and relatively inexpensive turbine based on a system conceived by an American engineer, Leroy F. Harza, and manufactured by Escher Wyss of Switzerland. Most turbines are vertical—water must be pumped high in order to fall. The Escher Wyss turbine is horizontal and will be flat in the water (protected by cement caissons), and the water will flow straight through its sluices. The relative simplicity means that construction and installation costs will be much lower than normal.

By mid-1983 the station will generate 20 megawatts (four times the power produced by any similar turbine operation) and will replace energy generated by burning imported oil. It is intended to demonstrate the practicality of further tidal power development in the upper reaches of the Bay.

There are many who feel its potential is enormous. In November, 1977, a major study recommended that a $3 billion (1,085 mW) project be built on the Cumberland Basin.

Tidal power stations have been in use in Europe where energy costs have been historically higher than in North America. A number of Escher Wyss turbines are in use there.

CANDU

It is assumed that at least two-thirds of Ontario's electrical power will be generated by nuclear reactors by the year 1990.

The experience of Ontario Hydro, the provincially owned utility, supports the forecast.

In 1980 its nine reactors produced 35,579,000,000 kW/hours of electricity at an average cost of 1.22 cents a kW/hour at its Pickering generating station and 1.40 cents a kW/hr at its Bruce station, and they have had an unsurpassed record for safety and reliability. The utility has three more stations under construction with four reactors each.

The reactors are CANDU models, which are fueled by heavy water and natural unenriched uranium.

Patrick McTaggart-Cowan, former Executive Director of the Science Council of Canada, said recently that "To my mind, the CANDU is the safest power-producing device ever built. In concept, it is also the simplest and most reliable reactor."

Here's how it works:

Each reactor has a horizontal tank filled with deuterium oxide (heavy water). Several hundred tubes containing uranium oxide pellets run through the tank, immersed in the water. The pellets radiate neutrons, bombarding the water, which acts as both a coolant and a moderator, slowing the neutrons down enough to allow fission to take place. It also transfers the heat produced to ordinary water which then turns into steam, drives turbine generators and produces electricity.

Each reactor holds 4,680 fuel bundles, and several of these are used up and replaced each day.

The spent fuel contains numerous radioactive elements; some decay in seconds, some have half-lives of thousands of years. The spent fuel takes relatively little space and is stored in special areas at the plants. Eventually it will probably all be stored in chambers excavated in the solid rock of the Canadian Shield.

All of Canada's power-producing reactors are operated by Ontario Hydro, although there are reactors under construction in Quebec and New Brunswick.

Can Did

Ontario Hydro's CANDU reactors took the first four places among 114 monitored for efficiency in 1980. Four others finished in the top twenty-five.

The reactors, in thirteen countries, were measured for actual operating performance compared with designed capability.

The top four positions were taken by Ontario Hydro's Bruce 2, Pickering 3, Bruce 3 and Bruce 1.

These photos taken at high and low tides at Parrsboro, N.S., show the daily range in the Bay of Fundy.