

River. On the basis of preliminary investigations, it is estimated that, with total regulation and complete use of the head susceptible of development, the hydro-electric potential of the South Nahanni River would be close to 1,000,000 kw. Indications are that the rivers draining the District of Keewatin, north of Manitoba, could also contribute materially to the total power potential of the Northwest Territories.

Subsection 4.—Thermal Power Generation

The incidence of immense water power resources in Canada and the brisk pace of their development has tended to overshadow the very considerable contribution being made by thermal energy in the nation's power economy. At the end of 1966, the total installed thermal capacity in Canada was 8,704,000 kw., about 28 p.c. of the total electric generating capacity in the country. The fact that energy produced in thermal plants during the year accounted for only 18 p.c. of the total may be attributed in part to the fact that a considerable amount of the capacity installed is maintained for stand-by purposes. Emphasis on thermal plant construction is likely to become more marked as development of the nation's water power reserves becomes more complete.

Conventional Thermal Power.—Approximately 85 p.c. of all of the conventional thermal power generating equipment in Canada is driven by steam turbines. The magnitude of the loads being carried by steam plants has led to the installation of steam units with capacities as high as 300,000 kw. Even larger units, of 500,000-kw. capacity, will go into service within the next two or three years. The remainder of the load is carried by gas turbine and internal combustion equipment. The flexibility of internal combustion engines makes this type of equipment particularly suitable for meeting power loads in smaller centres, especially in the more isolated areas.

Table 1 (p. 660) shows that the Provinces of Prince Edward Island, Nova Scotia, Saskatchewan and Alberta depend on thermal capacity for most of their power requirements and that New Brunswick has slightly more thermal than hydro. For Ontario, where hydro capacity is now about twice the thermal, forecasts based on present construction schedules indicate that by the early 1970s total installed thermal capacity will have overtaken hydro.

With the exception of several large plants in St. John's and Grand Falls, most of the thermal-electric capacity in Newfoundland is made up of relatively small units used to supply power to small, often isolated communities. With the wealth of water power readily available in the province, it is not likely that Newfoundland will have need for large thermal stations for some time to come. In Prince Edward Island, almost all the generating capacity is oil-fuelled; in Nova Scotia, most of the energy generated in thermal-electric utility plants is derived from coal and the remainder from petroleum fuels; and in New Brunswick petroleum fuels provide slightly more than half of the thermal-electric energy.

The abundance of Quebec's water power wealth, much of it within economic transmission distance of existing demand areas, has so far limited the application of thermal power to specific local use. However, the growing emphasis on thermal power in other parts of Canada is also beginning to be apparent in Quebec, where thermal capacity will serve not only to help guarantee an adequate power supply in the face of increasingly heavy demands but also to render the almost exclusively hydro-electric base more flexible through integrated operation. Quebec's largest thermal plant, the 300,000-kw. Tracy Station near Sorel, was doubled in generating capacity in 1967. Quebec's first nuclear station, on the south shore of the St. Lawrence River between Gently and Bécancour, is scheduled for service in 1971 with 250,000 kw. of electric generating capacity.

Ontario has more thermal capacity than any other province in Canada; capacity installed at the end of 1966 totalled 3,922,836 kw., which was about 45 p.c. of the national total. The 2,900,000 kw. of conventional thermal capacity and 1,080,000 kw. of nuclear thermal capacity scheduled for service in the period 1967-71 will increase considerably