

relatively low rate of economic growth, higher electricity prices, and successful conservation measures.

13.9.7 Electric power transmission

Loads handled by small, widely scattered generating systems in the early days of electric power did not warrant the expense of interconnecting power systems. However, increased demand for dependable electric power and improved techniques resulting in lower transmission costs led to reappraisal of the benefits of integrating power systems for better reliability of service and greater flexibility of operation. Most of Canada's generating stations today are components of large, integrated, and often interconnected systems operated by power utilities.

Improved techniques enable power producers to use hydroelectric sites once considered beyond economic transmission distances. Most noticeable is the progressive increase of transmission line voltages. A number of transmission lines are designed for operation at 500 kV and 735 kV. A 924-km 500 kV line carries power from the Peace River to the lower mainland of British Columbia. In Quebec, a 700-km 500 kV line brings power from hydro plants in the James Bay watershed to Montreal.

By the end of 1977 a submarine cable between New Brunswick and Prince Edward Island was supplying nearly half the power requirements on Prince Edward Island.

The search for economies has led to changes in materials used and in tower erection and cable-stringing methods. Guyed V-shaped and Y-shaped transmission towers are being used instead of self-supporting towers where the terrain is suitable, and erection costs are being reduced by using helicopters to transport tower sections to the site.

13.9.8 Electric utilities

The National Energy Board is responsible for federal regulation of electric utilities regarding export of electric power and construction of transmission lines for such export.

About 90% of power generated in Canada is by publicly and privately operated utilities and the rest by industrial establishments (Table 13.17).

Determination of market prices and regulation of services is limited to competition with oil, gas and coal. There is some regulation of electric utilities in all provinces. In all except Alberta and Prince Edward Island, major generation and main power transmission are the responsibilities of provincial Crown corporations. Investor-owned electric utilities are prominent in Alberta, Newfoundland and Prince Edward Island and play a significant role in Ontario. On a percentage basis, industrial generation has been declining steadily as purchasing of power from utilities becomes more attractive.

13.9.9 Aid to Atlantic provinces

Improvement of electrical supply in Atlantic Canada is being promoted by federal loans for nuclear power in New Brunswick, an interconnection between New Brunswick and Nova Scotia, and offers of federal aid for an inventory of Newfoundland energy resources and for a transmission system to carry power from the proposed Gull Island hydroelectric project.

In December 1979 the federal minister of energy, mines and resources announced that \$25 million had been allocated to the Annapolis River tidal project.

The concept of a Maritime energy corporation to rationalize electric power generation in the Maritimes remained under consideration at the end of 1979.

13.10 Provincial activities

13.10.1 Newfoundland

Nearly all the province's electrical energy is hydraulic in origin (94% in 1977) and the remainder is supplied by combustion turbines and oil-fired thermal generation. Energy consumption for 1977 grew by 7.3% over 1976 and an additional 2.7% for 1978.

Load growth in 1978 was about 8%, compared with about 6.5% in 1977 and an average annual growth rate of about 15% in recent years.