

57D-21  
1930

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TRANSPORTATION AND PUBLIC UTILITIES BRANCH  
OTTAWA

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## PRODUCTION AND USE OF ELECTRIC ENERGY IN CANADA

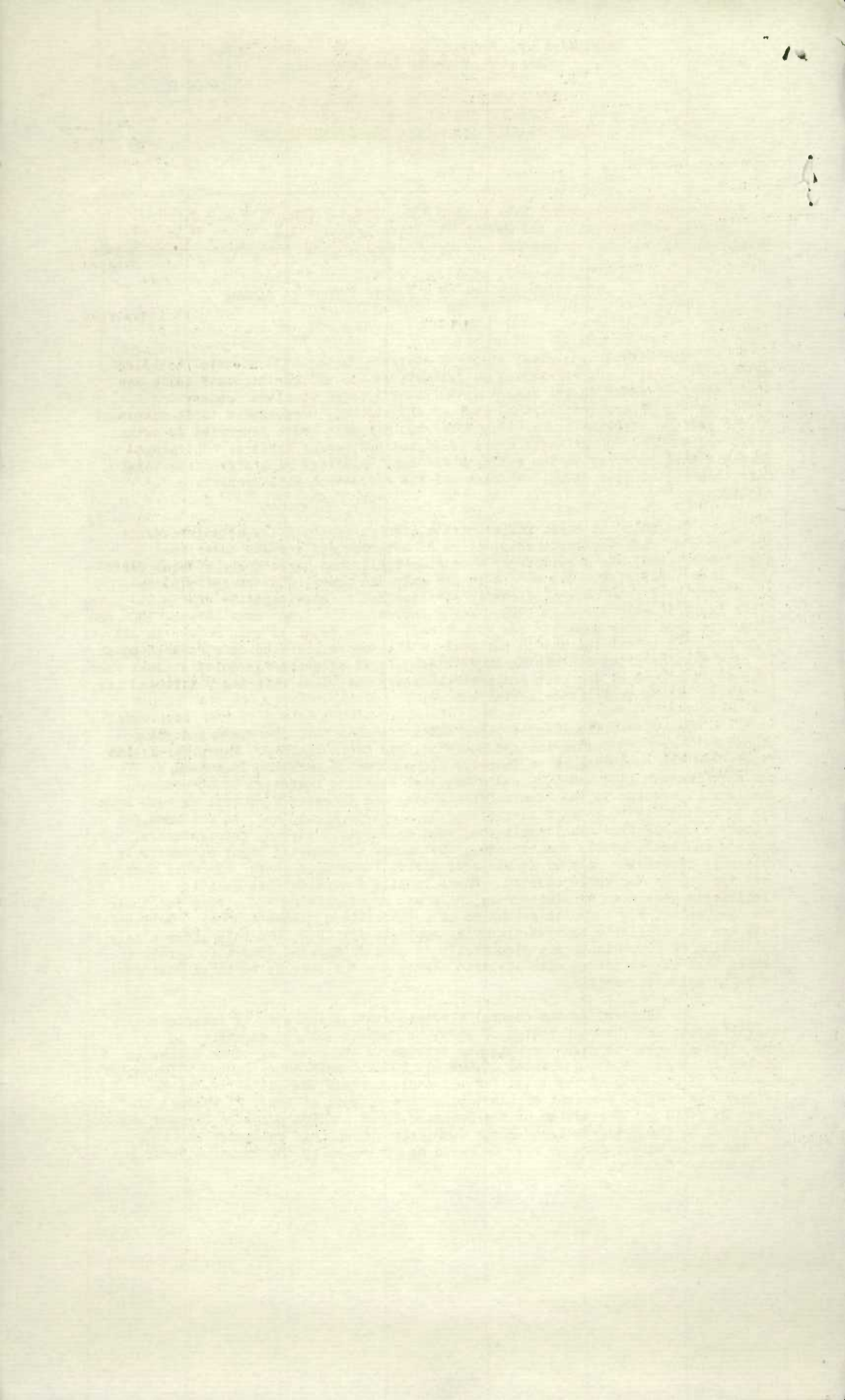
1930

The output of central electric stations during 1930 amounted to 18,256 million kilowatt hours, including an estimate of 400 million kilowatt hours for small stations which do not report monthly. The large stations, generating approximately 98 per cent of the total of all stations, reported a total output of 17,856,122,000 kilowatt hours; 17,553,768,000 kilowatt hours generated by water power and 302,354,000 kilowatt hours generated by thermal engines. It is not probable that an error in the estimate for small stations will affect the total more than one-quarter of one per cent and the correction will probably be an addition.

The pulp and paper mills operate more or less continuously throughout the year and, with the large consumption of off-peak and surplus power used in electric boilers, use considerably more electricity per horse power of equipment than other industries. The motors in the pulp and paper industry operated on power purchased from central electric stations had a rated capacity of 859,017 horse power in 1928 and 944,272 in 1929, having increased by 73 per cent between 1926 and 1929. In 1928 their capacity was 40 per cent of the total of such motors in all manufacturing industries and 36 per cent of the motors operated on purchased power in both manufacturing and mining industries. It is consequently quite evident that this rapid growth of the pulp and paper industry has quite materially affected the growth of the central electric stations.

The electrification of other industries has also increased and the lighting load, both commercial and domestic, has grown rapidly. Examples of this growth are the consumptions in Toronto, where domestic lighting increased by 75 per cent between 1925 and 1929 and commercial lighting increased by 66 per cent. The large increases in the commercial lighting and domestic consumptions have been due to better lighting, more advertising by electric signs, and, in the home, to a greater use of electrical appliances such as electric stoves, refrigerators, washing machines, irons, radios, etc.; the number of domestic light customers in this city increasing only by 24 per cent during these four years. This is more or less typical of the whole country. There is also a considerable quantity of electricity generated by electric railways and manufacturing industries for their own use, which, for 1929, is estimated at 1,304 million kilowatt hours. Sufficient data are not available to make a similar estimate for 1930, but this gives a fair indication of how extensively electricity is used in Canada. There is hardly a hamlet that is not served with electric energy and the service to rural customers is being extended rapidly.

The tendency in the central electric station industry is towards consolidation and interconnection of stations for the sake of economies in operation and also to ensure continuous service in the event of break downs. In Canada 23 large systems generated 17,098,613,000 kilowatt hours during 1930, which was over 93 per cent of the total for all stations, and the output of the four largest was over 62 per cent of the total. The outputs of these 23 systems are shown in table 5. The system of the Dominion Power and Transmission Company was purchased by the Hydro Electric Power Commission of Ontario on August 14, 1930, but the whole output for the year is shown as generated by the Dominion Power and Transmission Company.



