New Brunswick and Ontario, the nuclear share of generation rises considerably. In Newfoundland, Quebec, Manitoba, and British Columbia, hydro generation maintains its dominant role, accounting for well over 90 percent of generation in each of these provinces in both 1977 and 1989. Because of the expected rise in the price of gas and oil, the utilization of steam units using these fuels may fall in some provinces.

Emissions from Canadian thermal power plants can be viewed as originating in two major geographic subdivisions: the east (all provinces east of and including Ontario); and the west (all provinces west of and including the province of Manitoba). The eastern provinces have historically burned high-sulphur coals. Nova Scotia and New Brunswick have burned locally mined coals, while Ontario has burned high-sulphur coals from U.S. Appalachian mines in West Virginia and Pennsylvania. Some blending of these coals with low-sulfur sub-bituminous western Canadian coals is carried out in Ontario. Power plants in northwestern Ontario burn low-sulphur western coals. Except for British Columbia, the western provinces (predominantly Alberta) will probably continue their current practices of burning low-sulphur sub-bituminous coals and lignites mined within the region. British Columbia will burn lignites.

Present Emissions

With the exception of particulate matter, there are no controls applied to emissions from Canadian thermal power stations, other than those which occur fortuitously, i.e., some SO_2 is retained when certain western coal and lignite are burned, if the fuel ash contains enough calcium or sodium compounds to bind part of the oxidized sulphur during combustion. Similarly, some boilers utilize flue gas recirculation as superheat control, which has a beneficial effect on NO_x suppression.

Thus the emissions of SO_2 and particulate pollutants are ascertained by simple calculation for each unit in provincial utility systems, given the fuel tonnage fired, and its ash and sulphur content. The estimates for NO_x are less realistic, being made by the application of a factor to the tonnage of fuel fired to any given boiler.

The historical data show that nationally in 1976:

SO_2 emissions were some 553 000 tonnes
NO_x emissions were about 185 000 tonnes
Particulate emissions were about 168 000 tonnes