

The South of Scotland Electricity Board

Supply

2.1. The supply of electricity in Scotland is governed by the Electricity (Scotland) Act 1979 and is the responsibility of two Boards. The South Board, the subject of this inquiry, serves the territory lying generally south of a line from the Firth of Tay to the Firth of Clyde (including, by special arrangement, a small part of Northumberland). The North Board serves the rest of Scotland. The South Board's territory extends to approximately 8,000 square miles, includes the industrial belt and has a population of more than 4 million people (see map at Appendix 2.1). The responsible Minister for both Boards is the Secretary of State for Scotland.

2.2. Each Board is autonomous and is responsible for both the generation and the supply of electricity in its own territory. This situation contrasts with England and Wales where the Central Electricity Generating Board (CEGB) generally operates the generating plant and transmission system and the area boards are responsible for distribution. However, as we explained in our report on the North Board, under joint arrangements which have existed between the two Boards since 1966 Scotland's mainland generating capacity is planned and operates jointly and its generating plant is ranked in a merit order in a similar way to that adopted for ranking generating plant in England and Wales. Demand is met through a transmission grid covering the whole of mainland Scotland and those islands which are connected to the grid by submarine cable.

2.3. The South Board also has a statutory duty to collaborate with the CEGB on matters which include the sale and purchase of bulk supplies of electricity, and substantial exchanges of power take place between the Scottish and English grids. The principle of this trading is the minimisation of generating costs of the two Boards, the benefits being shared equally between them. Unlike the agreement with the North Board, this arrangement does not include the joint planning of generating capacity.

Statutory background

2.4. The South of Scotland Electricity Board was established on 1 April 1955 by the Electricity Reorganisation (Scotland) Act 1954 as an autonomous nationalised organisation responsible for the generation, transmission, distribution and retail sale of public supplies of electricity in the South of Scotland district.

2.5. Following the immediate post-war decision to place the electricity supply industry in Great Britain under central public control, the Electricity Act 1947 set up a two-tier organisation comprising the British Electricity Authority, responsible for generation and main transmission, and 14 area boards responsible for distribution, including the former South-West and South-East Scotland Electricity Boards. While the two-tier organisation still continues in England and Wales, the 1954 Reorganisation Act combined the two Scottish distribution

boards to form the South of Scotland Electricity Board, which also took over the generation and transmission responsibilities in Southern Scotland of the former South-West and South-East Scotland divisions of the British Electricity Authority.

2.6. In 1979 the various post-war statutes under which the two Scottish Boards were operating were generally consolidated into the Electricity (Scotland) Act 1979. The provisions of the Energy Act 1983 also apply to the Scottish Boards.

2.7. The main statutory responsibilities and duties of the South Board are to initiate and undertake the development of all appropriate means of generating electricity in its territory and, so far as practicable, to plan and carry out the efficient and economic distribution of supplies of electricity to consumers.

2.8. In performing these functions the South Board is required to:

- (a) secure that its revenues are not less than sufficient to meet its outgoings properly chargeable to revenue account, taking one year with another;
- (b) not show any undue preference to, or exercise any undue discrimination against, any person or class of persons in framing tariffs or making agreements for the supply of electricity;
- (c) promote the use of all economic methods of generating, transmitting and distributing electricity and, so far as practicable, seek the cheapening of electricity supplies and their extension to rural areas;
- (d) avoid undue preference in the provisions of such supplies and promote the simplification and standardisation of charges and the standardisation of systems of supply and electrical fittings;
- (e) promote the welfare, health, safety and training of its employees; and
- (f) have regard to preserving the beauty of the scenery, objects of historic or architectural interest and avoid damage to fishing.

Staff

2.9. The number of staff employed at 31 March 1986 was 12,172 of whom some 28 per cent were administrative and clerical, 17 per cent managerial and technical and 55 per cent were industrial staff.

Consumers

2.10. At 31 March 1986 the number of consumers in the Board's area was 1.65 million. In addition to its generating transmission and distribution facilities which are described below, the Board operates 18 service centres and 74 shops to meet its customers' requirements.

Generating capacity

2.11. The maximum continuous capacity of the Scottish inter-connected system at 1 April 1986 (see map at Appendix 2.2) was 10,707 Megawatts sent out (MWso) provided from the following sources:

	<i>Capacity MWso</i>	<i>%</i>
Coal-fired	3,888	36.3
Oil-fired	3,210	30.0
Nuclear (South Board)	1,450	13.6
Hydro	1,176	11.0
Pumped storage	700	6.5
Gas turbine	55	0.5
Diesel (standby)	32	0.3
BNFL Chapelcross	196	1.8
	<hr/> 10,707 <hr/>	<hr/> 100.0 <hr/>

The UKAEA Prototype Fast Reactor at Dounreay supplies significant energy to the system but is not regarded as contributing firm capacity to meet the system maximum demand.

