

Portlannington Generating Station

COUNTY LAOIS



ESB

Portarlinton Generating Station

The Portarlinton (Co. Laois) generating station was designed to use the full output of sod peat fuel produced on the adjoining Clonsast bog. The station was commissioned in 1950.

The boiler plant comprises three units with travelling chain grate stokers. Each unit has a normal output of 125,000 pounds of steam per hour.

The peat is in the form of machine-cut sods about 10 inches long by 3 inchessquare. It is delivered from the bog to the station in wagons. At the station the wagons are lifted by two roof cranes where the fuel is bunkered, and from here it is fed to the chain grate stokers.

The steam from the boilers operates three 12,500 kW turbo-alternator sets. The steam drives the turbines which are coupled to the generator units.

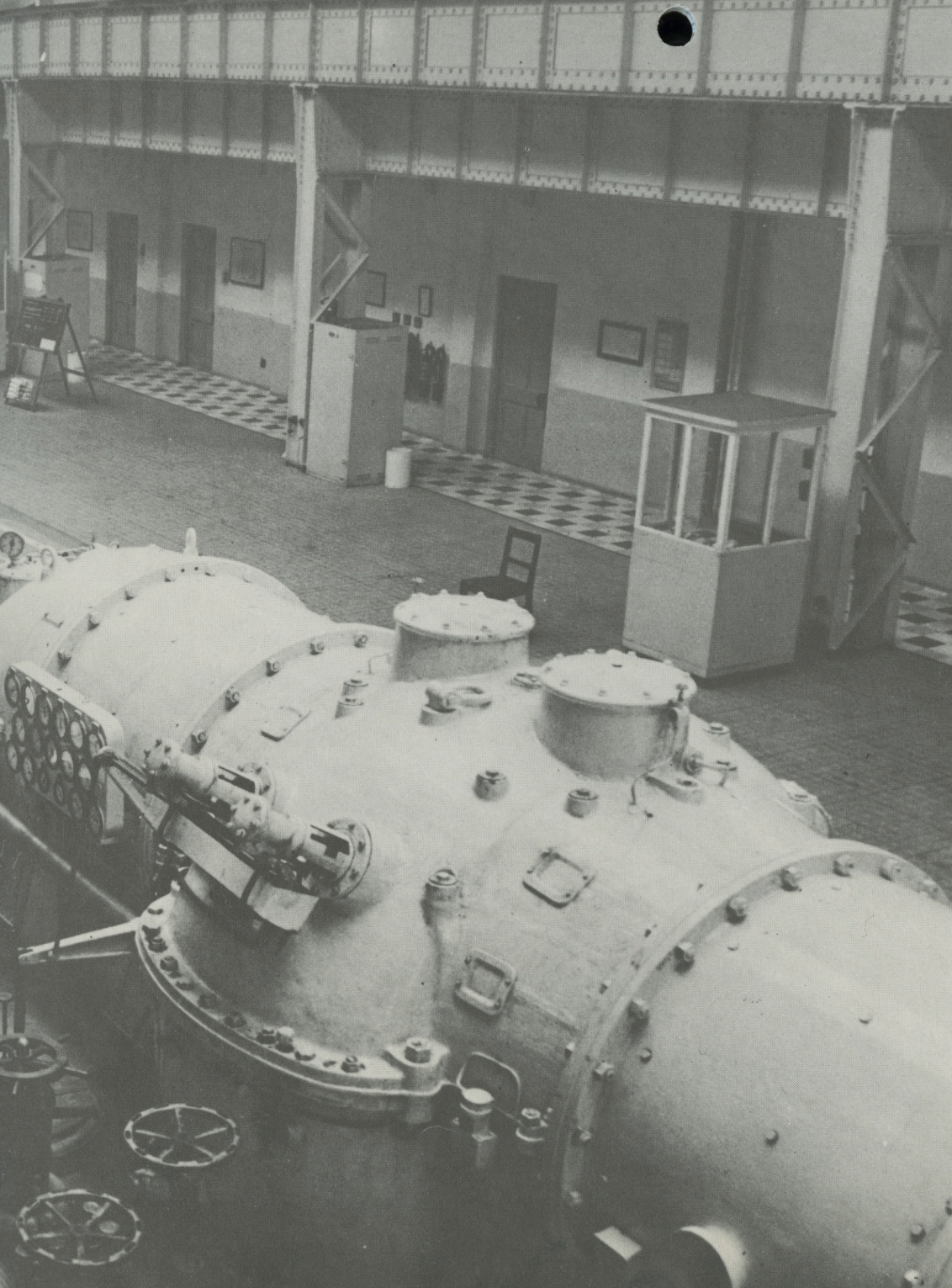
The steam having passed through the turbines is cooled as it passes through the condensers which draw cooling water from the cooling tower which has a circulation capacity of 1,800,000 gallons per hour.

