



Bellacorick

3956



Peat Station



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About Bellacorick

Located in the heartland of Co. Mayo, Bellacorick Generating Station produces electricity from the burning of peat.

The station is one of five ESB peat stations. The four other stations are situated at Rhode and Ferbane in Co. Offaly, at Lanesboro in Co. Longford and at Shannonbridge in Co. Westmeath.

About ESB Power Stations

ESB power stations are classified as either thermal or hydro. Thermal stations convert the chemical energy in fossil fuels into electricity by burning coal, gas, oil or peat. Hydro stations convert the potential energy in water at a height into electricity by dropping the water through turbines to a lower level. Increasingly electricity is being generated from alternative sources such as wind and biogas.

Types of ESB Power Station

 Coal	 Peat
 Gas	 Oil
 Hydro	 Renewables (other than Hydro)

Introduction

Located about twenty miles west of Ballina in Northwest Mayo, Bellacorick Generating Station burns milled peat supplied by Bord na Mona from its 6,000 acres of developed bogland in the area. There are an additional 2,500 acres of bogland currently being developed. On average the station burns 1,000 tons of peat during a normal day.

The Co. Mayo plant, one of five ESB power stations fuelled by milled peat began its operations in 1962 when the first unit was commissioned and it continues to play a vital role in the development of the Irish economy. Through its use of locally produced peat, it has helped in the ongoing task of reducing Ireland's dependence on imported fossil fuels.

A brief history

Bellacorick is situated in the barony of Erris, one of the most remote and picturesque parts of Ireland. The whole area, which attracts many people with a passion for fishing, is steeped in folklore.

Close by the plant is the famous "Musical Bridge", work on which was begun by a local family of stone builders, the Hopkins, in the 1820's. The family ran out of money during construction and to avoid deportation, they left the area in a hurry. The legend goes that before leaving Erris the mother of the family put a curse on any person who completed the construction of the bridge. An engineer was later engaged to finish the

job, but he died suddenly before the last stone could be placed. To this day, no one has put in the last stone, or the pointing on the bridge, which is said to give out a musical sound when you run a stone along the top of the wall on one side. The other side is reputedly stone deaf!

The development of the Bellacorick plant can be traced back to the foundation of the Turf Board and the subsequent establishment of Bord na Mona in 1946. During the Second World War, the country relied heavily for fuel and heat on natively produced turf, much of it dug by teams of people transported to the bog by bus.

Bord na Mona started work on the development of the bogland around Bellacorick in 1951. The bog had to be drained so as to allow heavy machinery to operate on it. The initial construction of the power station got underway in 1958. Erskine Childers, Minister for Transport & Power and later to become the third President of Ireland officially opened the plant in May 1963.

The operation of the plant

The plant burns milled peat, which is supplied by Bord na Mona from its 6,000 acres of developed bogland in the area.

Milled peat is in powder form and is different from sod peat, which is used for domestic heating. The milled peat that is harvested in summer time is stored on

the bog. When required it is loaded into eight-tonne railway wagons. A diesel locomotive draws the wagons (usually twelve at a time) to the station via a railway system. A device called a tippler, which rotates each wagon separately onto a belt conveying system, which delivers it to the station, then unloads the fuel.

Around 350,000 tonnes of peat is used annually. The peat has a moisture content that ranges from 40 percent to 65 percent depending on its composition and upon drying conditions during the summer harvesting season.

The plant comprises of two 20 MW turbo alternators which are driven by steam from two boilers capable of producing 210,000 pounds of steam per hour.

Each unit consists of a boiler and a turbine/generator. The boiler operates on a pulverised fuel system (PF). When the station is on load, peat is conveyed from the bunker by variable speed feeders to the pulverising mills where it is mixed with hot gasses taken from above the vapour burners in the furnace, this process further dries and grinds the fuel. The fuel and drying gases exit the mill at 180°C, with the peat now having a content of fifteen percent moisture. The mixture is now blown into the furnace via four tangentially arranged corner burners.

The boilers are a conventional re-circulating type having an economiser, a steam drum,



generating tubes and superheaters. The main steam range brings the steam to the turbines and is then exhausted to water-cooled condensers. The condensate is pumped to a feedwater tank for re-use. Cooling water for the condensers is taken from the Owenmore River at the pumphouse and is delivered to the condensers via underground culverts at a rate of 60,500 Gallons per minute. The water is returned to the river at the cooling water outfall approximately 6°C to 7°C higher than the intake. Heat from the plant is discharged through an 88 metre (290 ft.) tall cooling tower.

The turbine drives the generator to produce electricity at 10 kV, which is fed through an underground cable to a



Top
Electrical Control Room
Centre left
G2 Turbine Control Panel
Centre right
Examination of Unit 1, 3.3 kV Panel
Bottom
Gas Ducting and Fuel Shoot to Mill 2D



ELECTRICITY GENERATION OVERVIEW (MegaWatt Hrs)



NOTE: Generation Overview based on 1997 figures
Total Generation for 1997 was 20 million MW's

transformer where it is stepped up to 110 kV for transmission to the National Grid.

Care for the environment

Special areas of conservation and heritage surround Bellacorick. The nearby Owenmore River is very popular with salmon and trout fishermen. By virtue of its scenic location, staff and management at Bellacorick are aware of the importance of adopting a sensitive approach to environmental management. An environmental management system is in place at the station to maintain the highest possible efficiency standards and to manage environmental issues in a proactive manner.

Role within the local economy

Bellacorick plays a pivotal role in the development of the local economy. The Co. Mayo plant has been a major contributor to local employment and to the economy as a whole. The station contributes to the economy by the purchase of materials locally where possible and also by providing both permanent and temporary employment including the use of contractors and temporary staff during major work periods.

Role within the community

As a provider of an essential service, Bellacorick Generating Station plays a fundamental role in the fabric of the local society. It recognises this and

meets its commitments through support for a wide variety of local community related initiatives.

Care and concern for the local community has long been a hallmark of the station and it is one that will continue to be retained in the future, whether it be assisting in rural renewal and regeneration or local community initiatives.

Visitors

The station remains a popular attraction for school tours and for organised groups. However, it is essential that all visits be organised well in advance.

All requests to visit the station should be submitted in writing to: The Station Manager, Bellacorick Generating Station, Bellacorick, Co. Mayo.

You can find out much more...

about Bellacorick including Quicktime Video and 360° scans of the station by visiting us at www.esb.ie