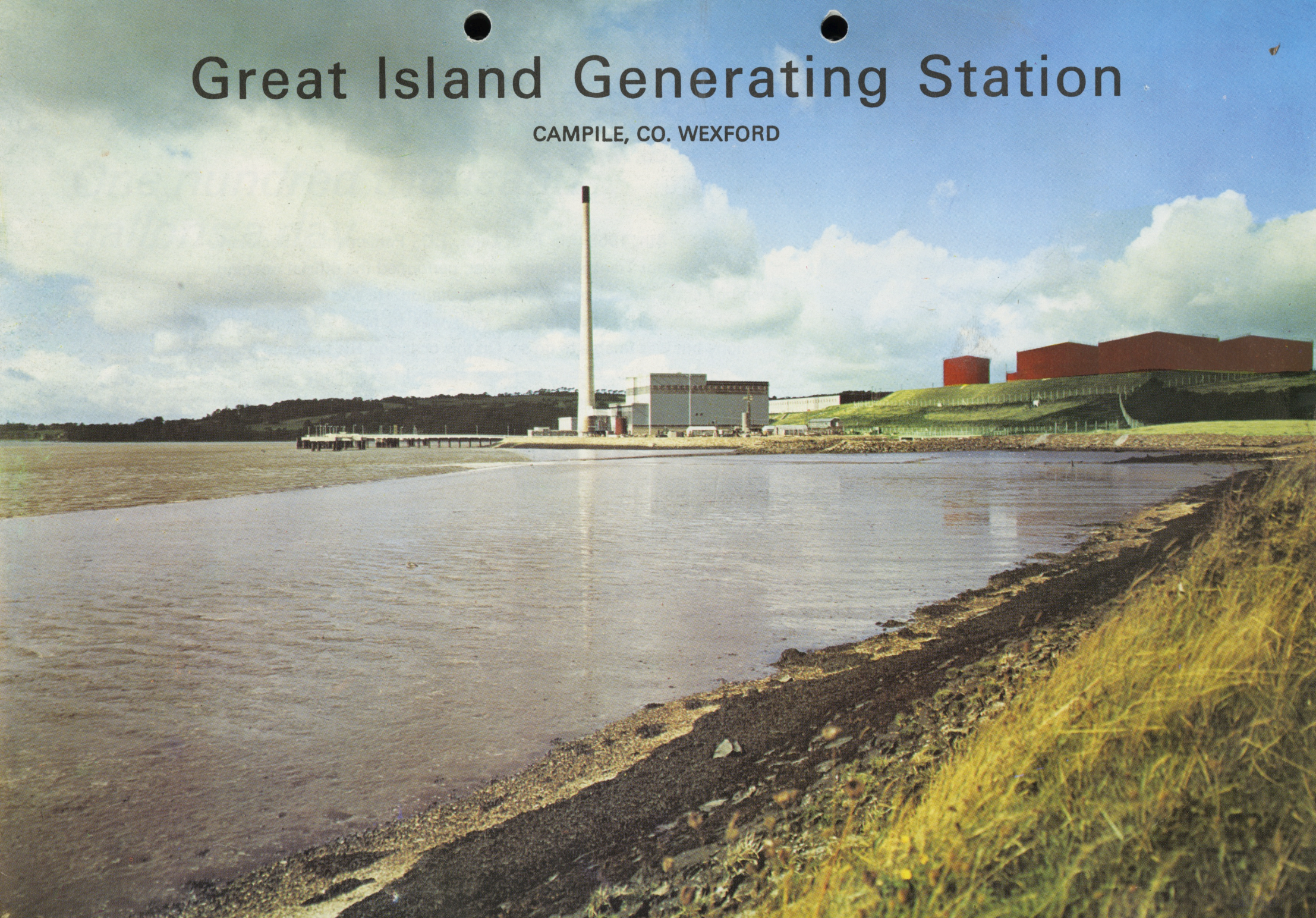


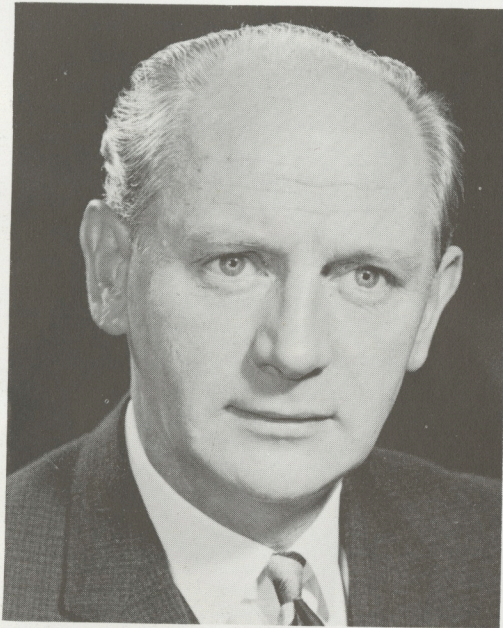
Great Island Generating Station

CAMPILE, CO. WEXFORD



Great Island Generating Station

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An Taoiseach, Mr. J. Lynch, T.D.

generating unit, bringing the total capacity of the station to 240,000 kilowatts, capable of producing approximately 1,000 million units of electricity a year.

The capital investment in the initial development totalled £8 million and, when complete, the total capital value will be of the order of £14 million. During construction over 350 men were employed on the site.

On November 4th, 1968, Mr. P. J. Lalor, T.D., Parliamentary Secretary to the Minister for Transport and Power, performed the official opening ceremony at the Great Island Generating Station. He was deputising for An Taoiseach, Mr. J. Lynch, T.D., who was to have performed the ceremony but was unable to do so. On this occasion His Lordship Most Reverend Dr. Herlihy, Bishop of Ferns, blessed the station.