The average daily outputs of the large stations for each month, 1925 - 1930, have been plotted on page 8 and the trend as indicated by the moving twelve month average has also been plotted.

During 1930 the export of electricity to the United States amounted to 1,519,602,712 kilowatt hours, or approximately 9 per cent of the total output. Of this, 402,317,877 kilowatt hours was surplus power exported by the Hydro Electric Power Commission of Ontario and the Canadian Niagara Power Company from the Niagara plants. The imports were small, amounting to only 6,035,011 kilowatt hours.

The table on page 7 shows the total power employed in Canadian industries for 1928. This power is the rated capacity of water wheels and turbines of 657,257 horse power, steam engines and turbines of 736,996 horse power, internal combustion engines of 58,806 horse power and motors operated on power purchased from central electric stations of 2,139,129 horse power, making the total power employed 3,592,184 horse power. The rating of motors operated on power generated by the industries themselves is also shown, which, added to the ratings of the motors operated on purchased power, is the total electric motor power employed. This total electric motor power divided by the total power employed is the percentage of electric power employed. There is a slight error in this computation caused by plants generating their own electric energy having motor capacity greater than the capacity of their prime movers. There is no error in considering such plants as 100 per cent electrified, but the surplus motor capacity affects the ratio of plants operating entirely on thermal or hydraulic power. Also, the capacity of motors in a plant using electric drive exclusively is probably somewhat greater than the engine capacity of a similar plant using direct drive and, consequently, the ratios in the last column are affected. The data, however, are relative and show the growth in the use of electric motors in Canadian industries.

The industries as a whole show that 72 per cent of the power employed was electric motors and several industries operated entirely on electric energy, the three large industries being the automobile, cement and printing and book binding industries. There were many industries for which over 90 per cent of the power employed was electric power and there were also many individual plants operating entirely on electric energy even in industrial groups showing ratios of 90 per cent or lower. A rather significant feature of the table is the large percentage of electric energy employed in coal mines and gas and oil industries.

THE UNIVERSITY OF CHICAGO  
DEPARTMENT OF CHEMISTRY  
540 SOUTH EAST ASIAN AVENUE  
CHICAGO, ILLINOIS 60607

TO: [Name]  
FROM: [Name]  
SUBJECT: [Subject]

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Table 1.

KILOWATT HOURS GENERATED BY PROVINCES

1930

| Province                  | Water                 | Fuel               | Total                 |
|---------------------------|-----------------------|--------------------|-----------------------|
| Prince Edward Island..... | -                     | 2,417,930          | 2,417,930             |
| Nova Scotia .....         | 170,656,147           | 27,963,520         | 198,619,667           |
| New Brunswick .....       | 297,915,405           | 33,151,430         | 331,066,835           |
| Quebec .....              | 8,836,457,835         | -                  | 8,836,457,835         |
| Ontario .....             | 5,967,459,796         | 5,626,300          | 5,973,086,096         |
| Manitoba .....            | 952,911,170           | 6,065,300          | 958,976,470           |
| Saskatchewan .....        | 35,416,750            | 132,742,938        | 168,159,688           |
| Alberta .....             | 134,673,200           | 72,329,265         | 207,002,465           |
| British Columbia .....    | 1,158,277,719         | 22,057,636         | 1,180,335,355         |
| <b>TOTAL .....</b>        | <b>17,553,768,022</b> | <b>302,354,319</b> | <b>17,856,122,341</b> |

Table 2.

KILOWATT HOURS EXPORTED

1930

|  | Total                |
|--|----------------------|
| Hydro Electric Power Commission of Ontario .....   | 383,411,500          |
| " " " " " " (Surplus) .....                        | 401,827,777          |
| Cedars Rapids Manufacturing & Power Co., Ltd. .... | 476,400,847          |
| Canadian Niagara Company .....                     | 326,070,666          |
| " " " (Surplus) .....                              | 490,100              |
| Western Power Company .....                        | 2,400                |
| Ontario and Minnesota Power Company .....          | 10,782,200           |
| Maine & New Brunswick Electric Power Company ..... | 11,906,324           |
| British Columbia Electric Company .....            | 35,369               |
| Northport Power and Light Company .....            | 268,053              |
| Maritime Electric Company .....                    | 666,900              |
| Sherbrooke Railway and Power Company .....         | 367,176              |
| Northern B.C. Power Company .....                  | 51,360               |
| International Railway Company .....                | 718,470              |
| Fraser Companies, Ltd. ....                        | 6,603,570            |
| <b>TOTAL .....</b>                                 | <b>1,619,602,712</b> |

