TABLE NO. 11—COST OF CONCRETING BOTTOM, STA. 21+50 TO 23+31 AND 23+46 TO 28+05

Class of Labor.	Hrs.	Length.	Unit Cost in hrs. per lin. ft.	Unit Cost in hrs. per cu. yd.
Foreman	63	640′	0.09	0.88
Labor "F"	239	640′	0.37	3.32
Labor "Z"	53	640′	0.08	0.74
Engineer	58	640′	0.09	0.81
Finisher	78	640′	0.12	1.08
Team	..	....	....	....
Class "B"	360	640′	0.56	5.00
Watchman	54	640′	0.08	0.75

ELECTRIC GENERATION IN CANADA

Directory of Central Stations Issued by the Commission of Conservation Gives Complete Data Regarding Hydro-Electric, Steam-Driven and Producer Gas Plants

INSTALLED capacity of central electric generating stations in Canada is 2,107,743 h.p., although the total maximum load is only 1,078,298 k.w., according to a report on "Electric Generation and Distribution in Canada," written by Leo G. Denis and issued by the Commission of Conservation.

"The investigation into this subject has extended over a number of years and has been a most comprehensive one." says "Conservation," the official organ of the Commission. "Two of the principal points to bring out are the large part water-power plays in the production of electricity and the fact that over three times as much power is produced by privately owned plants as by those publicly owned."

There are, according to the report, 565 electric generating plants in Canada, supplying 752 distributing systems, which serve 973 localities. Classified according to the prime-movers used, these plants are divided as follows:—

270 hydro-electric, aggregating ..... 1,806,618 h.p.
201 steam plants, aggregating ..... 288,202 h.p.
49 gas plants (nearly all producer-gas), aggregating ..... 8,157 h.p.
45 oil or gasoline engine plants, aggregating 4,766 h.p.

These figures give a very fair idea of the power situation, and show the unquestionable predominance of water-power. In the Maritime Provinces, steam and water-power predominate with the former in the ascendancy. In Quebec, Ontario and eastern Manitoba, water-power is the dominating source of power, every large centre and most of the smaller ones being supplied by electricity produced from water-power. In the Middle West, large plants are steam operated, while the smaller ones use internal combustion engines. In British Columbia and western Alberta, water-power again predominates, but the generous coal supply in certain districts also permits considerable steam operation.

In the large hydro-electric installations, the report says, the type of plant is of the most up-to-date and substantial construction, but the same, unfortunately, cannot be said of many of the small plants, particularly the older ones. Old, leaky dams and inefficient types of water-wheels in bad repair are often the real causes of shut-downs attributed to lack of water. Likewise in the large steam plants, efficiency is shown but this is not generally true of the smaller ones. For the prairie provinces where fuel and the cost of generation are high in price, the report suggests that it would be more economical to generate electric power in large central steam plants and distribute it over transmission lines.

The report says that there are 207 municipal or publicly owned plants of 452,508 h.p. capacity and 358 plants privately owned with a capacity of 1,655,235 h.p. The Niagara system of the Ontario Hydro-Electric Power Commission is the largest under public ownership. It has a load of over 201,000 h.p., supplies 120 municipal distributing systems and serves an area of 210 miles long by 85 wide. The largest privately owned system is the Shawinigan in Quebec, with a load of 205,000 h.p., supplying 76 distribution systems and serving a triangular area with a base of 140 miles and a height of 75 miles.

The largest hydro-electric development is 488,800 h.p., in the three large power plants at Niagara. The large installations are not all confined to this site, however, as there are, in addition, 5 plants of over 100,000 h.p. and 36 plants of over 10,000 h.p. capacity. The largest single plant is the Ontario Power Co., now operated by the Ontario Hydro-Electric Power Commission at Niagara, with a total capacity of 211,300 h.p. The largest single unit thus far installed in Canada is 20,000 h.p., at Grand'mere, Que., though the Ontario Hydro-Electric Chippawa plant will contain units of 50,000 h.p., while future plans are said to contemplate use of 100,000 h.p. units.

The average head of water utilized is not exceedingly high, but many large hydro-electric plants operate under fairly high heads, such as 140 to 180 ft. at Niagara, 145 ft. at Shawinigan, 83 ft. at Grand'mere and 400 ft. at the Coquitlam-Buntzen plants near Vancouver. The highest head in eastern Canada is 540 ft., at the 8,000 h.p. plant at Eugenia Falls, Ont., while, in the West, a head of 1,820 ft. is utilized at Britannia Beach, B.C., where the development also provides a total head of 3,530 ft. in two steps of 1,450 ft. and 2,080 ft. for the direct operation of other machinery. On the other hand, one of the largest plants, recently installed, at Cedars, Que., operates under a head of 30 feet.

The 26,667-horse-power plant at Hamilton, Ont., is the largest steam-power plant in Canada and is used as an auxiliary. The 14,234-h.p. plant at Edmonton, Alta., is the largest steam plant operated continuously, says the report.

CENTRAL ELECTRIC GENERATING PLANTS IN CANADA, SHOWING CAPACITY, OWNERSHIP AND PRIME MOVERS

(From report issued by the Commission of Conservation)

Province	Plants		Ownership: Private		Ownership: Public		Kind of prime mover: Hydraulic		Kind of prime mover: Steam		Kind of prime mover: Internal Combustion	
	No.	Capacity h.p.	No. of Plants	Total capacity h. p.	No. of Plants	Total capacity h. p.	No. of Plants	Total capacity h.p.	No. of Plants	Total capacity h.p.	No. of Plants	Total capacity h.p.
Nova Scotia	38	27,177	24	23,064	14	4,113	12	3,474	23	23,478	3	225
Prince Edward Island	9	1,314	9	1,314	..	.....	5	207	2	475	2	632
New Brunswick	23	18,607	16	16,212	7	2,395	8	7,462	12	10,014	3	1,130
Quebec	119	625,061	99	604,903	20	20,158	92	585,911	20	38,791	7	359
Ontario	173	899,856	105	609,658	68	290,198	113	831,004	50	66,519	10	2,333
Manitoba	23	103,015	8	53,706	15	49,309	4	78,550	13	23,841	6	624
Saskatchewan	62	30,593	26	2,682	36	27,911	..	.....	15	26,585	47	4,008
Alberta	52	85,117	27	43,235	25	41,882	4	31,980	42	51,805	6	1,332
British Columbia	63	306,776	41	290,234	22	16,542	31	258,029	22	46,467	10	2,280
Yukon	3	10,227	3	10,227	..	.....	1	10,000	2	227	..	.....
Canada	565	2,107,743	358	1,655,235	207	452,508	270	1,806,618	201	288,202	94	12,923