Aghada

Gas Power Station

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About Aghada

Aghada, strategically located close to the entrance of Cork Harbour, produces electricity from the burning of natural gas. During the first few years of operation it was Ireland's largest electricity operator.

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

- C Coal
- P Peat
- G Gas
- O Oil
- H Hydro
- R Renewables (other than Hydro)

Introduction

Aghada Station is one of the largest electricity generating facilities in Ireland. Fuelled by natural gas, it was opened in 1980 at a cost of £100 million and during the first few years of its operation, it was Ireland's largest electricity producer. Aghada is strategically located close to the entrance of Cork Harbour and adjacent to Irish Refining plc. Haulbowline Island, in the harbour nearby is home to both Irish Steel and the Irish Naval Service.

Local History

Aghada derives its name from the Irish expression Ath Fhada, which when translated to english means Long Ford. The station is built on such a rocky finger of land projecting into Cork Harbour's Eastern shoreline.

The area around Aghada is steeped in history, particularly that of the maritime variety. The station faces the historic and picturesque port of Cobh, formerly known as Queenstown, the place where many thousands of emigrants departed the country for the last time. The Titanic called there on its fateful maiden voyage in 1912. In 1915 disaster struck in nearby waters when the Lusitania was sunk by a U-boat, with the loss of 1,200 lives. The United States Navy built its naval air operations headquarters in Aghada during the First World War. The nearby coastline has witnessed many maritime disasters most notably the wrecking of the Celtic, one of the truly great ships of the 1920's.

In more recent times, a cluster of industries ranging from oil refining and steel making to ship construction grew up in this area. The Irish Steel facility, which is now owned by the Indian firm, Ispat, is just across the water. The nearby oil refinery, Irish Refining plc, passed into state ownership during the 1980's. Spike Island, another neighbour, operated as a prison and military fort for more than one hundred and fifty years. It remained, along with the other harbour fortifications in British hands until it was handed over to the Irish Government in 1938. The hand-over of the garrison forts to the Irish control proved crucial to the Republic's neutrality during the Second World War.

Two events during the 1970's were to prove crucial in the run up to the construction of the plant. In 1971 the oil and gas exploration and development multinational, Marathon, discovered substantial reserves of natural gas in the Celtic sea around thirty miles south of Cork Harbour.

Just over two years later, oil producers raised oil prices fourfold, precipitating an economic crisis in the West. Across the developed world there were long queues at petrol stations. Ireland, with its small open economy and heavy dependence on oil imports, was severely affected. Many of the country's subsequent financial problems, which reached a peak in the mid 1980's when Ireland was among the world's most indebted nations, can be traced to the events of October 1973.

The Government set about reducing the country's dependence on imported oil resulting in ESB in particular, finding itself at the forefront of a national energy

product diversification strategy. As a result of this, the decision to press ahead with the construction of generating plants fuelled by coal (Moneypoint) and natural gas (Aghada) was taken. At the time, the natural gas infrastructure had yet to be put in place so it was imperative that the new station be located near to the Marathon field and hence Aghada, close to where the gas-line came ashore, was selected. Other strategic considerations in locating the station were the suitable water cooling resource provided by Cork Harbour and the proximity of major load centres such as Cork City.

How Aghada operates

In a conventional steam unit, fossil fuel (coal, oil, peat, and natural gas) is fired in a large boiler, producing steam. This steam rotates the turbine, which in turn drives the electricity generator. The electrical voltage is increased in a transformer before being transmitted through the large powerlines. However prior to use in homes and factories this voltage will need to be reduced again. Aghada has one large unit of this type (unit 1) which is fired by natural gas and has a maximum output of 270 megawatts (MW's).

