

Rhode Generating Station

COUNTY OFFALY



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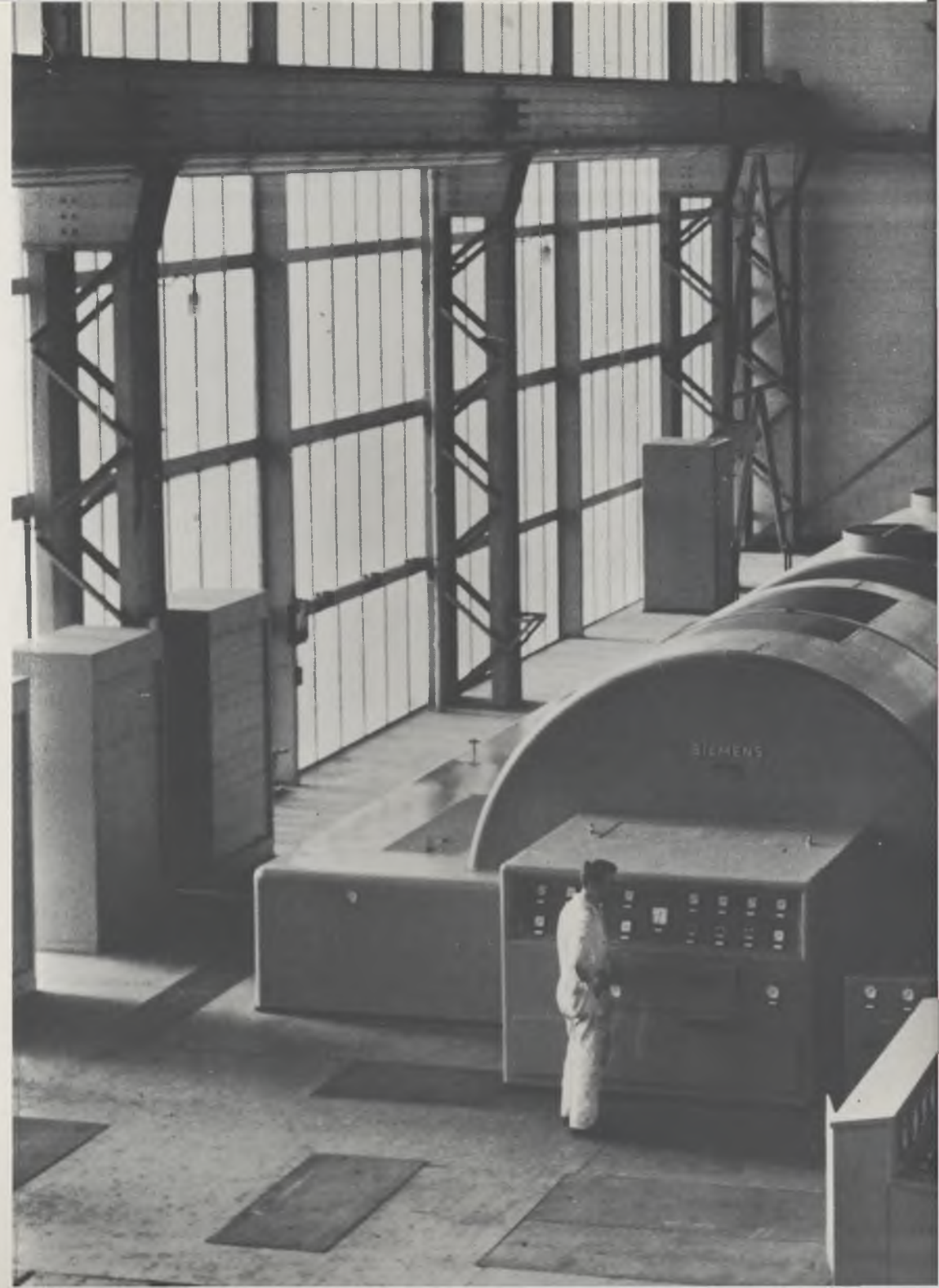
Rhode peat-fired generating station makes use of the 12,000 acres of bog in North County Offaly.

