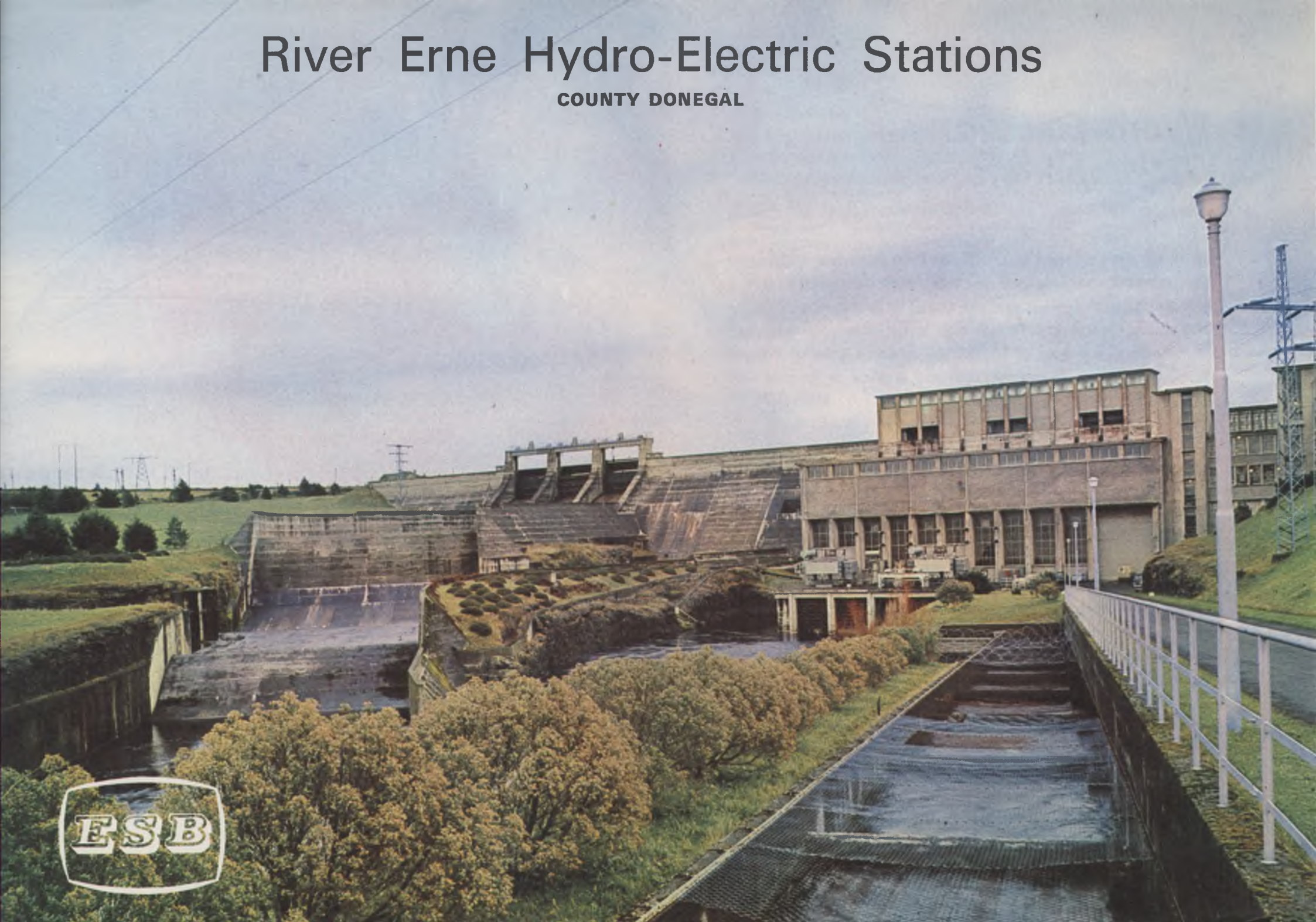


River Erne Hydro-Electric Stations

COUNTY DONEGAL



River Erne Hydro-Electric Development

Work on development of the River Erne began in 1946. Two power-producing stations were built on the stretch of river between Belleek and the sea at Ballyshannon. The upper station at Cliff has two turbo-alternator sets, each having an output of 10,000 kW, under a head of 10 metres of water. The sets went into service in August 1950, and February 1955, respectively. A 300 kW generator supplies power for auxiliaries and local needs. The lower power station at Cathaleen's Fall has two turbo-alternator sets, each having an output of 22,500 kW, under a head of 29 metres of water. These sets were commissioned in November 1951 and April 1952, respectively. A 400 kW generator supplies power for auxiliaries.