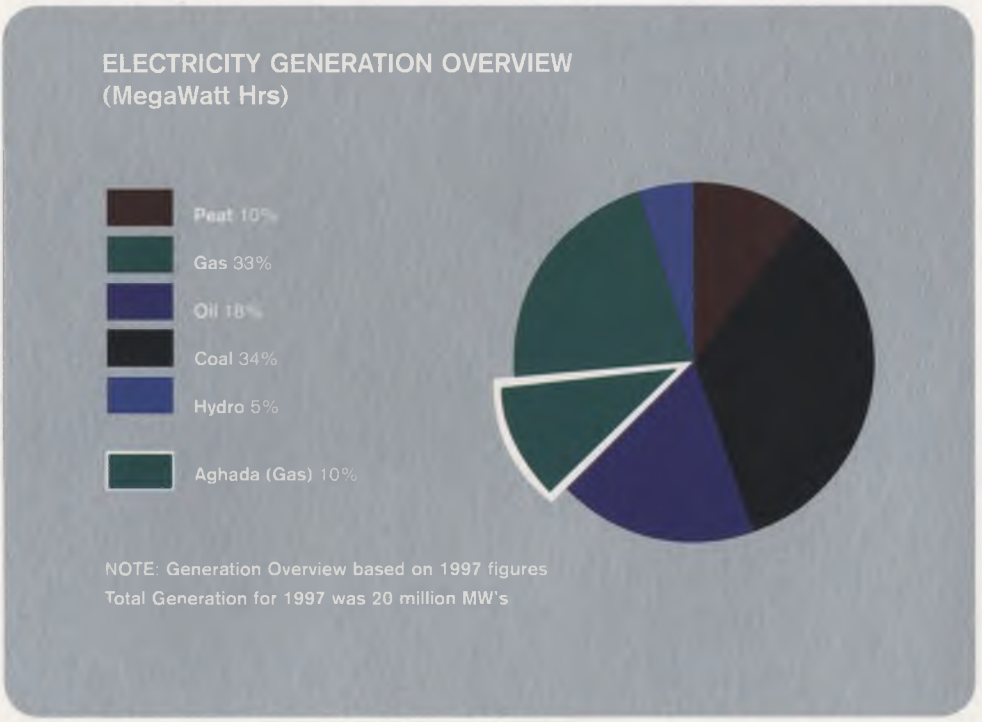
Aghada Generating Station also has three open-cycle gas turbines, each with an individual role in the ESB system, each with an individual base load capacity of 90 MW's, but this output can be exceeded for short periods, if required. In the case of the gas turbine units, the turbo-generator is rotated by exhaust gasses emerging from a set of fourteen burners rather than by steam. Open Cycle Gas Turbines, the type in use at Aghada, fulfil a different role in the ESB system to that of steam driven units as they can be brought on load quickly when required. As a result, they are used to cover peak customer demand and system emergencies whereas the larger and more efficient steam driven units are more suited to continuous "base load" operations.

A highly skilled workforce, trained in the various disciplines of plant operation, engineering, maintenance, administration, laboratory and technical services, staff the station.

The Environment

As with all ESB facilities throughout the country, Aghada follows the very best international practises to protect the surrounding environment. Awareness of environmental issues is actively

Top
Turbo Alternator
Centre left
Turbine Hall
Centre right
Aghada Burner
Bottom
Control Room



promoted throughout the station and there is a significant emphasis on the achievement of waste reduction and product substitution. The station regularly carries out in-house audits of its performance in this area and is constantly upgrading its environmental management procedures.

Over the years, the station has won many awards for landscaping and general tidiness from both internal and external agencies.

Economic role of Aghada

The station at Aghada plays an integral role in the development of the surrounding environment. It is estimated that around £5 million in annual spending in the Cork area is attributable to the plants continued operation.

ESB remains the main customer of Bord Gais despite the huge broadening of its customer base since the early 1980's. The station consumes around 18 billion cubic feet of natural gas each year. The Kinsale field, which has an estimated recoverable reserve level equivalent to 250 million barrels of oil, is now running out, despite additional gas discoveries in nearby blocks. However, future supplies of natural gas have been guaranteed following the completion of an underwater interconnecter between Ireland and Scotland that will link Irish consumers to the British national gas grid and on to the North Sea.

Aghada and the local community

Aghada Generating Station is important to the fabric of the local community and over the years it has supported and sponsored various organisations and sporting clubs. Significant community initiatives, such as a footpath linking the villages along the harbour front and an illustrated display of the bird-life at nearby Rostellan Lake have received special support. The station has also assisted in the rural regeneration activity and it is to be hoped that such activities can be maintained to the fullest extent in the competitive environment.

Visitors

Since its opening, Aghada has gladly facilitated visits by schools, third level colleges and organised groups. However, it is essential that visits be arranged in advance by making application to: The Station Manager, Aghada Generating Station, Whitegate, Midleton, Co. Cork.

You can find out much more...

about Aghada including Quicktime Video and 360° scans of the station when you visit us at www.esb.ie