Construction of the station commenced in 1963 and the first 60,000 kilowatt unit went into service in December, 1967. The second unit, also 60,000 kilowatts, was commissioned in April, 1968. This completed the first stage of development, but work has now commenced on the second stage which will comprise a further 120,000 kilowatt



ESB Chairman, Mr. Thomas Murray

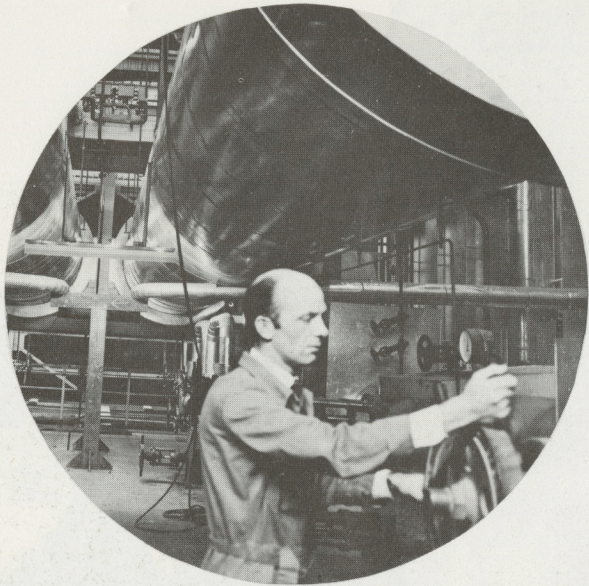
FUEL STORAGE AND HANDLING

One hundred thousand gallons a day

Great Island is the first oil-fired station on the ESB's system to be built outside the large urban areas of Dublin and Cork. The oil used is a heavy residual fuel oil which is a by-product of oil refineries. The oil is delivered directly to the station's own 200 foot long marine jetty and pumped at almost 200,000 gallons an hour into the storage tanks which can accommodate 13 million gallons. This storage capacity is sufficient to maintain full station output for 12 weeks approximately.

