



Shannonbridge



Peat Station
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P Shannonbridge



About Shannonbridge

Shannonbridge, located close to the point where the river Suck joins the river Shannon, produces electricity from the burning of peat. The station is the largest ESB Peat Power Station in the country.

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



Introduction

Situated on the banks of the river Shannon, sixteen miles south of Athlone, close to the historic centre of Clonfert and five miles from Clonmacnois, Shannonbridge is the largest ESB peat station in the country. The four other peat stations are situated at Rhode and Ferbane in Co. Offaly, at Lanesboro in Co. Longford and at Bellacorick in Co. Mayo. Between them, the five peat stations produce enough electricity to meet almost fifteen percent of the country's requirements.

Local history

The area around Shannonbridge has a rich heritage. Archaeologists have been active in the locality with many significant finds unearthed. The remains of a stockaded fishing village dating back to 900 BC are to be found at the nearby Finn Lake. The surrounding bog has yielded important discoveries including a dugout boat, beads from the faraway Baltic region, stone head axes, antlers and timber roadways. Butter preserved in the bog has also been discovered on many occasions.

Four important monasteries or religious settlements, dating back to the fifth century when the country served as an important sanctuary in what was a very difficult period for Christianity, are to be found in the area. The best known of these are Clonmacnois, founded by Saint Ciaran and Clonfert founded by Saint Brendan the Navigator. The other monastic settlements were at Clonburren and Clonifeen.

The sixteen-arch bridge on the River Shannon was built around 1700. In 1845 a cast-iron swivel bridge to facilitate sailing

craft was added. The new fixed span was built in 1983. The fortifications were built on the west bank as a defence against a possible French invasion early in the nineteenth century.

The generating station at Shannonbridge has three units for producing electricity, each with its own boiler, turbine and generator. Unit one was commissioned in 1965. It has a capacity of 40 megawatts (MW). Unit two, which was commissioned in 1976, also has a capacity of 40 MWs. Unit three was commissioned in 1982 with updated technology and has a capacity of 45 MW.

Two fuel handling plants have also been commissioned, in 1965 and 1983. The specialist peat burning boilers were manufactured in Germany with the turbines manufactured in England by the engineering firm Parsons, a company founded by Charles Parsons of nearby Parsonstown (now Birr).

The operation of the plant

The plant burns milled peat, which is obtained from the surrounding bogs, which cover 5,500 hectares (13,500 acres), in Co. Offaly, Co. Galway, Co. Roscommon and Co. Westmeath.

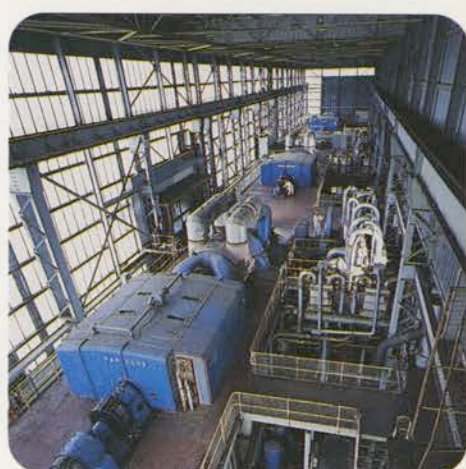
Milled peat is in powder form and is different from sod peat, which is used for domestic heating. The peat is extracted by Bord na Mona, and delivered to Shannonbridge along a narrow gauge railway.

Approximately one million 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.

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 the furnace, this process dries and grinds the fuel. The fuel and drying gases exit the mill at 180°C, with the fuel 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 natural circulation type having an economiser, a steam drum, generating tubes and superheaters. The main steam range brings the superheated steam to the high-pressure turbine inlets, where the steam gives up most of its energy. It 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 river Shannon 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 to 7°C higher than the intake.

The turbine drives the generator to produce electricity at 10.5 kV, which is fed through an underground cable to a transformer

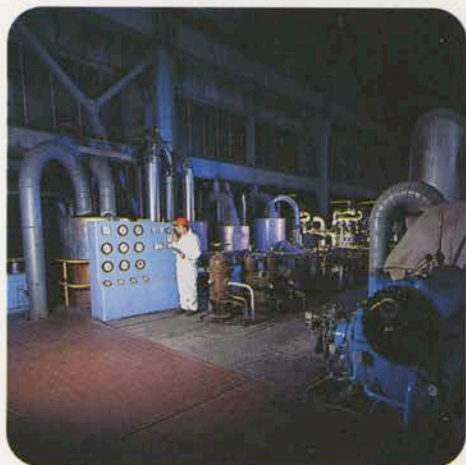


for supply to the national grid, through 110 kV transmission lines to Ferbane, Athlone, Ennis, Cashla and 220 kV lines to Maynooth and Killonan.

The environment

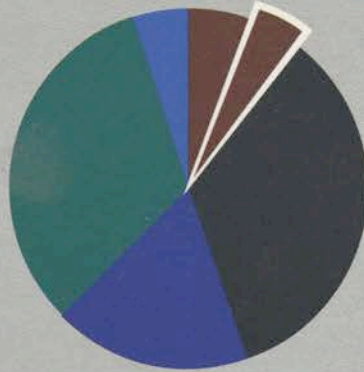
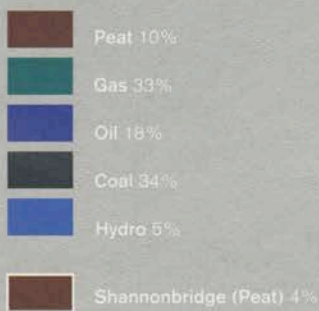
At Shannonbridge station, as with all its facilities throughout the country, ESB follows the very best international practices to protect the surrounding environment.

The station has an active policy of incorporating environmental management and waste management systems into the overall operation. Shannonbridge is a pilot station in the continuous emissions monitoring project under which all emissions are measured by computer. The area is noted for its many rare species of both plants and birds. Large specimens



- Top
Control Panel
- Centre left
Plant Maintenance
- Centre right
Engine Room
- Bottom
Turbine Plant

ELECTRICITY GENERATION OVERVIEW
(MegaWatt Hrs)



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

of fish breed in the warm water flowing from the station. This provides a major attraction to anglers. Callow meadows, adjoining the station provide a safe home for visiting corncrake, a species that in these days of large fields and heavy agricultural machinery has become all too rare.

Shannonbridge and the local economy

Shannonbridge Generating Station plays a pivotal role in the largely rural local economy. In 1995 a one hundred metre chimney stack and associated equipment was put in place at a cost of over £4 million as part of an ongoing investment programme.

Shannonbridge contributes to the local economy by the purchase of materials in Ireland where possible and also by

providing both permanent employment and temporary employment including the use of contractors and temporary staff during major work periods.

Shannonbridge and the local community

In a rural environment like Shannonbridge, ESB recognises the important role that it has to play in the affairs of the local community and the social responsibilities that they have to the economy that supports them.

The station is part of the fabric of local society. Support is provided for a wide variety of local initiatives. The plant is a willing and proud supporter of many of Shannonbridge's local sporting organisations. The station continues to

maintain a strong community focus. It is vital that measures to encourage competition in the generation and supply of electricity take this necessary community role into consideration.

Visitors

The station remains a popular attraction for school tours and for organised groups. While we are glad to facilitate visitors with a tour of the station, it is essential that all visits be organised well in advance.

All requests should be submitted in writing to: The Station Manager, Shannonbridge Generating Station, Athlone, Co Westmeath.

You can find out much more... about Shannonbridge including Quicktime Video and 360° scans of the station by visiting us at www.esb.ie

