

THE IRISH EXPERIENCE

The primary objective for the development of the peat industry and its utilisation for electricity generation in Ireland was to achieve a higher level of self-sufficiency in primary fuel. At a time when oil was cheap on international markets the cost per unit produced was rather higher than that from oil or coal, but when oil prices increased 20-fold, the value of the projects was vividly demonstrated.

Today the overall employment provided within the country by the industry totals 8,000 men and women. The technology developed over the years has proved successful and the spin-off benefits in the use of cutaway bog – which was useless in its original, undeveloped form for agricultural purposes – are very substantial. The self-sufficiency and the technological development benefit many other businesses in the locality and lead to new roads and transport systems, new housing, schools, hospitals and ancillary industry.

Projects of this kind deliver both social and economic benefits which speed up the overall development of any country or region and create a new national pride and a new morale.

THE SERVICE WE CAN GIVE

Irish engineers, technologists, financial and administration personnel who have wide experience of electricity production in general and a unique experience in the production of electricity from peat can provide an expert service to countries wishing to examine and develop such resources.

These services include the surveying of the peat potential, an assessment of the level of production which can be achieved and the time scale over which it will last.

In addition, recommendations can be prepared

for the type of plant and machinery which would be necessary to exploit the resources and also for the design, specification and capacity of the generating stations to use it.

At the same time, advice can be provided on the administrative and financial structures which are necessary to operate and administer such a project and specialised management and technical training can be provided either in the country itself or at the specialist schools in Ireland.

Bord na Móna and the Electricity Supply Board are seen in their own country as highly successful State owned enterprises. Both have carried out extensive consultancy projects and have successfully trained and developed staff in all aspects of the technology and management abroad. Many students from overseas Governments and undertakings have studied at their schools and works in Ireland.

The objective of the Irish experts has always been to create a situation in which the clients' personnel are trained as rapidly as possible to take over and operate the projects on their own.

Experience in the buying of specialised plant worldwide has provided an expertise and a knowledge of the best and most appropriate plant for any situation and so the client is guaranteed impartial and tested recommendations.

For further information on services available, please contact either:

Electricity Supply Board, 27 Lr. Fitzwilliam St., Dublin 2. Telephone 765831 Telex 5313

or

Bord na Móna, 76 Lr. Baggot St., Dublin 2. Telephone 688555 Telex 30206.



ELECTRICITY SUPPLY BOARD



BORD NA MÓNA
IRISH PEAT DEVELOPMENT AUTHORITY

POWER FROM PEAT

THE USE OF PEAT IN IRELAND

Fuel

Peat has been used in Ireland as a fuel for domestic purposes for centuries. In earlier times peat harvesting was carried out by hand and the peat was dried and stored for use in individual households. Indeed the practice still continues.

In 1946, Bord na Móna (Irish Peat Development Authority) was established as an autonomous, statutory body responsible for the production and marketing of peat and so commenced one of the success stories of modern Ireland.

Since then, Bord na Móna has developed special plant, machinery and techniques to enable them to produce peat in quantity. Today their production is over 4 million tonnes of peat fuel (almost 1 million tonnes oil equivalent). Employment is provided for 5,500 full-time employees and 1,800 part-time employees during the harvest period.

Peat Harvesting

In Ireland, techniques and special machinery have been developed to produce peat efficiently and economically.

In the series of illustrations below, some of the technology is shown. Following survey, the first major task is to drain the bogs sufficiently to enable heavy machinery to operate without sinking. Undeveloped bog is 95% water. In the Bord na Móna system there is something over 30,000 kilometres of such drains.

For milled peat production the bog area is laid out in a series of drying fields and the surface of each field is cut into small particles by a milling machine. This machine operates a rotating drum fitted with spikes which tear up the bog surface to a depth of $\frac{1}{2}$ ". After a short period the layer of peat is harrowed in order to accelerate the natural drying action of wind and sun. When it is dried to approximately 50% moisture content it is gathered mechanically into ridges along the centre of the drying fields. The ridges are, in turn, transferred by collecting machines into central piles, each of which takes the output of ten drying fields. The harvesting cycle takes 3 days in good weather and in Ireland an average of 12 harvests per season are obtained.

