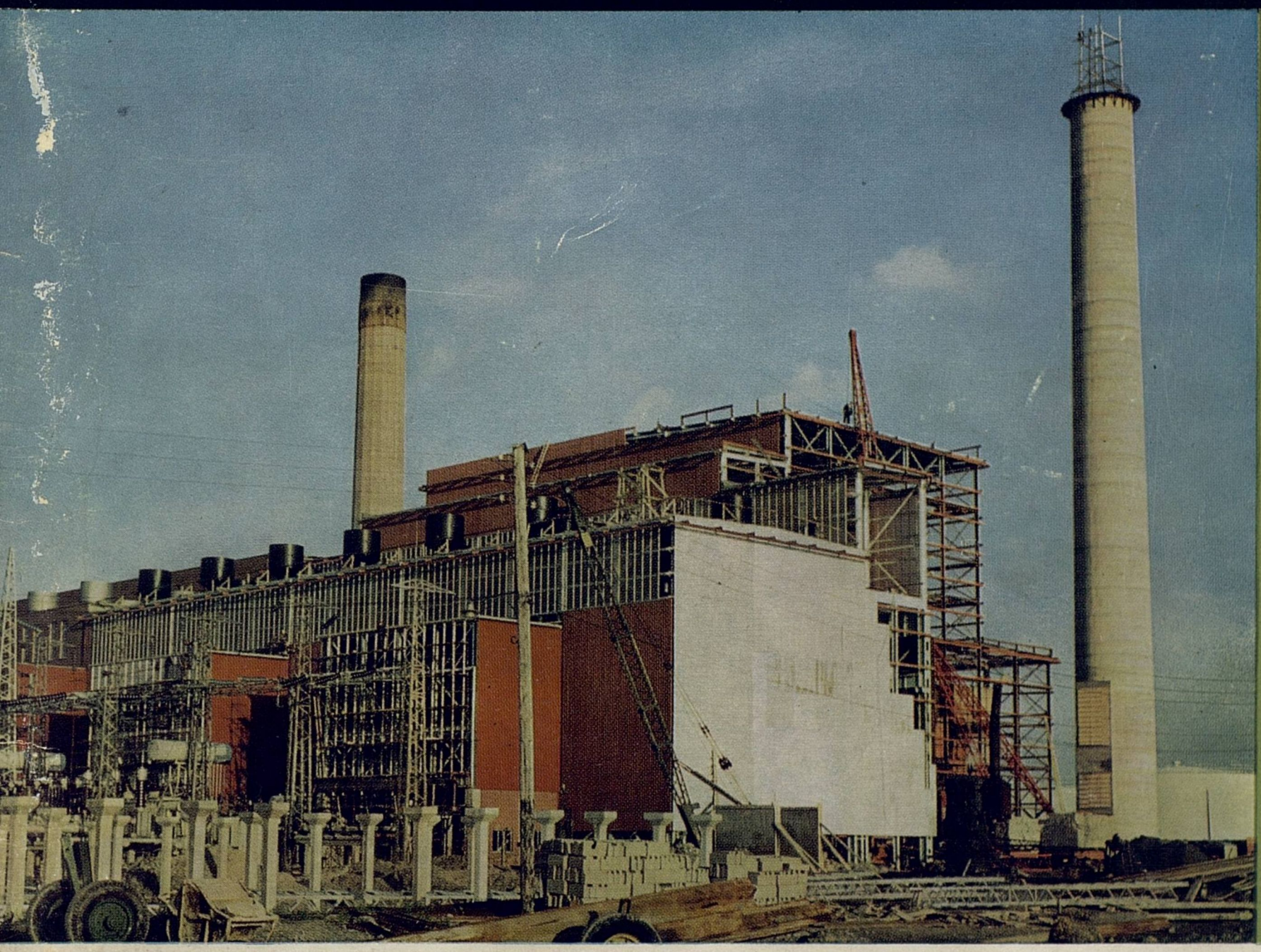
M 93

W. Coughlan.

37th

ANNUAL REPORT

ELECTRICITY SUPPLY BOARD · IRELAND



For the year
ended 31st March
1964

INCLUDING REPORT ON FISHERIES

Board Members

T. MURRAY, B.A., *Chairman*

HENRY KENNEDY, M.A., D.Sc.