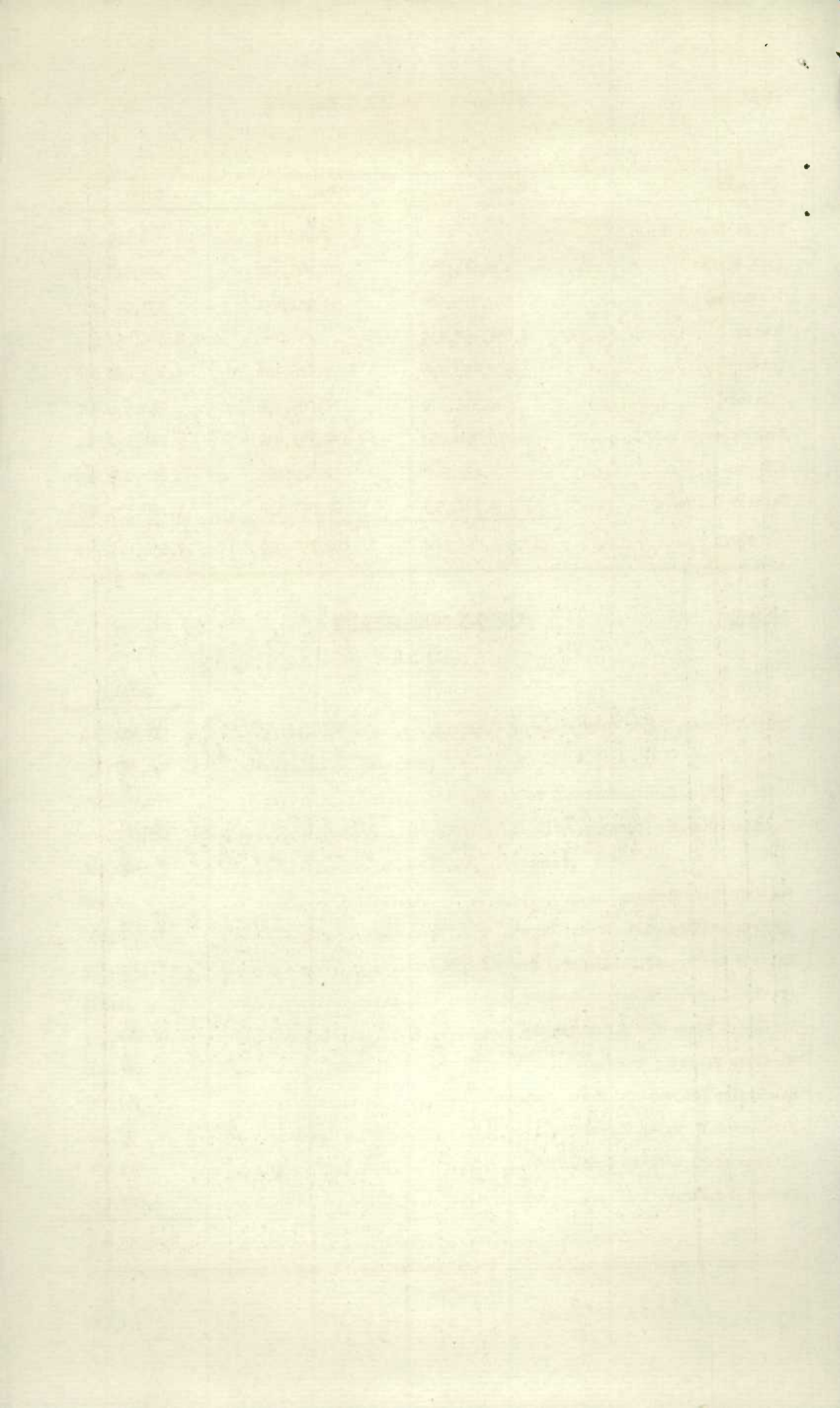


Table 3.

OUTPUT OF LARGE CENTRAL ELECTRIC STATIONS IN CANADA. (A) MONTHLY OUTPUT  
(Thousands of Kilowatt Hours)

| Month                         | Totals for Canada |         |            | Generated by Water Power |           |           |                   |                  | Generated by Fuel |                 |           | Total Exports |
|-------------------------------|-------------------|---------|------------|--------------------------|-----------|-----------|-------------------|------------------|-------------------|-----------------|-----------|---------------|
|                               | Water             | Fuel    | Total      | Maritime Provinces       | Quebec    | Ontario   | Prairie Provinces | British Columbia | Prairie Provinces | Other Provinces |           |               |
| <u>1929</u>                   |                   |         |            |                          |           |           |                   |                  |                   |                 |           |               |
| January                       | 1,478,953         | 28,920  | 1,507,873  | 14,242                   | 728,703   | 516,574   | 117,592           | 101,842          | 21,835            | 7,085           | 114,267   |               |
| February                      | 1,315,207         | 31,282  | 1,346,489  | 14,341                   | 645,934   | 470,824   | 103,364           | 80,744           | 18,546            | 12,736          | 110,645   |               |
| March                         | 1,440,734         | 29,786  | 1,470,520  | 15,995                   | 714,729   | 514,451   | 105,704           | 89,855           | 18,206            | 11,580          | 126,648   |               |
| April                         | 1,378,557         | 30,524  | 1,409,081  | 15,677                   | 685,180   | 493,997   | 97,453            | 86,250           | 19,527            | 10,997          | 110,692   |               |
| May                           | 1,431,806         | 24,881  | 1,456,687  | 15,424                   | 709,909   | 517,402   | 101,418           | 87,653           | 16,414            | 8,467           | 112,302   |               |
| June                          | 1,360,875         | 17,249  | 1,378,124  | 14,543                   | 677,920   | 492,233   | 87,191            | 88,988           | 13,626            | 3,623           | 119,394   |               |
| July                          | 1,392,857         | 17,852  | 1,410,709  | 14,813                   | 696,621   | 506,577   | 86,941            | 87,905           | 14,211            | 3,641           | 128,601   |               |
| August                        | 1,425,572         | 19,363  | 1,444,935  | 15,109                   | 713,519   | 515,964   | 88,049            | 92,931           | 14,897            | 4,466           | 133,159   |               |
| September                     | 1,455,053         | 22,064  | 1,477,117  | 14,155                   | 746,647   | 506,352   | 95,257            | 92,642           | 15,044            | 7,020           | 136,301   |               |
| October                       | 1,559,042         | 35,241  | 1,594,283  | 16,597                   | 813,794   | 529,568   | 105,049           | 94,034           | 19,654            | 15,587          | 126,360   |               |
| November                      | 1,565,856         | 35,870  | 1,601,726  | 16,989                   | 797,314   | 548,906   | 111,318           | 91,329           | 18,138            | 17,732          | 124,029   |               |
| December                      | 1,496,901         | 38,431  | 1,535,332  | 17,616                   | 746,934   | 532,318   | 117,079           | 82,954           | 19,958            | 18,473          | 102,004   |               |
| TOTAL                         | 17,301,413        | 331,463 | 17,632,876 | 185,501                  | 8,677,204 | 6,145,166 | 1,216,415         | 1,077,127        | 210,056           | 121,407         | 1,444,402 |               |
| <u>1930<sup>x</sup></u>       |                   |         |            |                          |           |           |                   |                  |                   |                 |           |               |
| January                       | 1,513,719         | 41,092  | 1,554,811  | 29,448                   | 745,711   | 549,119   | 104,698           | 84,743           | 23,063            | 18,029          | 112,625   |               |
| February                      | 1,371,215         | 26,880  | 1,398,095  | 28,705                   | 686,957   | 489,210   | 82,397            | 83,946           | 18,702            | 8,178           | 117,176   |               |
| March                         | 1,491,040         | 24,425  | 1,515,465  | 34,469                   | 741,411   | 528,404   | 89,826            | 96,930           | 18,222            | 6,203           | 126,894   |               |
| April                         | 1,480,953         | 21,385  | 1,502,338  | 42,968                   | 744,861   | 509,615   | 92,601            | 90,908           | 16,437            | 4,948           | 117,504   |               |
| May                           | 1,523,521         | 21,106  | 1,544,627  | 44,139                   | 761,327   | 524,679   | 100,116           | 93,260           | 16,466            | 4,640           | 129,138   |               |
| June                          | 1,414,236         | 20,375  | 1,434,611  | 42,632                   | 709,245   | 485,791   | 87,683            | 88,885           | 15,801            | 4,574           | 136,016   |               |
| July                          | 1,404,009         | 21,681  | 1,425,690  | 40,667                   | 722,335   | 460,611   | 89,169            | 91,227           | 16,522            | 5,159           | 131,817   |               |
| August                        | 1,391,054         | 20,806  | 1,411,860  | 41,788                   | 710,842   | 457,424   | 84,925            | 96,075           | 14,898            | 5,908           | 142,571   |               |
| September                     | 1,419,051         | 23,910  | 1,442,961  | 38,662                   | 704,123   | 485,151   | 92,060            | 99,055           | 14,882            | 9,028           | 153,657   |               |
| October                       | 1,549,846         | 24,714  | 1,574,560  | 39,480                   | 781,996   | 521,991   | 95,005            | 111,374          | 16,874            | 7,840           | 161,323   |               |
| November                      | 1,488,175         | 27,228  | 1,515,403  | 41,264                   | 764,490   | 480,131   | 92,292            | 109,998          | 19,506            | 7,722           | 141,587   |               |
| December                      | 1,513,152         | 29,156  | 1,542,308  | 44,295                   | 764,612   | 480,442   | 111,443           | 112,360          | 19,748            | 9,408           | 149,295   |               |
| Undistributed corrections.... | - 6,203           | - 408   | - 6,607    | + 54                     | - 1,452   | - 5,109   | + 786             | - 483            | + 16              | - 420           | .....     |               |
| TOTAL                         | 17,553,768        | 302,354 | 17,856,122 | 468,572                  | 8,836,458 | 5,967,459 | 1,123,001         | 1,158,278        | 211,137           | 91,217          | 1,619,603 |               |

