

**Equipment of Central Electric Stations.**—The main-plant primary power equipment of all central electric stations aggregated 7,935,867 h.p. in 1940. This included water wheels and turbines, steam-reciprocating engines and turbines and internal-combustion engines. The hydraulic power machines greatly predominated over the other prime movers, providing 95.4 p.c. of the total capacity, with steam turbines, steam-reciprocating engines and internal-combustion engines making up the remaining 4.6 p.c. Not included in the above were steam-engines and internal-combustion engines with a capacity of 194,914 h.p., or 2.4 p.c. of the total power capacity, installed as auxiliary or standby equipment. Power equipment used in mining and manufacturing industries is dealt with at pp. 339-343.

Central electric stations that have no water power but are operated by steam- and internal-combustion engines are, on the whole, small stations. Of the 39 main-plant steam-reciprocating engines in central electric stations in 1940, only 8 were of over 500 h.p. capacity. The steam turbines averaged 4,570 h.p. with 22 units averaging 10,333 h.p., but there were only 70 steam turbines in the industry and these were confined to 29 stations, whereas the 836 water wheels and turbines averaged 9,052 h.p., including 4 at 65,000 h.p. and 5 at 66,000 h.p. each.

The majority of the fuel-using stations are primarily for lighting purposes, using the cheapest fuel procurable, generally oil or local coal. In the Prairie Provinces bituminous and lignite coals are used for the steam-engines and gasoline, oil distillates and producer gas for the internal-combustion engines.

Of the 430 main-plant internal-combustion engines in central electric stations in 1940, 234 or 54 p.c., were in Saskatchewan, 94 or 22 p.c. in Alberta and 32 or 7 p.c. in Manitoba.

During 1940, the thermal engines produced 585,035,000 kwh. at a cost for fuel of \$2,448,016, an average of 0.4 cent per kwh. This production was, however, less than 2 p.c. of the total output.

#### 6.—Main-Plant Equipment of Central Electric Stations, by Provinces, and Total Auxiliary Equipment, 1940

NOTE.—kva. means kilo-volt-amperes.

| Type of Equipment and Province   | Power Plants | Water Wheels and Turbines |                  |                  | Steam-Engines, Steam Turbines and Internal-Combustion Engines |                |                  | Dynamos      |                  |                  |
|----------------------------------|--------------|---------------------------|------------------|------------------|---|----------------|------------------|--------------|------------------|------------------|
|                                  |              | No.                       | Capacity         | Average Capacity | No.   | Capacity       | Average Capacity | No.          | Capacity         | Average Capacity |
|                                  | No.          |                           | h.p.             | h.p.             |   | h.p.           | h.p.             |              | kva.             | kva.             |
| <b>MAIN-PLANT EQUIPMENT</b>      |              |                           |                  |                  |   |                |                  |              |                  |                  |
| P.E. Island.....                 | 9            | 7                         | 392              | 56               | 12  | 7,967          | 664              | 18           | 6,256            | 348              |
| Nova Scotia.....                 | 45           | 57                        | 102,990          | 1,807            | 30  | 66,961         | 2,232            | 87           | 141,659          | 1,628            |
| New Brunswick..                  | 13           | 16                        | 105,760          | 6,610            | 15  | 33,898         | 2,260            | 31           | 118,747          | 3,836            |
| Quebec.....                      | 97           | 271                       | 3,880,505        | 14,320           | 8   | 2,750          | 344              | 278          | 3,412,195        | 1,227            |
| Ontario.....                     | 135          | 348                       | 2,262,164        | 6,500            | 15  | 1,290          | 86               | 361          | 1,818,209        | 5,037            |
| Manitoba.....                    | 25           | 43                        | 508,300          | 11,822           | 38  | 4,336          | 114              | 81           | 411,310          | 5,078            |
| Saskatchewan....                 | 139          | Nil                       | -                | -                | 261   | 165,387        | 634              | 255          | 139,383          | 547              |
| Alberta.....                     | 71           | 11                        | 69,140           | 6,285            | 122   | 78,291         | 642              | 127          | 120,833          | 951              |
| British Columbia and Yukon.....  | 68           | 83                        | 637,837          | 7,685            | 38  | 7,899          | 208              | 121          | 522,619          | 4,319            |
| <b>Totals.....</b>               | <b>602</b>   | <b>836</b>                | <b>7,567,088</b> | <b>9,052</b>     | <b>539</b>  | <b>368,779</b> | <b>684</b>       | <b>1,359</b> | <b>6,691,211</b> | <b>4,924</b>     |
| <b>AUXILIARY-PLANT EQUIPMENT</b> |              |                           |                  |                  |   |                |                  |              |                  |                  |
|                                  | 64           | Nil                       | -                | -                | 125   | 194,914        | 1,559            | 115          | 166,367          | 1,447            |
| <b>Grand Totals...</b>           | <b>666</b>   | <b>836</b>                | <b>7,567,088</b> | <b>9,052</b>     | <b>664</b>  | <b>563,693</b> | <b>849</b>       | <b>1,474</b> | <b>6,857,578</b> | <b>4,652</b>     |