The sets generate at 10,500 volts. Each set is connected to its own step-up transformer (10kV/110kV) in an outdoor compound at the Cathaleen's Fall station. Through these, the electricity produced is fed into the main 110,000 volt transmission system.

A feature of the Erne Stations is the large stepped fish passes. These enable salmon and other fish to by-pass the station and climb up-river to their natural spawning grounds. A salmon hatchery is available for operation at Cliff Station, where approximately one million salmon ova can be produced yearly. Smolts have also been successfully reared in Cliff and released in the Erne River.

Front cover shows Cathaleen's Fall Generating Station

Generating Hall, Cathaleen's Fall





PRINCIPAL TECHNICAL PARTICULARS

Catchment area 3,950 km² (1,524 sq. miles)
 Average annual rainfall 1,050 mm. (41.4 in.)
 Average annual flow 102.1 m³/sec. (3,600 cu. secs.)
 Storage capacity 194 x 10⁶m³ (6% of annual flow)

<i>Generating Station</i>	Cliff	Cathaleen's Fall
Dam length	690 ft.	844 ft.
Dam height	60 ft.	90 ft.
Spillway gates	Three, 20 ft.	Three, 36 ft.

Turbines

Number	2	2
Type	Kaplan	Kaplan
Head	10.0 m	28.5 m
Rated H.P.	14,250	31,700
R.P.M.	115.3	187.5
Year commissioned	1950 and 1955	1951 and 1952
Maker	Charmilles	K.M.W.

Generators

Type	Three phase, 50 cycles	
Normal rating	12,500 kVA	30,000 kVA
Power factor	0.8	0.75
Voltage	10,500	10,500
Maker	Brown-Boveri	A.S.E.A.

Transformers

<i>Number</i>	<i>Maker</i>	<i>Rating</i>	<i>Voltage ratio</i>
T101 and T102	A.S.E.A.	15,000 kVA	10,000/112,300
T103 and T104	A.S.E.A.	30,000 kVA	10,000/112,300
T141	A.S.E.A.	15,000 kVA	10,000/37,170
T41	A.S.E.A.	5,000 kVA	10,480/37,500
T11 to T18	A.S.E.A.	500 kVA	10,500/394

Average annual output:

Cliff 85 x 10⁶kWh
 Cathaleen's Fall 205 x 10⁶kWh

Total 290 x 10⁶kWh

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			
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
		<hr/>	Rhode (Co. Offaly)	<i>milled peat</i>	80
		219	Bellacorick (Co. Mayo)	<i>milled peat</i>	40
UNDER CONSTRUCTION			Shannonbridge (Co. Offaly)	<i>milled peat</i>	40
Pumped Storage			Arigna (Co. Roscommon)	<i>native coal</i>	15
Turlough Hill, Co. Wicklow	292		Miltown-Malbay (Co. Clare)	<i>sod peat</i>	5
STEAM STATIONS	<i>Capacity Mw.</i>		Screeb (Co. Galway)	<i>sod peat</i>	5
Pigeon House "A" (Dublin City)	<i>oil</i>	90	Cahiriveen (Co. Kerry)	<i>sod peat</i>	5
North Wall (Dublin City)	<i>oil</i>	48	Gweedore (Co. Donegal)	<i>sod peat</i>	5
Ringsend (Dublin City)	<i>coal/oil</i>	270			
Marina (Cork City)	<i>oil</i>	120			
Pigeon House "B"	<i>oil</i>	268			<hr/>
Great Island (Co. Wexford)	<i>oil</i>	120	Total Capacity, Hydro and Steam	1,678 Mw.	

Cliff Generating Station

