is intended to supplement the local electrical grid, now powered entirely by diesel generators. Use of wind to generate electricity appears to be competitive with conventional energy sources in some parts of Canada such as the Atlantic provinces, the coastal regions of Hudson Bay and southern Alberta — areas where winds are sufficiently strong and constant to make operation of windmills economically feasible or where electricity is being generated by expensive diesel fuel, or both.

Other renewable energy technologies. Other renewable methods of converting energy include harnessing the tidal power in the Bay of Fundy. The cost of producing electricity from this source seems to be approaching the cost-competitive line of other methods of electrogeneration. In the West, geothermal energy still awaits proof of technical feasibility.

Energy from all conventional sources is discussed in detail later in this chapter.

Energy conservation 13.2

A policy paper on energy conservation — *Energy conservation in Canada: programs and perspectives* — published by energy, mines and resources, outlined measures to increase efficiency of energy use to reduce the growth rate of energy consumption in an environmentally and socially acceptable way. Given the right combination of circumstances, the average annual growth in energy use could be in the range of 3.5% to 2.0% by 1990. A preliminary estimate based on consumption in the first nine months of 1977 indicates an increase in energy consumption of 3.3% over 1976.

If, in 1990, the mix of energy sources were the same as that prevailing in 1975, estimates indicate that primary energy savings could amount to: petroleum, 1.29 quads equivalent to the annual output of five Syncrude-size oil sands plants, or about 95 390 cubic metres (600,000 barrels) a day of crude oil; 0.51 quads of natural gas equivalent to about 20% of total Canadian production in 1975; as well as 0.79 quads of electric power, equivalent to the annual output of 13 Pickering-size nuclear plants; and 0.21 quads of coal equivalent to 7.7 million tonnes (8.5 million short tons) of bituminous coal. [Note: 1 quad = 1 quadrillion Btus (10^{15} Btus) = 172 million bbl of crude oil]

This is not a forecast of energy demand since many economic, social and technological changes may occur by the 1990s. Moreover, conservation savings in some sectors cannot be quantified with any accuracy.

In 1975 an industrial energy conservation program was developed: there are now 12 task forces representing specific sectors of industry. Their role is to set energy efficiency targets, exchange information on conservation opportunities and discuss approaches to the entire conservation program with the federal government.

In the public sector, the federal government's internal energy conservation program set a target to reduce energy use for 1976-77 by 10% from the previous year, holding that level for the next 10 years. From preliminary data, it appears an energy saving of about 9% was achieved, valued at more than $25 million a year.

In January 1977, the federal government announced special assistance programs for Prince Edward Island and Nova Scotia, because of their high dependence on foreign oil for electricity generation. This program included grants for householders to insulate, energy audit buses for industry, and industry consultation and grant programs. Based on the success of the insulation grant program, a $1.4 billion national home insulation grant program began September 1, 1977. In 1977, a special R&D fund of $1.5 million was created to improve energy efficiency in industrial processes. The energy bus program was made available to all provinces.

In June 1977 a draft code for energy conservation in new buildings was released for public comment and most provinces agreed to adopt energy standards at least as high as those contained in the new draft code by early 1978.

A number of important steps have been taken by the federal government to conserve energy. Fleet average performance standards for new cars for 1980 and 1985 have been introduced to ensure that total gasoline consumption in Canada in 1985 will be below the level of 1976 even though more cars likely will be on the roads. Provincial governments have been urged to adopt a 90 kilometres per hour speed limit on most