x - Revised data.

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Table 4.

(B) AVERAGE DAILY OUTPUT  
(Thousands of Kilowatt Hours)

| Month                        | Totals for Canada |       |        | Generated by Water Power |        |         |                   | Generated by Fuel |                   |                 | Total Exports |
|------------------------------|-------------------|-------|--------|--------------------------|--------|---------|-------------------|-------------------|-------------------|-----------------|---------------|
|                              | Water             | Fuel  | Total  | Maritime Provinces       | Quebec | Ontario | Prairie Provinces | British Columbia  | Prairie Provinces | Other Provinces |               |
| <u>1929</u>                  |                   |       |        |                          |        |         |                   |                   |                   |                 |               |
| January .....                | 47,708            | 933   | 48,641 | 459                      | 23,507 | 16,664  | 3,793             | 3,285             | 704               | 229             | 3,689         |
| February .....               | 46,971            | 1,117 | 48,088 | 512                      | 23,069 | 16,815  | 3,691             | 2,884             | 662               | 455             | 3,952         |
| March .....                  | 46,475            | 961   | 47,436 | 516                      | 23,056 | 16,595  | 3,410             | 2,898             | 587               | 574             | 4,085         |
| April .....                  | 45,952            | 1,017 | 46,969 | 523                      | 22,839 | 16,467  | 3,248             | 2,875             | 651               | 366             | 3,690         |
| May .....                    | 46,187            | 803   | 46,990 | 498                      | 22,900 | 16,690  | 3,272             | 2,827             | 530               | 273             | 3,628         |
| June .....                   | 45,362            | 575   | 45,937 | 485                      | 22,597 | 16,408  | 2,906             | 2,966             | 454               | 121             | 3,980         |
| July .....                   | 44,931            | 575   | 45,506 | 478                      | 22,472 | 16,341  | 2,804             | 2,836             | 458               | 117             | 4,148         |
| August .....                 | 45,986            | 624   | 46,610 | 487                      | 23,017 | 16,644  | 2,840             | 2,998             | 480               | 144             | 4,295         |
| September .....              | 48,502            | 735   | 49,237 | 472                      | 24,888 | 16,879  | 3,175             | 3,088             | 501               | 234             | 4,543         |
| October .....                | 50,291            | 1,137 | 51,428 | 535                      | 26,251 | 17,083  | 3,389             | 3,033             | 634               | 503             | 4,076         |
| November .....               | 52,195            | 1,195 | 53,390 | 566                      | 26,577 | 18,296  | 3,711             | 3,045             | 604               | 591             | 4,134         |
| December .....               | 48,287            | 1,239 | 49,526 | 567                      | 24,095 | 17,172  | 3,777             | 2,676             | 643               | 596             | 3,290         |
| AVERAGE .....                | 47,401            | 908   | 48,309 | 508                      | 23,773 | 16,836  | 3,333             | 2,951             | 575               | 333             | 3,957         |
| <u>1930 (x)</u>              |                   |       |        |                          |        |         |                   |                   |                   |                 |               |
| January .....                | 48,829            | 1,326 | 50,155 | 950                      | 24,055 | 17,713  | 3,377             | 2,734             | 744               | 582             | 3,633         |
| February .....               | 48,972            | 960   | 49,932 | 1,025                    | 24,534 | 17,472  | 2,943             | 2,998             | 668               | 292             | 4,185         |
| March .....                  | 48,098            | 788   | 48,886 | 1,112                    | 23,916 | 17,045  | 2,898             | 3,127             | 588               | 200             | 4,093         |
| April .....                  | 49,365            | 713   | 50,078 | 1,432                    | 24,829 | 16,987  | 3,087             | 3,030             | 548               | 165             | 3,917         |
| May .....                    | 49,146            | 681   | 49,827 | 1,424                    | 24,559 | 16,925  | 3,230             | 3,008             | 531               | 150             | 4,166         |
| June .....                   | 47,141            | 679   | 47,820 | 1,422                    | 23,642 | 16,193  | 2,922             | 2,962             | 527               | 152             | 4,534         |
| July .....                   | 45,291            | 699   | 45,990 | 1,312                    | 23,301 | 14,858  | 2,877             | 2,943             | 533               | 166             | 4,252         |
| August .....                 | 44,873            | 671   | 45,544 | 1,348                    | 22,930 | 14,756  | 2,740             | 3,099             | 481               | 190             | 4,599         |
| September .....              | 47,301            | 797   | 48,098 | 1,288                    | 23,470 | 16,172  | 3,069             | 3,302             | 496               | 301             | 5,122         |
| October .....                | 49,995            | 797   | 50,792 | 1,273                    | 25,226 | 16,838  | 3,069             | 3,593             | 544               | 253             | 5,204         |
| November .....               | 49,606            | 908   | 50,514 | 1,375                    | 25,483 | 16,004  | 3,077             | 3,667             | 650               | 258             | 4,720         |
| December .....               | 48,811            | 940   | 49,751 | 1,429                    | 24,665 | 15,498  | 3,595             | 3,624             | 637               | 303             | 4,816         |
| Undistributed corrections... | - 17              | - 1   | - 18   | ...                      | - 4    | - 14    | + 2               | - 1               | ...               | - 1             | ...           |
| AVERAGE .....                | 48,092            | 828   | 48,920 | 1,284                    | 24,210 | 16,349  | 3,076             | 3,173             | 579               | 249             | 4,437         |

