of electric energy to serve a growing population and industrial complex. Supplies of hydraulic energy within economic transmission distance of populated areas are becoming fewer and more costly to develop. Expenditure of large amounts of capital required to develop single blocks of hydro power at distant points cannot be justified unless there is immediate use for all of the power generated at a load factor which warrants its transmission over long distances. Moreover, the load on the established electrical systems in many areas now needs firming with extra supplies of reliable thermal energy not heretofore required, and this can be provided at lower capital cost per unit of installed capacity than by hydro facilities which may be affected by periodic water shortages.

The trend is well exemplified by reference to the vast complex of The Hydro-Electric Power Commission of Ontario, one of the world's largest single power operations. At the end of 1959 this system had generating resources of 5,756,640 kw. of which only 771,965 kw. were installed in thermal stations. Additional steam capacity under construction amounted to 1,500,000 kw. with forecast of about 3,000,000 kw. to meet requirements by 1970. The Commission's long-term forecast estimates that, if nuclear electricity is not available at competitive cost by 1980, 26,500,000 tons of coal annually, at a cost of some \$300,000,000,

* Revised in the Transportation and Public Utilities Section, Public Finance and Transportation Division, Dominion Bureau of Statistics.