The oil from the storage tanks, which is of high viscosity, is heated by steam draw off and floor heaters to allow an easier flow. Fuel transfer from tank to tank can be by gravity feed as all the tanks are equal height. When necessary, transfer through two 100 ton per hour transfer pumps is possible. For day to day operation the oil is moved from any nominated main storage tank via the transfer tank to the boilers by remote control from the central thermal control room. To achieve rapid combustion and complete release of the heat in the fuel, the oil is raised to a pressure of 900 P.S.I. and a temperature of 300°F for firing by nine pressure atomised, remotely controlled burners mounted on the boiler wall.





Steam—at 1,200 lb. pressure

Each of the 2 boilers can produce 517,000 lbs. of steam per hour at a pressure of 1,190 pounds per square inch and a temperature of 975°F. They are of a radiant furnace, two pass, natural circulation, single drum design.

Thermal Control

By means of the most modern electronic control equipment, the starting, load control and shutdown of boiler plant can be operated from the thermal control room. Auxiliaries such as fans, pumps and standby equipment are also operated from this location and full data on the minute-to-minute operation of the plant is transmitted to this location for recording so that the plant may be operated with maximum safety, reliability and efficiency.



GENERATION

Two Million Units of Electricity a day

The steam from the boilers is fed into two 60,000 kilowatt Parsons turbo-alternator sets. The steam drives the turbines – which are coupled to the generator units which generate electricity. These units are amongst the most modern of their kind in operation today.

The steam, having passed through the turbines is cooled as it passes through the condensers which draw water from the river. This cooling water is delivered by three pumps, each capable of supplying 42,000 gallons per minute.

The flow and power controls are remotely operated from the thermal control room.



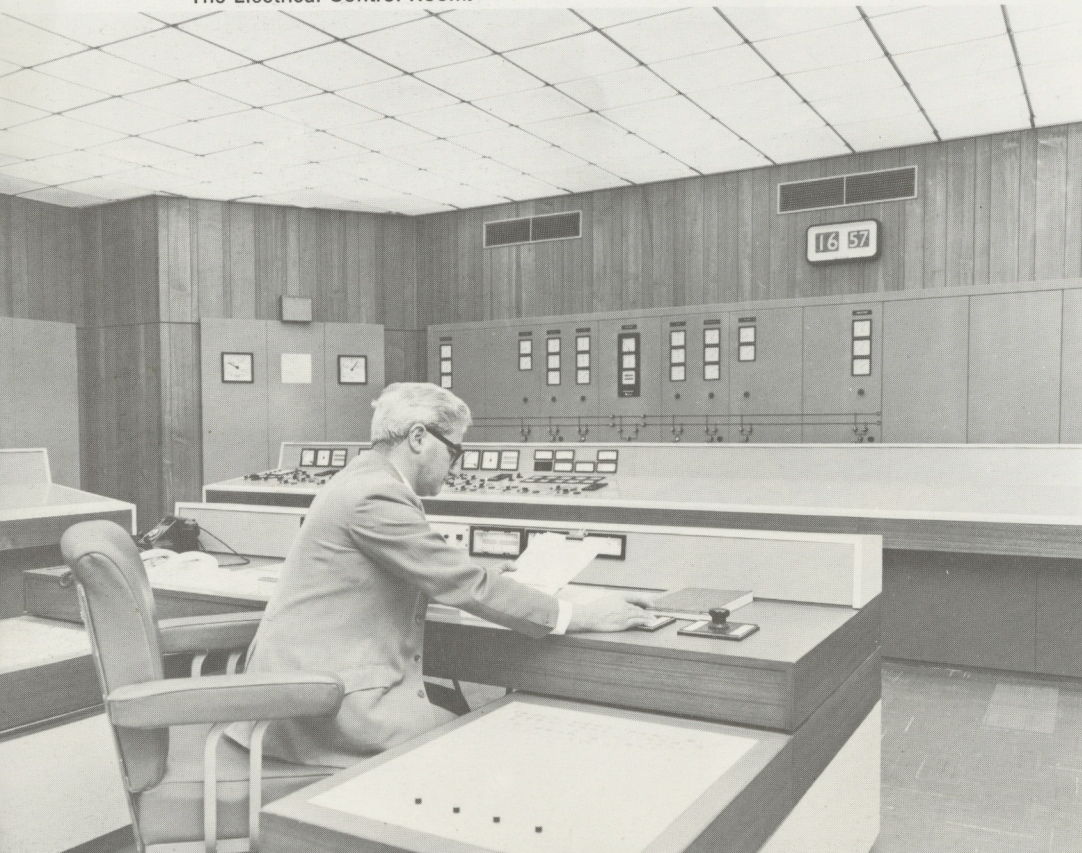
The Thermal Control Room (left) and the Generator Hall (right).

