

Wind power

An invention matures

On the morning of 6 July, 1978, a Hydro-Québec crew arrived for the day's work at the site of an experimental windmill on the Magdalen Islands. To their surprise, and dismay, the egg-beater shaped wind turbine was turning. Because its main brake had been disconnected for maintenance, the only way to halt the spinning rotor now was to use its aerodynamic brakes — flaps hinged on its blades. But as the crew watched, helpless, the flaps ineffectively banged open and shut, and the turbine picked up speed. It was spinning at more than twice the maximum speed for which it had been designed when the blades began to strike one of the supporting cables. Within seconds the cable broke, and at 10:19, the entire rotor, still turning, crashed to the ground.

The fallen wind turbine was the largest and most powerful of its kind ever built: in strong winds, it could generate 230 kW of electrical power — enough in theory to satisfy the needs of approximately 50 average households, provided none used electric space heating. When the wind was not blowing, all the power needs of the 13,000 islanders were supplied by burning diesel fuel, shipped at considerable expense from the mainland. When the wind blew, some fuel was saved, for wind energy was converted into electri-



Georges Darrieus, inventor of the vertical axis turbine, in his Paris study. (Photo: Albert Watts, IREQ)

Georges Darrieus, inventeur de l'éolienne à axe vertical, dans son bureau à Paris. (Ph. Albert Watts, IREQ)

city, and fed through the local power grid to all the island homes.

Can wind energy economically supplement conventional energy sources in

Erection of the Magdalen Islands windmill on May 18, 1977. The turbine, with blades outlining a loop 37 m high and 24 m wide, is designed to deliver 200 kW of electric power into the local grid. (Photo: Karl Sliva)

Mise en place de l'éolienne des îles de la Madeleine le 18 mai 1977. Cet aérogénérateur, dont les pales forment une boucle de 37 m de hauteur et de 24 m de largeur, fournira 200 kW au réseau local. (Ph. Karl Sliva)

remote and windy locations? This was the main question which the interrupted experiment on the Magdalen Islands was designed to answer.

As well, the experiment was providing practical experience with egg-beater-shaped wind turbines, a radical departure from the traditions of windmill design.

Windmills are among the simplest and earliest of man's inventions. For well over a thousand years, they have been performing tasks such as pumping water and grinding grain. Their