The sod peat production process uses a bucket-dredger type excavator to dig peat from a 2 metre width of bank to a depth of 3 or 4 metres. The machine incorporates a macerator and extruder which feeds the macerated peat out along the 54 metre spreader arm to be tipped on to the bog surface and cut into sods by tracking discs.

Electricity Generation

The Electricity Supply Board (ESB), a statutory body which has the responsibility for the generation, transmission, distribution and sale of electrical energy in the Republic of Ireland and which also operates hydro, oil, coal and gas-fired generating stations, commenced its investigation of peat as a potential source of primary energy in 1946. ESB staff, in conjunction with interested manufacturers, designed and built the first peat-fired generating station and this was synchronised with the system at Portarlinton, in the Irish midlands, in 1950.

Since then, ten peat-fired generating stations have been commissioned bringing total capacity to 447 MW. The ESB is also building two new milled peat-fired stations with a capacity of 45 MW each. These will be commissioned in 1982 and 1983.

Co-operation

For electricity generation, Bord na Móna harvest and deliver their fuel to the ESB in either sod peat or milled peat form. In the period since 1977 the ESB has consumed an average of about 300,000 tonnes per annum of sod peat and 2.7 million tonnes per annum of milled peat.

Since oil prices escalated sharply, the production of electricity from peat has become extremely attractive. In ESB generating stations the fuel cost per unit sent out from the peat stations is consistently lower than that of units produced at oil-fired stations.

The other advantage is, of course, that as Ireland does not have any native oil the use of peat ensures continuity of supply in the event of any stoppage in oil imports.

The Regional Effect

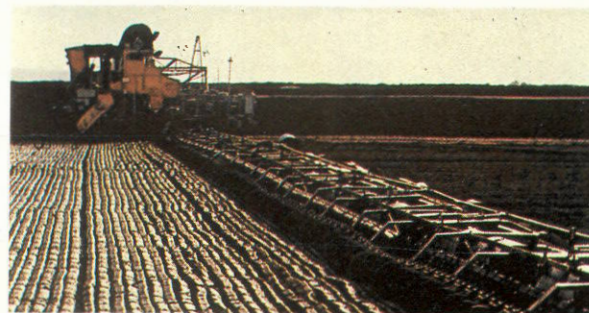
The Irish experience has demonstrated that the harnessing of the peat resource and its use for energy production and as a fuel in electricity generating stations and at briquetting factories can bring new life to a whole region. New homes are established, trade develops, there are job-opportunities for young people and as new skills are developed other industries in the region expand. As the resource is used, land, hitherto useless, is reclaimed and used for crops and possibly for short-rotation timber-growing to create a new energy source – biomass.



Bog drainage



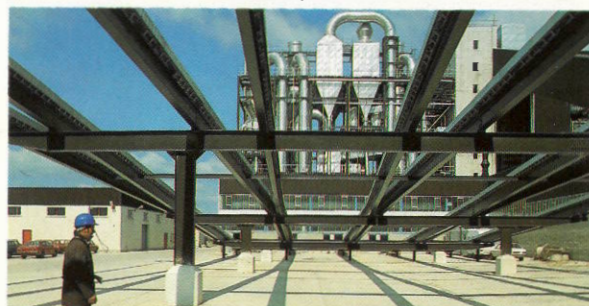
Milled peat harvesting



Sod peat production



Milled peat production



Bord na Móna briquette factory

Power Production

Home based Fuel

The importance of having indigenous sources of fuel cannot be over-emphasised. The cost of all hydrocarbon primary energy is increasing and in many cases there are problems of availability and delivery. The use of a native resource provides security in electricity supply.

Power Production

Cheap and reliable electricity is vital to all aspects of social and economic growth. A native peat resource offers to any country or region the opportunity to provide such energy, thereby creating the vital infrastructure for further industrial development.

Security of Supply

The fact that a country or a region has total control over the primary energy supply and its conversion to electricity creates an enviable level of self-sufficiency which enables economic and social progress to be sustained irrespective of what happens in the outside world.

Investment at Home

For any country, the development of native resources provides the best possible investment rather than having a dependence on overseas suppliers and consequently a large financial outflow. For projects such as this, many international funding agencies appear to be prepared to offer assistance and financial aid.



ESB Generating Station at Rhode



ESB Generating Station at Lanesborough