CONTROL AND DESPATCH

“Great Island, give us one-twenty megawatts please”

Every generating station on the ESB network is given running instructions for each day by teleprinter. Sometimes these instructions must be changed because of a higher demand for power from consumers, or a problem in one or more stations. These instructions come from the central Load Despatch Office in Dublin and are received at the generating station control room from where the shift engineers ensure that they are implemented

The Electrical Control Room.



and that the increased power required is fed into the national power network or 'grid' as it is called. This power is generated in the station at 10,000 volts, but is raised to 110,000 volts at the station's transformers before being delivered to the network. The reason for the change is that it is more economical to transmit power over long distances at high rather than low voltages.

The Indoor 110 kV. Transformer Station.



Work on construction of an extension to the Great Island Generating Station is now at an advanced stage and it is hoped to commission the new generating unit and transmission system in 1971/1972.

The new development will contain a 120 MW turbo-alternator and its auxiliary equipment located in an extension of the existing Engine Room/Boiler House building and the works include the provision of extra oil fuel storage tanks, a second 450 ft. high reinforced concrete chimney, and a new 220 kV switching station which will provide a link between the 220 kV Transmission line connecting Great Island to Knockraha near Cork and ultimately to the new pumped storage station at Turlough Hill.

The Staff Dining Hall, and on right, work in progress on the extension to the station.



To-day and To-morrow



One of many

The Great Island Oil-Fired Generating Station was the 26th to be built by the ESB in this country. Of the 27 generating stations 9 are hydro, 5 operate on milled peat, 6 on sod peat, 1 on native coal, 6 on coal or oil.

HYDRO STATIONS		<i>Capacity</i>	STEAM STATIONS		<i>Capacity</i>
		<i>MW.</i>			<i>MW.</i>
River Shannon:	Ardnacrusha	85	Allenwood (Co. Kildare)		
River Liffey:	Pollaphuca	30	<i>sod peat</i>		40
	Golden Falls	4	Ferbane (Co. Offaly)		
	Leixlip	4	<i>milled peat</i>		90
River Erne:	Cathaleen's Fall	45	Lanesborough (Co. Longford)		
	Cliff	20	<i>sod and milled peat</i>		60
River Lee:	Inniscarra	19	Rhode (Co. Offaly)		
	Carrigadrohid	8	<i>milled peat</i>		80
River Clady:	Clady	4	Bellacorick (Co. Mayo)		
		—	<i>milled peat</i>		40
		219	Shannonbridge (Co. Offaly)		40
			<i>milled peat</i>		40
STEAM STATIONS	<i>Capacity</i>		Arigna (Co. Roscommon)		15
	<i>MW.</i>		<i>native coal</i>		
Pigeon House (Dublin City)		90	Miltown-Malbay (Co. Clare)		5
<i>coal/oil</i>			<i>sod peat</i>		
North Wall (Dublin City)		48	Screeb (Co. Galway)		5
<i>oil</i>			<i>sod peat</i>		5
Ringsend (Dublin City)		270	Cahirciveen (Co. Kerry)		5
<i>coal/oil</i>			<i>sod peat</i>		5
Marina (Cork City)		120	Gweedore (Co. Donegal)		5
<i>coal/oil</i>			<i>sod peat</i>		5
Great Island (Co. Wexford)		120			—
<i>oil</i>					1,191
Portarlinton (Co. Laois)		38	Total Capacity,		
<i>sod peat</i>			Hydro and Steam		1,410 MW.
Tarbert Island (Co. Kerry)		120			
<i>oil</i>					

Cooling water outfall.