(x) Revised data.



Table 5. OUTPUT OF 23 LARGEST CENTRAL ELECTRIC STATION SYSTEMS  
IN CANADA  
1930

|  | Kilowatt Hours<br>Generated |
|--|-----------------------------|
| Hydro Electric Power Commission of Ontario .....             | 4,057,573,673               |
| Shawinigan Water and Power Company ..... 2,613,431,620 )     |                             |
| Quebec Power Company ..... 147,413,440 ).....                | 2,858,234,633               |
| Canadian Light & Power Company ..... 97,389,573 )            |                             |
| Canadian Hydro Electric Power Corporation 2,262,245,288 )    |                             |
| Saint John River Power Company ..... 261,490,400 ).....      | 2,523,735,688               |
| Duke Price Power Company .....                               | 2,012,869,376               |
| Montreal Light, Heat and Power Consolidated .....            | 1,027,181,645               |
| Canadian Niagara Power Company .....                         | 607,014,300                 |
| West Kootenay Power Company .....                            | 599,257,403                 |
| Winnipeg Electric Company & Manitoba Power Company .....     | 597,900,870                 |
| British Columbia Power Corporation ..... 74,869,872 )        |                             |
| Vancouver Power Company ..... 113,068,627 ).....             | 474,875,319                 |
| Western Power Company ..... 286,936,820 )                    |                             |
| Canada Northern Power Corporation .....                      | 367,130,780                 |
| Winnipeg Hydro Electric System .....                         | 355,930,500                 |
| Abitibi Electric Development Company, Ltd. ....              | 262,958,824                 |
| Price Brothers and Company .....                             | 168,631,400                 |
| Dominion Power and Transmission Company <sup>(x)</sup> ..... | 160,787,100                 |
| Southern Canada Power Company .....                          | 156,453,380                 |
| Nova Scotia Power Commission .....                           | 151,414,019                 |
| Huronian Power Company .....                                 | 142,836,845                 |
| Calgary Power Company .....                                  | 135,106,382                 |
| Montreal Island Power Company .....                          | 105,805,180                 |
| Ontario and Minnesota Power Company .....                    | 86,363,000                  |
| The Great Lakes Power Company .....                          | 85,424,471                  |
| Kaministiquia Power Company .....                            | 81,778,280                  |
| East Kootenay Power Company .....                            | 79,349,960                  |
| TOTAL .....  | 17,098,613,028              |

(x) Purchased by the Hydro Electric Power Commission of Ontario, August 14, 1930.

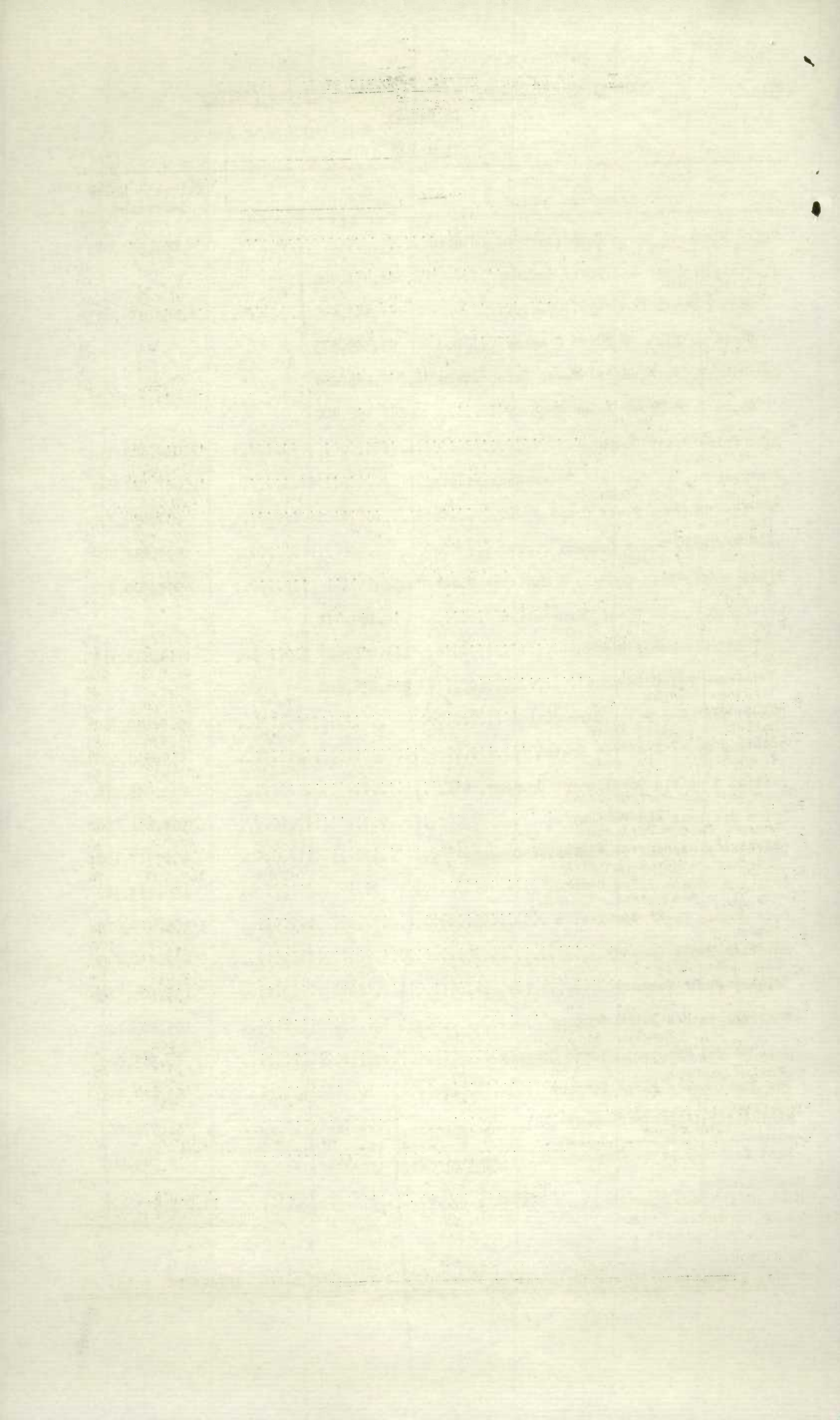


Table 6.

