This trend has been brought about by a number of factors, 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 1960 this system had generating resources of 5,906,950 kw. of which only 995,900 kw. were installed in thermal stations. Additional steam capacity under construction amounted to 1,800,000 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, will be required to fuel its steam capacity which by 1980 may amount to 10,000,000 kw. or twice the available generating facilities available from hydraulic sources.

The report of the seventh survey of capability and load shows that from 1950 to 1960 the net generating capability of thermal stations increased by 385 p.c., as compared with 115 p.c. for hydro stations, with a forecast that by the end of 1963 thermal station net generating capability will have advanced over 1950 by 653 p.c. as against 128 p.c. for hydro stations.

Table 4 gives, by province, the estimated amount of increase in net generating capability and the percentage annual increment in thermal and hydro facilities for the period 1950-63. These data clearly indicate the growing importance of thermal generating capacity in comparison with hydro, and that, proportionately, the rate of growth is higher than for hydro in all provinces.

4.—Estimated Increase in Net Generating Capability, by Province, for the Period 1950-63

Province or Territory	Increase in Thermal Facilities		Increase in Hydro Facilities	
	Amount	Annual Increment[1]	Amount	Annual Increment[1]
	'000 kw.	p.c.	'000 kw.	p.c.
Newfoundland	32	10.5	197	6.0
Prince Edward Island	27	10.5	—	—
Nova Scotia	271	10.9	40	2.4
New Brunswick	154	7.3	131	7.2
Quebec	86	11.9	4,847	6.0
Ontario	2,324	21.6	3,202	6.8
Manitoba	284	8.6	305	4.4
Saskatchewan	540	13.1	160	8.4
Alberta	761	17.4	236	10.8
British Columbia	606	16.6	1,889	9.4
Yukon and Northwest Territories	9	—	23	7.6
Canada	**5,094**	**16.7**	**11,030**	**6.9**

[1]Compounded. A sustained annual percentage increase of 7.5 roughly indicates that the generating capability will double in ten years.

Table 5 shows, provincially, the amount of installed capacity and electricity generated in thermal stations in 1959, with percentage of total in each case. Preliminary figures for the electricity generated in 1960 are included.