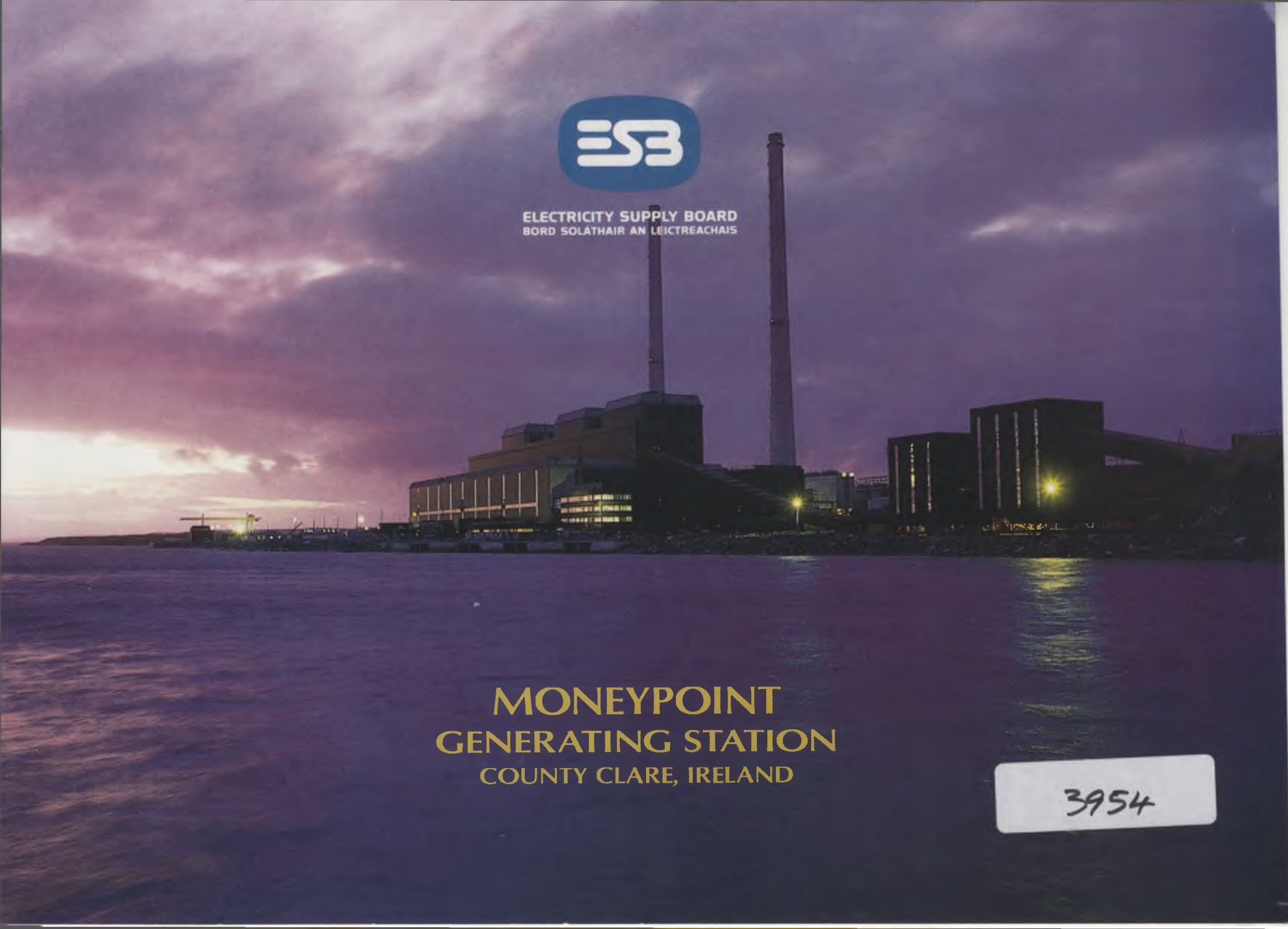
ESB
ELECTRICITY SUPPLY BOARD
BORD SOLÁTHAIR AN LEICTREACHAIS
MONEYPOINT
GENERATING STATION
COUNTY CLARE, IRELAND
3954

PROTECTING THE ENVIRONMENT

A generating station of the size of Moneypoint, which burns coal, must be designed to ensure that the environment is not damaged.

A by-product of coal firing is pulverised fuel ash (PFA) which is extracted from the chimney gases by electrostatic precipatators – a system which electrically traps the particles of ash and prevents them from ascending the chimneys. This ash is collected and can be used for civil engineering purposes, e.g. in the cement industry.