-7-  
POWER EQUIPMENT OF MANUFACTURING INDUSTRIES#  
IN CANADA

1928

| INDUSTRIES                                      | : Total<br>: Power<br>: Employed<br>: | : Electric Motors Operated              |                                |                                  | : Per cent<br>: Electric<br>: Power<br>: Employed |
|---|---------------------------------------|---|--------------------------------|----------------------------------|---|
|   |                                       | : Generated<br>: in the<br>: Industries | : By<br>: Purchased<br>: Power | : Total<br>: Motor<br>: Capacity |   |
| Group I - Vegetable Products                    | 309,611                               | 25,189                                  | 202,582                        | 227,771                          | 74  |
| Breweries                                       | 38,344                                | 1,515                                   | 31,296                         | 32,811                           | 86  |
| Feed and Grist Mills                            | 34,247                                | 45                                      | 8,353                          | 8,398                            | 25  |
| Flour Mills                                     | 84,848                                | 2,755                                   | 50,676                         | 53,431                           | 63  |
| Rubber Goods                                    | 41,149                                | 860                                     | 40,174                         | 41,034                           | 100   |
| Sugar Refineries                                | 18,881                                | 12,623                                  | 5,407                          | 18,030                           | 95  |
| Group II - Animal Products                      | 104,166                               | 3,222                                   | 71,222                         | 74,444                           | 71  |
| Butter and Cheese                               | 26,879                                | -                                       | 18,721                         | 18,721                           | 70  |
| Slaughtering & Meat Packing                     | 33,116                                | 798                                     | 26,535                         | 27,333                           | 83  |
| Group III - Textiles & Textile<br>Products      | 163,779                               | 26,298                                  | 103,809                        | 130,107                          | 79  |
| Cotton Yarn and Cloth                           | 80,572                                | 20,308                                  | 41,608                         | 61,916                           | 77  |
| Hosiery, Knit Goods, Gloves                     | 15,744                                | 1,992                                   | 9,388                          | 11,380                           | 72  |
| Group IV - Wood & Paper Products                | 1,908,738                             | 281,819                                 | 988,802                        | 1,270,621                        | 67  |
| Boxes, wooden                                   | 13,865                                | 1,396                                   | 6,418                          | 7,814                            | 56  |
| Furniture & Upholstering                        | 20,040                                | 2,045                                   | 8,748                          | 10,793                           | 54  |
| Planing Mills                                   | 52,311                                | 474                                     | 26,230                         | 26,704                           | 51  |
| Printing & Publishing                           | 18,810                                | 517                                     | 16,402                         | 16,919                           | 90  |
| Pulp and Paper                                  | 1,459,256                             | 229,915                                 | 859,017                        | 1,088,932                        | 75  |
| Saw Mills                                       | 296,914                               | 44,707                                  | 34,644                         | 79,351                           | 27  |
| Group V - Iron & Steel Products                 | 488,521                               | 71,714                                  | 314,169                        | 385,883                          | 79  |
| Agricultural Implements                         | 22,924                                | 989                                     | 16,115                         | 17,104                           | 75  |
| Automobiles                                     | 34,174                                | 26,685                                  | 17,887                         | 44,572                           | 100   |
| Castings & Forgings                             | 53,328                                | 1,376                                   | 45,942                         | 47,318                           | 89  |
| Hardware & Tools                                | 15,296                                | 222                                     | 13,567                         | 13,789                           | 90  |
| Machinery                                       | 35,254                                | 5,030                                   | 25,390                         | 30,420                           | 86  |
| Railway & Rolling Stock                         | 90,974                                | 4,693                                   | 71,143                         | 75,836                           | 83  |
| Steel Metal Products                            | 16,530                                | 867                                     | 11,182                         | 12,049                           | 73  |
| Steel & Rolled Products                         | 183,177                               | 26,579                                  | 80,856                         | 107,435                          | 59  |
| Group VI - Non-Ferrous Metal<br>Products        | 294,642                               | 29,590                                  | 205,836                        | 235,426                          | 80  |
| Brass & Copper Products                         | 14,976                                | 487                                     | 13,818                         | 14,305                           | 96  |
| Electrical Apparatus & Supplies                 | 49,748                                | 9,597                                   | 39,560                         | 49,157                           | 99  |
| Non-ferrous Metal Smelting                      | 221,834                               | 19,506                                  | 144,444                        | 163,950                          | 74  |
| Group VII - Non-Metallic Mineral<br>Products    | 181,666                               | 16,273                                  | 143,351                        | 159,624                          | 88  |
| Cement  | 73,609                                | 8,640                                   | 66,768                         | 75,408                           | 100   |
| Clay Products                                   | 25,400                                | 234                                     | 16,531                         | 16,765                           | 66  |
| Coke & Gas Products                             | 20,957                                | 4,660                                   | 14,772                         | 19,432                           | 93  |
| Petroleum Products                              | 22,851                                | 1,683                                   | 9,633                          | 11,316                           | 50  |
| Group VIII - Chemicals and<br>Chemical Products | 71,401                                | 3,410                                   | 47,580                         | 50,990                           | 71  |
| Group IX - Miscellaneous Industries             | 69,660                                | 50                                      | 61,778                         | 61,828                           | 89  |
| Bridge Building                                 | 18,233                                | -                                       | 18,043                         | 18,043                           | 99  |
| Shipbuilding & Repairs                          | 27,661                                | -                                       | 24,469                         | 24,469                           | 88  |
| Total All Manufacturing<br>Industries#          | 3,592,184                             | 457,565                                 | 2,139,129                      | 2,596,694                        | 72  |
| <u>MINING INDUSTRIES (xx)</u>                   |                                       |   |                                |                                  |   |
| Metal Mining                                    | 177,154                               | 11,824                                  | 132,604                        | 144,428                          | 82  |
| Coal, Gas & Petroleum Mining                    | 154,062                               | 53,645                                  | 24,409                         | 78,054                           | 51  |
| Other Non-metal Mining                          | 50,846                                | 722                                     | 43,370                         | 44,092                           | 87  |
| Sand, Gravel and Stone                          | 37,402                                | 1,930                                   | 23,283                         | 25,213                           | 67  |
| Total Mining (xx)                               | 419,464                               | 68,121                                  | 223,666                        | 291,787                          | 70  |

