much reduced maintenance costs and increased life in battery equipment. As batteries fall due for replatal, the economics of each exchange are examined in order to determine the most advantageous method of purchasing power. It has been found in some cases more desirable to use the storage battery as an integral portion of the conversion equipment, taking the current-supply from the mains during the night hours when the load-factor of the supply authority is lowest. In such cases the increased battery depreciation is more than offset by the reduced charges for power supplied during these hours. In other cases, however, it has been found advantageous to take the power as required from the mains, leaving the battery floating across the exchange bus-bar as the reserve in case of power failure. Some of the smaller exchanges can be more economically operated in this condition, and the tendency has been to provide smaller batteries and more versatile power equipment in new urban and suburban exchanges. The case of the new Lower Hutt Exchange at present being installed may be cited as an example of more modern telephone-exchange power equipment; and it is expected that, with the facilities so provided, the cost of supplying power in this case will be minimized.

Many new developments in A.C.-D.C. conversion apparatus have occurred during the past few years, and the Department has taken every opportunity of utilizing these as a means of giving more economic and effective power-supply to its exchanges. Examples of such developments are: the introduction of copper oxide rectifiers, the introduction of electrolytic condensers and smoothing filters, the use of mercury-vapour rectifiers, the automatic control of charging-equipment, and the installation of condensers to improve the power-factor where induction motor-generators are in use.

Supercession of Wet-type Primary Cells.

For many years the use of wet-type primary cells has been closely associated with the activities of the Department. However, with the almost complete reticulation of the Dominion by electric-power supply, and with the development of rectifying equipment giving long life and requiring negligible maintenance, it has become possible to provide even the smaller telegraph offices with conversion equipment suitable for providing the necessary direct current for telegraph purposes. In the larger offices, this has been supplemented by the use of large-capacity accumulators to provide the necessary reserve in case of power failure; but in the smaller offices it has been found that the provision of a standby battery of dry cells is the best method to provide this reserve. It may be said, in general, that wet cells are becoming an obsolescent item in the Department. The large expenditure required to maintain these cells in good condition has been a determining factor in the decision arrived at to standardize on dry cells in all subscribers' telephones in other than common battery exchange areas.