2.12. Of the 3,210 MWso of oil-fired capacity, 1,926 MW, has been placed in short-term storage leaving an effective maximum continuous capacity of 8,781 MWso. The expected maximum demand for 1986-87 under average cold spell conditions is 5,791 MW giving a plant margin of 2,990 MWso or 51.6 per cent (expressed as a percentage of maximum demand). The Boards have estimated that the minimum capacity required to meet the expected demand with adequate security is 7,412 MWso. Surplus capacity in service is therefore 1,369 MWso or 18.5 per cent of minimum requirements.

2.13. 70.8 per cent of the maximum continuous generating capacity belonging to the Scottish boards is in the South Board's area and comprises all the nuclear and coal-fired capacity, 60 per cent of its oil-fired capacity, and 10.6 per cent of its hydro-electric capacity. Sixty-five per cent of the nuclear and coal-fired capacity is comprised of generating units rated at 600 MW and above.

2.14. Total maximum continuous capacity belonging to the South Board is 7,444 MWso including a 55 MWso gas turbine station. The commissioning of the Torness nuclear power station will add a further 1,290 MWso to the Board's installed capacity, of which half is due to go into operation in 1987 and the remainder in the following year.

2.15. In the following paragraphs we describe briefly the range of the Board's generating plant. The manner in which the plant is operated and the arrangements for its maintenance are described in Chapter 7.

Nuclear power

2.16. The Hunterston A nuclear power station came into service in February 1964 with an installed capacity of 360 MW and a maximum continuous capacity of 300 MWso. This was one of the Magnox-type power stations which were the precursors of the advanced gas-cooled reactor. Hunterston B, which is an advanced gas-cooled reactor station, came into service in February 1976 with an interim rating of 918 MWso which has now been raised to 1,150 MWso as

from April 1985 as compared with its design rating of 1,230 MWso. The Torness power station now under construction is also of the advanced gas-cooled reactor type.

Conventional thermal

2.17. The South Board has three conventional coal-fired power stations at Longannet, Cockenzie and Kincardine with maximum continuous capacity of, respectively, 2,304, 1,152 and 375 MWso, and a small slurry-burning station at Methil with a 57 MWso capacity. In addition it has one large oil-fired station at Inverkip of 1,926 MWso maximum continuous capacity of which 1,284 MWso of capacity has been put into storage and the remainder is kept on standby for use in emergencies.

Hydro-electric and gas turbine

2.18. The remainder of the Board's generating capacity is made up of six hydro-electric stations in its Galloway Scheme and two in its Lanarkshire Scheme, with a total installed capacity of 125 MWso, and a gas turbine station at Clyde's Mill with a total maximum continuous capacity of 55 MWso.

Transmission and distribution

2.19. The transmission system includes lines and cables totalling some 3,600 kilometres with 120 transmission sub-stations. The distribution system has 77,000 kilometres of lines and cables and 37,000 distribution sub-stations. The population density in the Board's area is some 500 to the square mile compared with 54 in the North Board's area and an average of 800 in England and Wales.

Fixed assets

2.20. At 31 March 1986 the South Board's total net fixed assets in historical cost terms amounted to £2,256 million of which £1,621 million represented investment in nuclear generating plant. In 1985-86 the Board made a surplus of £21.8 million, compared with a deficit of £30.5 million in the previous year (a result which had been adversely affected by the miners' strike). Its accumulated reserves amounted to £323 million of which £141 million related to general reserve and £182 million to supplementary depreciation.

Revenue

2.21. In 1985-86 the Board's revenue from the sale of 18,774 million units of electricity at an average price of 4.5 pence per unit was £852 million. With other operating income of £1 million and income from contracting and sales of appliances of £34 million, its total turnover was £887 million. In addition £91.1 million was received from the North Board through the joint generating account and £49 million was received from the CEGB in respect of units exported during the year. The previous year's figures were £127.6 million payable to the North Board and £276.8 million receivable from the CEGB. There had been net exports to the CEGB in every year since 1978, reaching 2,600 million units in 1983-84 and 6,700 million units in 1984-85, and 2,100 in 1985-86.