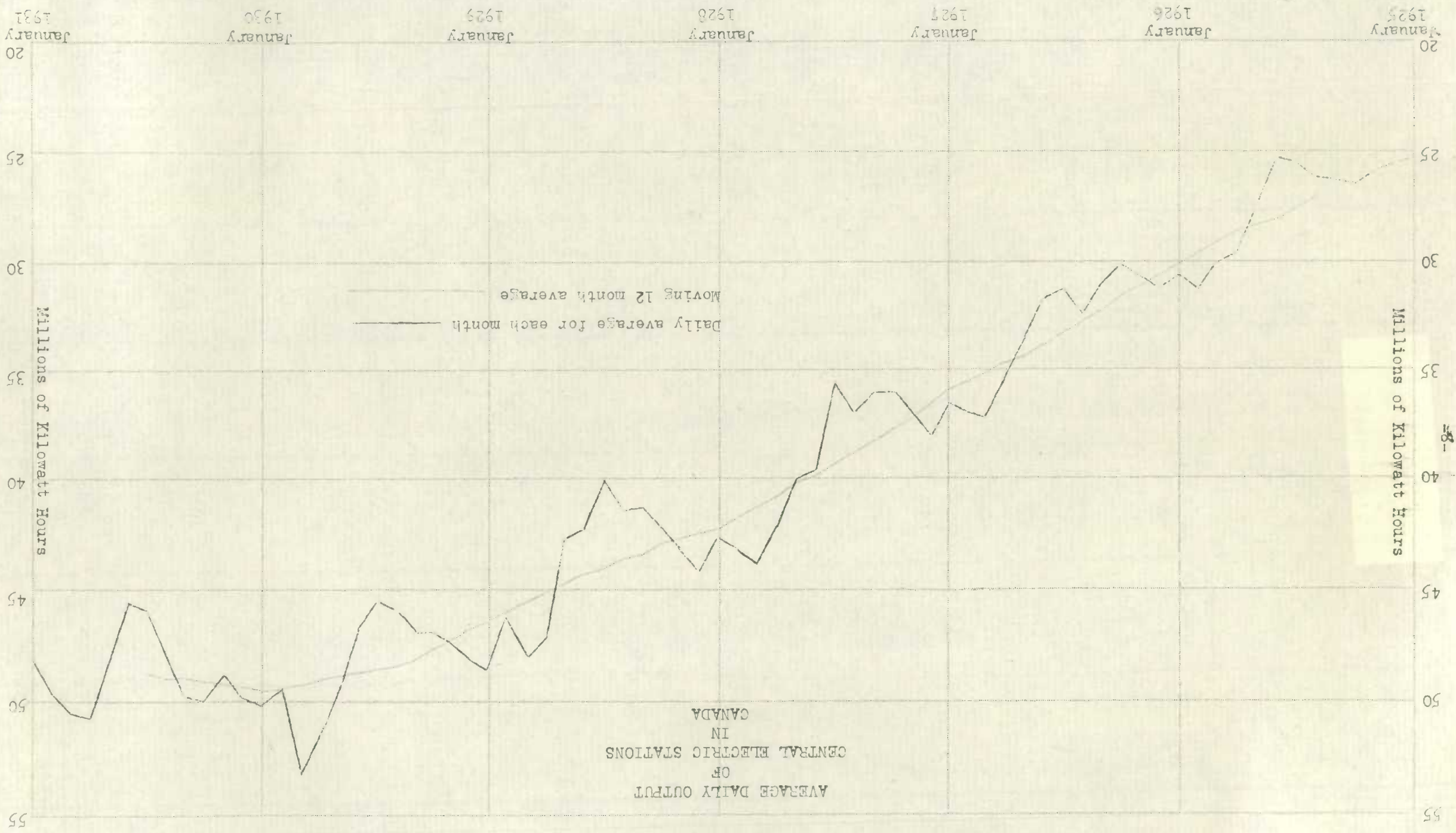
# - Excluding central electric stations.

(xx) - Excluding non-ferrous, smelting, salt, cement, clay products and lime, which are included with manufacturing industries.