The annual output of electricity is approximately 150 million units.

Fuel consumption is approximately 195,000 tons per year with a peat storage capacity of 40,000 tons.



Generating Hall



PRINCIPAL TECHNICAL PARTICULARS

Fuel

Sod peat	35% moisture
Size, approximately	10 in. x 3 in. x 3 in.
Nett calorific value at 34% moisture	5,500 B.t.u./lb
Ash fusion point	1,100°C–1,150°C

Boilers

Number	3
Maker	B & W
Stokers	Chain-grate
Normal rating	125,000 lb./hr.
M.C.R.	150,000 lb./hr.
Peak (1-hour) rating	163,000 lb./hr.
Steam pressure	425 p.s.i.
Steam temperature	825°F

Turbo-Alternators

Number	3
Type	Radial flow
Maker	A.S.E.A.
Steam pressure	400 p.s.i.
Steam temperature	800°F
Capacity	12,500 kW
Speed	3,000 r.p.m.
Voltage	10,500
Power factor	0.8

Cooling Tower

Type	R.-C., hyperbolic
Water quantity	1,800,000 gallons per hour
Temperature range	80°F to 70°F (at 75% relative humidity)
Height	236 ft.
Internal diameter at base	170 ft.

Transformers

Number	Maker	Rating	Voltage ratio
T101	A.S.E.A.	20,000 kVA	11,000/112,300
T102	A.S.E.A.	27,500 kVA	11,000/112,300
T11 and T12	A.S.E.A.	2,000 kVA	10,500/394

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		<i>Capacity Mw.</i>	STEAM STATIONS		<i>Capacity Mw.</i>
River Shannon:	Ardnacrusha	85	Portarlinton (Co. Laois)	<i>sod peat</i>	38
River Liffey:	Pollaphuca	30	Tarbert Island (Co. Kerry)	<i>oil</i>	120
	Golden Falls	4			
	Leixlip	4	Allenwood (Co. Kildare)	<i>sod peat</i>	40
River Erne:	Cathleen's Fall	45			
	Cliff	20	Ferbane (Co. Offaly)	<i>milled peat</i>	90
River Lee:	Inniscarra	19			
	Carrigadrohid	8	Lanesborough (Co. Longford)	<i>sod and milled peat</i>	60
River Clady:	Clady	4			
		219	Rhode (Co. Offaly)	<i>milled peat</i>	80

UNDER CONSTRUCTION

Pumped Storage	
Turlough Hill, Co. Wicklow	292

STEAM STATIONS		<i>Capacity Mw.</i>			
Pigeon House "A" (Dublin City)	<i>oil</i>	90	Arigna (Co. Roscommon)	<i>native coal</i>	15
North Wall (Dublin City)	<i>oil</i>	48	Miltown-Malbay (Co. Clare)	<i>sod peat</i>	5
Ringsend (Dublin City)	<i>coal/oil</i>	270	Screeb (Co. Galway)	<i>sod peat</i>	5
Marina (Cork City)	<i>oil</i>	120	Cahirciveen (Co. Kerry)	<i>sod peat</i>	5
Pigeon House "B"	<i>oil</i>	268	Gweedore (Co. Donegal)	<i>sod peat</i>	5
Great Island (Co. Wexford)	<i>oil</i>	120			1,459
			Total Capacity, Hydro and Steam	1,678 Mw.	

Peat being bunkered

