



The Quebec City incinerator, left, burns trash to make industrial steam. Everything is controlled from a single room, right.

which could power cars and tractors in areas where petroleum would be unavailable or where it would be much more expensive than it is now.

## Crops

Surplus field crops and residues are also being used as fuel, though on a limited scale. Jacques Piell of Nova Scotia, for example, burns 400 tons of straw left over from his wheat and barley crops in a \$35,000 big-bale burner manufactured in Germany. The heat dries his grain in a conventional dryer and supplies hot water to heat his house and barns.

## Manure

Canadians are also experimenting with anaerobic hog manure digesters. Natural fermentation in oxygen-free environments produces a burnable gaseous mixture that is 60 per cent methane and 40 per cent carbon dioxide. The effluents contain nitrogen and can be used as fertilizer. The systems are not generally economically viable,

though they may be in areas where decomposition must be controlled for environmental reasons.

## Trash

Trash collected from homes is used to fire steam boilers in Quebec City and half a dozen other Canadian municipalities. This method is often economical since the high costs of disposing of the trash by landfill or conventional incinerating offsets the cost of producing the steam.

The federal government and Prince Edward Island are building a 100-ton incinerator, a size suitable for small communities, to provide all of the heat, air conditioning and hot water plus 75 per cent of the electricity for a new 350-bed hospital in Charlottetown. (There are many 750-ton incinerators in use in North America, but only a few 100-ton ones.) The incinerator will consume 80 tons of garbage each day. Waste wood will be used as the auxiliary fuel, so low-garbage days will not be low-heat ones. The power unit will cost about \$6,150,000 to build, but it will eliminate the need for a new landfill site and 17,000 barrels of fuel oil (\$300,000 worth at today's prices) each year.

## W I N D

An experimental vertical axis wind turbine, manufactured by DAF (Dominion Aluminum Fabricating), went up on the Magdalen Islands in the Gulf of St. Lawrence in May 1977. The blades, two curved strips of metal, are attached at both ends of a vertical axis, which is 37 metres (120 feet) high. It was designed to operate at a constant rotational speed and deliver a maximum of

230 kilowatts of electric power (about five per cent of average local demand). The National Research Council (NRC) and Hydro Quebec picked the Magdalens for the turbine site because they are windy and isolated. On July 6, 1978, the turbine fell over. It had been disconnected from its main disc brake the day before. The aerodynamic blade spoilers' unbalance weights had not