| Year | Income  | Expenses | Net Income | Notes |
|------|---------|----------|------------|-------|
| 1917 | 10,000  | 8,000    | 2,000      | ...   |
| 1918 | 12,000  | 9,500    | 2,500      | ...   |
| 1919 | 15,000  | 11,000   | 4,000      | ...   |
| 1920 | 18,000  | 13,000   | 5,000      | ...   |
| 1921 | 20,000  | 14,500   | 5,500      | ...   |
| 1922 | 22,000  | 16,000   | 6,000      | ...   |
| 1923 | 25,000  | 17,500   | 7,500      | ...   |
| 1924 | 28,000  | 19,000   | 9,000      | ...   |
| 1925 | 30,000  | 20,500   | 9,500      | ...   |
| 1926 | 32,000  | 22,000   | 10,000     | ...   |
| 1927 | 35,000  | 23,500   | 11,500     | ...   |
| 1928 | 38,000  | 25,000   | 13,000     | ...   |
| 1929 | 40,000  | 26,500   | 13,500     | ...   |
| 1930 | 42,000  | 28,000   | 14,000     | ...   |
| 1931 | 45,000  | 29,500   | 15,500     | ...   |
| 1932 | 48,000  | 31,000   | 17,000     | ...   |
| 1933 | 50,000  | 32,500   | 17,500     | ...   |
| 1934 | 52,000  | 34,000   | 18,000     | ...   |
| 1935 | 55,000  | 35,500   | 19,500     | ...   |
| 1936 | 58,000  | 37,000   | 21,000     | ...   |
| 1937 | 60,000  | 38,500   | 21,500     | ...   |
| 1938 | 62,000  | 40,000   | 22,000     | ...   |
| 1939 | 65,000  | 41,500   | 23,500     | ...   |
| 1940 | 68,000  | 43,000   | 25,000     | ...   |
| 1941 | 70,000  | 44,500   | 25,500     | ...   |
| 1942 | 72,000  | 46,000   | 26,000     | ...   |
| 1943 | 75,000  | 47,500   | 27,500     | ...   |
| 1944 | 78,000  | 49,000   | 29,000     | ...   |
| 1945 | 80,000  | 50,500   | 29,500     | ...   |
| 1946 | 82,000  | 52,000   | 30,000     | ...   |
| 1947 | 85,000  | 53,500   | 31,500     | ...   |
| 1948 | 88,000  | 55,000   | 33,000     | ...   |
| 1949 | 90,000  | 56,500   | 33,500     | ...   |
| 1950 | 92,000  | 58,000   | 34,000     | ...   |
| 1951 | 95,000  | 59,500   | 35,500     | ...   |
| 1952 | 98,000  | 61,000   | 37,000     | ...   |
| 1953 | 100,000 | 62,500   | 37,500     | ...   |
| 1954 | 102,000 | 64,000   | 38,000     | ...   |
| 1955 | 105,000 | 65,500   | 39,500     | ...   |
| 1956 | 108,000 | 67,000   | 41,000     | ...   |
| 1957 | 110,000 | 68,500   | 41,500     | ...   |
| 1958 | 112,000 | 70,000   | 42,000     | ...   |
| 1959 | 115,000 | 71,500   | 43,500     | ...   |
| 1960 | 118,000 | 73,000   | 45,000     | ...   |
| 1961 | 120,000 | 74,500   | 45,500     | ...   |
| 1962 | 122,000 | 76,000   | 46,000     | ...   |
| 1963 | 125,000 | 77,500   | 47,500     | ...   |
| 1964 | 128,000 | 79,000   | 49,000     | ...   |
| 1965 | 130,000 | 80,500   | 49,500     | ...   |
| 1966 | 132,000 | 82,000   | 50,000     | ...   |
| 1967 | 135,000 | 83,500   | 51,500     | ...   |
| 1968 | 138,000 | 85,000   | 53,000     | ...   |
| 1969 | 140,000 | 86,500   | 53,500     | ...   |
| 1970 | 142,000 | 88,000   | 54,000     | ...   |
| 1971 | 145,000 | 89,500   | 55,500     | ...   |
| 1972 | 148,000 | 91,000   | 57,000     | ...   |
| 1973 | 150,000 | 92,500   | 57,500     | ...   |
| 1974 | 152,000 | 94,000   | 58,000     | ...   |
| 1975 | 155,000 | 95,500   | 59,500     | ...   |
| 1976 | 158,000 | 97,000   | 61,000     | ...   |
| 1977 | 160,000 | 98,500   | 61,500     | ...   |
| 1978 | 162,000 | 100,000  | 62,000     | ...   |
| 1979 | 165,000 | 101,500  | 63,500     | ...   |
| 1980 | 168,000 | 103,000  | 65,000     | ...   |
| 1981 | 170,000 | 104,500  | 65,500     | ...   |
| 1982 | 172,000 | 106,000  | 66,000     | ...   |
| 1983 | 175,000 | 107,500  | 67,500     | ...   |
| 1984 | 178,000 | 109,000  | 69,000     | ...   |
| 1985 | 180,000 | 110,500  | 69,500     | ...   |
| 1986 | 182,000 | 112,000  | 70,000     | ...   |
| 1987 | 185,000 | 113,500  | 71,500     | ...   |
| 1988 | 188,000 | 115,000  | 73,000     | ...   |
| 1989 | 190,000 | 116,500  | 73,500     | ...   |
| 1990 | 192,000 | 118,000  | 74,000     | ...   |
| 1991 | 195,000 | 119,500  | 75,500     | ...   |
| 1992 | 198,000 | 121,000  | 77,000     | ...   |
| 1993 | 200,000 | 122,500  | 77,500     | ...   |
| 1994 | 202,000 | 124,000  | 78,000     | ...   |
| 1995 | 205,000 | 125,500  | 79,500     | ...   |
| 1996 | 208,000 | 127,000  | 81,000     | ...   |
| 1997 | 210,000 | 128,500  | 81,500     | ...   |
| 1998 | 212,000 | 130,000  | 82,000     | ...   |
| 1999 | 215,000 | 131,500  | 83,500     | ...   |
| 2000 | 218,000 | 133,000  | 85,000     | ...   |
| 2001 | 220,000 | 134,500  | 85,500     | ...   |
| 2002 | 222,000 | 136,000  | 86,000     | ...   |
| 2003 | 225,000 | 137,500  | 87,500     | ...   |
| 2004 | 228,000 | 139,000  | 89,000     | ...   |
| 2005 | 230,000 | 140,500  | 89,500     | ...   |
| 2006 | 232,000 | 142,000  | 90,000     | ...   |
| 2007 | 235,000 | 143,500  | 91,500     | ...   |
| 2008 | 238,000 | 145,000  | 93,000     | ...   |
| 2009 | 240,000 | 146,500  | 93,500     | ...   |
| 2010 | 242,000 | 148,000  | 94,000     | ...   |
| 2011 | 245,000 | 149,500  | 95,500     | ...   |
| 2012 | 248,000 | 151,000  | 97,000     | ...   |
| 2013 | 250,000 | 152,500  | 97,500     | ...   |
| 2014 | 252,000 | 154,000  | 98,000     | ...   |
| 2015 | 255,000 | 155,500  | 99,500     | ...   |
| 2016 | 258,000 | 157,000  | 101,000    | ...   |
| 2017 | 260,000 | 158,500  | 101,500    | ...   |
| 2018 | 262,000 | 160,000  | 102,000    | ...   |
| 2019 | 265,000 | 161,500  | 103,500    | ...   |
| 2020 | 268,000 | 163,000  | 105,000    | ...   |
| 2021 | 270,000 | 164,500  | 105,500    | ...   |
| 2022 | 272,000 | 166,000  | 106,000    | ...   |
| 2023 | 275,000 | 167,500  | 107,500    | ...   |
| 2024 | 278,000 | 169,000  | 109,000    | ...   |
| 2025 | 280,000 | 170,500  | 109,500    | ...   |

Income tax paid: \$1,000.00  
 Total net income: \$1,000.00  
 Total expenses: \$1,000.00  
 Total net income: \$1,000.00

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