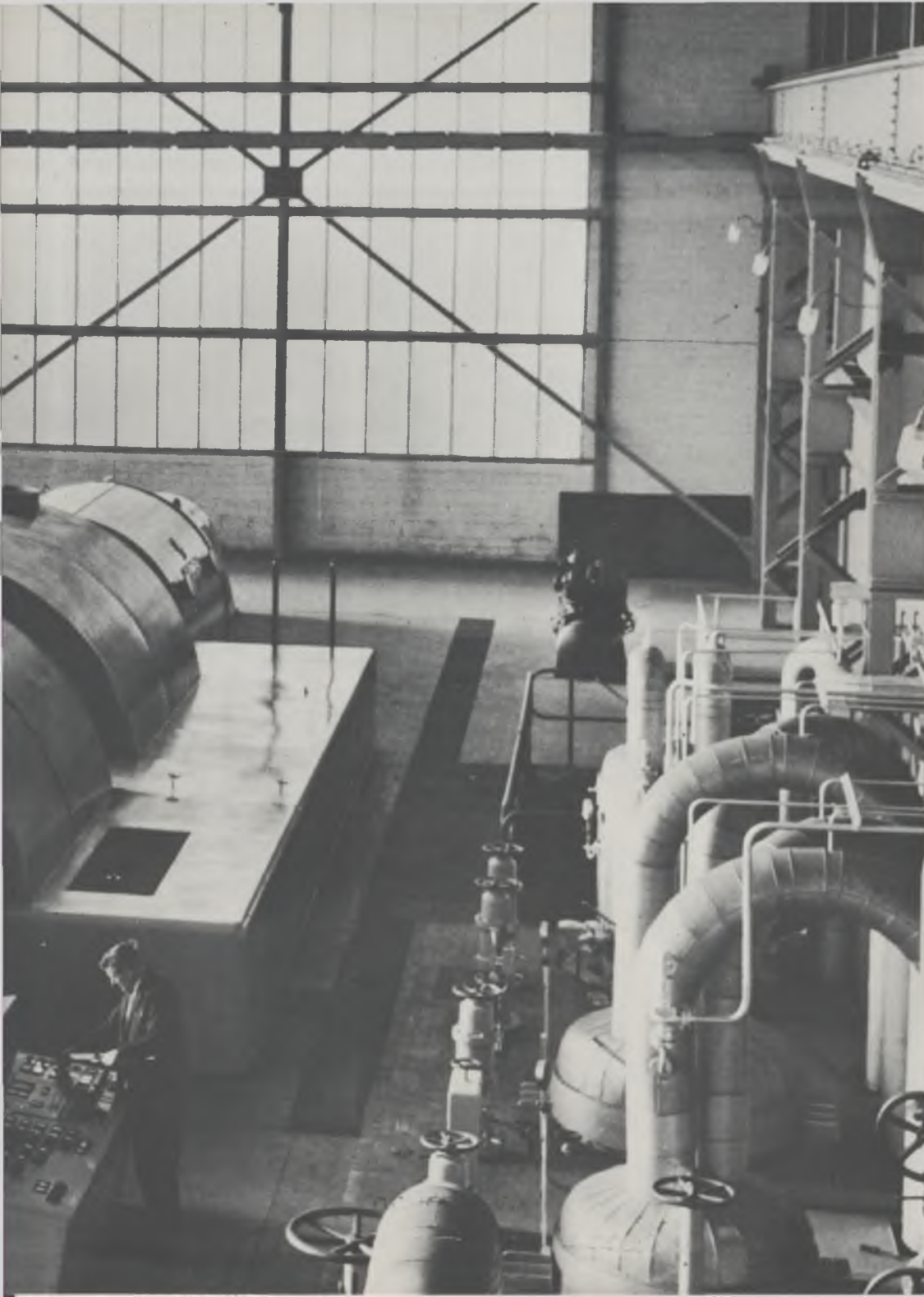
The station was completed in two separate developments: 'A' station in 1960 and 'B' station in 1963. 'A' station consists of two 20,000 kW Boiler-Turbine units, and 'B' station consists of one 40,000 kW units. The station stands on a site of 66 acres, and has a permanent staff of 155. Total capital investment is £6 million. The generating voltage is 10,000 and the station transformers step up this voltage to 110,000 for transmission in the national grid. Two 110 kV lines transmit the power to Maynooth and to Finglas.

Turf is delivered to the station by narrow gauge railway. Waggons, containing 5 tons are emptied automatically into the tippler and the peat travels on a conveyor belt to the bunkers at a rate of 2,000 tons per day. An automatic weighing system measures tonnage. The total bunker capacity is 1,000 tons, and about 580,000 tons of peat are used per year.

