

low-priced coal while in the central provinces of Canada, with no coal but with an excellent supply of water power, conditions favour the generation of power in central stations.

Equipment of Central Electric Stations.—The main-plant primary power equipment of all central electric stations aggregated 7,476,976 h.p. in 1938. 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 95.7 p.c. of the total capacity, with steam turbines, steam reciprocating engines, and internal combustion engines making up the remaining 4.3 p.c. Not included in the above were steam engines and internal combustion engines with a capacity of 195,628 h.p., or 2.6 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. 387-390.

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 43 main-plant steam reciprocating engines in central electric stations in 1938, only 7 in number were over 500 h.p. The steam turbines averaged approximately 4,078 h.p. with 20 units averaging 9,236 h.p., but there were only 68 steam turbines in the industry and these were confined to 29 stations, whereas the 816 water wheels and turbines averaged 8,769 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 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 397 main-plant internal combustion engines in central electric stations in 1938, 203 or 51 p.c., were in Saskatchewan, 74 or 19 p.c. in Alberta, and 41 or 10 p.c. in Manitoba.

During 1938, the thermal engines produced 463,375,000 kwh. at a cost for fuel of \$2,010,902, an average of 0.5 cents per kwh. This production was, however, less than 2 p.c. of the total output.

7.—Main-Plant Equipment of Central Electric Stations, by Provinces, and Total Auxiliary Equipment, 1938.

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.
			h.p.	h.p.		h.p.	h.p.		kva.	kva.
MAIN-PLANT EQUIPMENT.	No.									
P.E. Island.....	9	7	392	56	13	7,972	613	18	6,256	348
Nova Scotia.....	48	54	94,389	1,748	34	64,736	1,904	88	135,122	1,535
New Brunswick..	13	16	105,760	6,610	16	33,489	2,093	32	118,403	3,700
Quebec.....	97	264	3,568,110	13,516	8	2,750	344	271	3,157,985	11,653
Ontario.....	135	342	2,251,013	6,582	16	1,415	88	356	1,809,875	5,081
Manitoba.....	31	42	481,800	11,472	48	4,516	94	91	393,454	4,323
Saskatchewan....	123	Nil	-	-	229	140,750	615	227	119,036	524
Alberta.....	62	11	69,140	6,286	105	60,615	577	111	104,393	940
British Columbia and Yukon.....	71	80	584,997	7,312	39	5,132	131	120	483,344	4,028
Totals.....	589	816	7,155,601	8,769	508	321,375	633	1,314	6,327,868	4,816
AUXILIARY-PLANT EQUIPMENT.	64	Nil	-	-	127	195,628	1,828	118	166,660	1,412
Grand Totals...	653	816	7,155,601	8,769	635	517,003	814	1,432	6,494,528	4,535