From the outset of the design of the station all the environmental considerations were fully assessed and catered for. Over £35m was spent on environmental protection. In terms of air quality, the design was determined in the context of keeping local ambient air quality at a very high standard. ESB installed a very comprehensive air quality monitoring network, not only in the immediate area of the station, but also at a distance. The design and operation methods of this network were independently assessed by An Foras Forbartha. The Environmental Research Unit of the Department of the Environment operates an on-going rigorous assessment of ESB's operation of the network. The results to date show that Moneypoint is not having any detrimental impact on the Irish environment. To set the matter within the context of EC standards, the maximum effect of Moneypoint on local air quality for products of combustion such as sulphur dioxide, nitrogen oxides, dust and other gases is less than one tenth of the EC guidelines for areas of special amenity.

Currently ESB is spending £7 million on improving boiler emissions to an even higher standard.

In the context of long range transboundary air pollution and the "acid rain" debate, the generation of electricity by ESB is carried out in a manner that fully complies with the international agreements that are now in place for control of these and similar problems.

AND THE CONTROL

TECHNICAL DATA

STEAM GENERATING EQUIPMENT

BOILERS

Manufacturer	: Foster Wheeler
Type	: Natural Circulation, Single Furnace
Number	: 3
Fuel	: Pulverised Coal
Fuel Consumption	: 119 Tonnes/Hour/Set
Feed Water Temp.	: 253°C
Steam Output at M.C.R.	: 260°kg/sec.
Superheater Outlet Temp	: 540°C
Superheater Steam Pressure	: 16.57 MN/m²
Reheater Inlet Pressure	: 4.92 M/m²
Reheater Inlet Temp.	: 347.6°C
Efficiency	: 93.47%

BURNERS

Number	: 16 per boiler
Type	: Foster Wheeler Intervane Front Fired

MILLS

Number	: 4 per boiler
Capacity	: 8.26 kg/sec. each

BUNKERS

Number	: 4 per boiler
Capacity	: 600 Tonnes each

FANS

Primary Air Fans	: 2 x 50% Centrifugal, single speed 1.470 r.p.m. 42m³/sec @ 49°C
Forced Draught Fans	: 2 x 50% Centrifugal, single speed 980 r.p.m. 187 m³/sec. @ 49°C
Induced Draught Fans	: 2 x 50% Centrifugal, single speed 985 r.p.m. 268 m³/sec. @ 144°C

TURBO GENERATING EQUIPMENT

TURBINES

Manufacturer	: Brown Boveri
Type	: 4 Cylinder, single shaft, impulse-reaction
Number	: 3
Speed	: 3,000 r.p.m.
Maximum Continuous Rating	: 300 MW
Steam Pressure at H.P. Stop Valve	: 16 MN/m²
Steam Temp. at H.P. Stop Valve	: 538°C
Steam Pressure at I.P. Stop Valve	: 4.14 MN/m²
Steam Temp. at I.P. Stop Valve	: 538°C
Steam Pressure at L.P. Exhaust	: 0.0035 MN/m²

CONDENSERS AND FEED HEATING PLANT

Condenser	: Titanium Tubed – 2 pass
Total Cooling Surface	: 9,668m²
Cooling Water Temp. at Inlet	: 10°C
Cooling Water Temp. at Outlet	: 21°C
Cooling Water Flow	: 7,700 kg/sec.
Steam Flow	: 160.8 kg/sec.
No. of L.P. Feed Heaters	: 4 (including deaerator)
No. of H.P. Feed Heaters	: 3

ALTERNATORS

Output	: 358 MVA
Terminal Voltage	: 17 kV
Stator Cooling	: Direct Water cooled
Rotor Cooling	: Direct Gas H_3 Cooled
Excitation	: Static Excitation System

TRANSFORMERS

Main Transformer	: 330 MVA 17/400 kV

STATIONS DETAILS

Site	
Original Site Area	: 146 Hectares
Area Reclaimed	: 24 Hectares
Total Site Area	: 170 Hectares
(1 Hectare = 2.47 Acres)	
Capacity of Ash Disposal Area	: 3,000,000 m³
Chimney Height	: 225 m (Slip Formed)
Oil Storage	: 50,000 Tonnes
Reservoir Capacity	: 27,000,000 Litres
Fresh Water Usage	: 2,500,000 Litres/Set/Day
Cooling Water Usage	: 26 – 24,000,000 Litres/Set/Hour

Jetty	
Length	: 380 m
Width	: 33 m
Water Depth	: 25 m
Ship Sizes	: 30,000 to 177,000 DWT

Jetty construction involved the driving of over 400 steel piles of average length 50 m, a total weight of 12,000 tonnes, the placing of 1,600 precast concrete sections (16,000 tonnes) and 16,000 m³ of cast insitu concrete.

Site development involved the shifting of 3,500,000 m³ of rock and earth. Construction of the main station and ancillary buildings utilised over 150,000 m³ of concrete, 10,000 tonnes of reinforcing steel and 23,000 tonnes of structural steel.

IRELAND'S GENERATING STATIONS