As there is no large natural supply of water nearby, it is necessary to use a re-circulating system for cooling water to cool the condensers. Two cooling towers reduce the temperature of the water so that the same water can be used over again. 60,000 gallons of water flow through the towers per minute in order to condense the steam passing through the turbines.

Section of Generating Hall





PRINCIPAL TECHNICAL PARTICULARS

Fuel

Milled Peat	55 per cent moisture
Size	Dust, and up to $\frac{1}{2}$ inch diameter
Foidin	35-50% moisture.
Size	Up to 8" x 3" x 2".
Net calorific value at 55% moisture	3,375 B.t.u./lb
Ash fusion point	1,100°C to 1,150°C

Boilers

	1st development Two 20,000 kW units	2nd development One 40,000 kW unit
Numbers	1 and 2	3
Maker	Walther & Cie	Walther & Cie
Economic rating	165,000 lb./hr.	325,000 lb./hr.
M.C.R.	190,000 lb./hr.	380,000 lb./hr.
Steam pressure	675 psig	925 psig
Steam temperature	849°F	954°F
Firing	Pulverised milled peat 34 tons/HR at 55% M.C. at E.R.	Pulverised milled peat and foidin 61 tons/HR at 55% M.C. at E.R.

Turbo-Alternators

Numbers	1 and 2	3
Maker	De Laval Ljungstrom	Siemens-Schuckertwerke
Type	Radial flow	Two cylinder double shell high pressure impulse-reaction, double flow exhaust
Economic rating	18,000 kW	40,000 kW
M.C.R.	20,000 kW	40,000 kW
Speed	3,000 r.p.m.	3,000 r.p.m.
Steam pressure	650 psig	900 psig
Steam temperature	850°F	950°F
Voltage	10,500V	10,500V
Power factor	0.8	0.8

Cooling Towers

Numbers	1	2
Type	R-C hyperbolic	R-C hyperbolic
Height	260 ft.	280 ft.
Internal diameter at base	190 ft.	205 ft.
Water quantity	1.96 m.g. 10° g.p.h.	1.85 m.g. 10° g.p.h.
Temperature range	84°F to 70°F	72°F to 60°F

Electrical Equipment

Transformers	A.C.E.C., B.T.H., Electromekano and Unidare.
Switchgear	ASEA, Galileo, Siemens-Schuckert and Voigt & Haeffner.

One of our many Stations

Of the 28 generating stations 9 are hydro, 4 operate on milled peat, 6 on sod peat, 1 on native coal, 6 on oil, 1 on sod/milled peat and 1 on coal or oil.

HYDRO STATIONS		Capacity Mw.	STEAM STATIONS		Capacity Mw.
River Shannon:	Ardnacrusha	85	Portarlington (Co. Laois)	<i>sod peat</i>	38
River Liffey:	Pollaphuca	30	Tarbert Island (Co. Kerry)	<i>oil</i>	120
	Golden Falls	4			
	Leixlip	4			
River Erne:	Cathaleen's Fall	45	Allenwood (Co. Kildare)	<i>sod peat</i>	40
	Cliff	20			
River Lee:	Inniscarra	19	Ferbane (Co. Offaly)	<i>milled peat</i>	90
	Carrigadrohid	8			
River Clady:	Clady	4	Lanesborough (Co. Longford)	<i>sod and milled peat</i>	60
		— 219	Rhode (Co. Offaly)	<i>milled peat</i>	80
UNDER CONSTRUCTION			Bellacorick (Co. Mayo)	<i>milled peat</i>	40
Pumped Storage			Shannonbridge (Co. Offaly)	<i>milled peat</i>	40
Turlough Hill, Co. Wicklow		292	Arigna (Co. Roscommon)	<i>native coal</i>	15
STEAM STATIONS			Miltown-Malbay (Co. Clare)	<i>sod peat</i>	5
Pigeon House "A" (Dublin City)	<i>oil</i>	90	Screeb (Co. Galway)	<i>sod peat</i>	5
North Wall (Dublin City)	<i>oil</i>	48	Cahirciveen (Co. Kerry)	<i>sod peat</i>	5
Ringsend (Dublin City)	<i>coal/oil</i>	270	Gweedore (Co. Donegal)	<i>sod peat</i>	5
Marina (Cork City)	<i>oil</i>	120			
Pigeon House "B"	<i>oil</i>	268			— 1,459
Great Island (Co. Wexford)	<i>oil</i>	120	Total Capacity, Hydro and Steam 1,678 Mw.		

Fuel wagon entering tippler