C. GORDON LAMBERT, B.A., B.Comm., A.C.A.

T. MacMAHON, B.E., B.Sc.

B. O'CARROLL, B.A., LL.B.

J. A. RYAN

J. C. TONGE, F.C.W.A.

Secretary

J. G. GARGAN, B.L., A.A.C.C.A.

Chief Engineer

P. G. MURPHY, M.E., B.Sc., M.I.E.E., M.I.Mech.E.

Chief Accountant

L. J. BARRY, F.A.C.C.A.

Pr. 7660

ELECTRICITY SUPPLY BOARD
27 LOWER FITZWILLIAM STREET · DUBLIN 2 · IRELAND



General Outline of the GENERATION and TRANSMISSION SYSTEM

31st March, 1964

- HYDRO STATIONS
- STEAM STATIONS
- STEAM STATIONS PROJECTED
- 110 KV TRANSFORMER STATIONS
- 110 KV TRANSFORMER STATIONS PROJECTED
- 220 KV TRANSFORMER STATION PROJECTED
- 110 KV LINES
- 110 KV LINES PROJECTED
- 220 KV LINES PROJECTED
- OTHER HIGH VOLTAGE LINES

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8	Water power investigations and hydrometric survey
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15	Superannuation schemes and tribunals
15	Premises
16	Accounts
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42	Report on the Fisheries

COVER—Ringsend generating station—extension work in progress

TO THE MINISTER FOR TRANSPORT AND POWER

REPORT of the ELECTRICITY SUPPLY BOARD
27 LOWER FITZWILLIAM STREET
DUBLIN 2

The Board presents the Annual Report and Accounts for the year ended 31st March, 1964, in accordance with Section 7 (4) and Section 32 (1) of the Electricity (Supply) Act, 1927.

The total units generated and purchased during the year were 2,900 millions. This represented an increase of 186 million units, or 6·8% over the previous year. Owing to the dry winter, production from water power amounted to 656 million units compared with 720 million units in an average flow year. Generation from peat amounted to 1,054 million units compared with 1,100 million units in the previous year. The deficiencies in production from the hydro and peat stations were offset by increased production from coal and oil stations which generated 1,183 million units compared with 949 million units in the previous year.

During the year the following new generating units were put into commission:—

Rhode No. 3	(milled peat)	40 MW
North Wall No. 3	(oil)	16 MW
Ferbane No. 4	(milled peat)	30 MW

The electricity supplied to the system was provided as follows:—

hydro	23·6%
peat (sod)	17·2%
peat (milled)	18·4%
coal (native)	3·3%
oil/coal	37·5%

Generation from native sources amounted to 62·5% of the output.

The demand for electricity continues to grow. The increase in total units sold was 137 millions, an increase of 6·1% over the previous year. Of this increase 60 million units were for domestic consumption and 55 millions for motive power.

The year was exceptional in that a poor summer, resulting in a restricted peat harvest, was followed by a dry winter reducing the output of the hydro stations. The winter period was also relatively mild and this had the effect of slowing down somewhat the rate of increase in demand.

Sales of electricity realised £20,383,000, an increase of £938,000 over the preceding year. This represents an increase of 4·8% in the electricity revenue.

The summarised revenue and expenditure figures in respect of electricity are:—

	Year ended 31st March 1964	Preceding year
	£	£
Gross revenue (including miscellaneous revenue)	20,441,967	19,495,777
Less working expenditure on wages, fuel and other materials, overheads and turnover tax	11,283,050	10,677,941
Balance	£9,158,917	£8,817,836
From this balance the following charges are met :—		
Interest (Net)	4,092,612	3,959,270
Provision for plant renewal	3,428,000	3,169,000
Capital redemption	1,273,364	1,070,215
	£8,793,976	£8,198,485
Leaving residue—surplus	£364,941	£619,351

The overall result for the year is shown in the first portion of the Net Revenue Account (No. 8). This a surplus of £371,937 and is composed of the surplus on electricity trading and the results of the merchandise, installations and fisheries activities.

In the second portion of the Net Revenue Account is shown the balance available at the year end, which includes the carry forward of £116,890 from 1962/63. The Board decided to use part to write off £119,715 being the cost of issuing £10·5 millions of 6% E.S.B. Stock 1984-1989 in March, 1964. The remainder, £369,112, is carried forward to next year.

Of particular significance during the year were the volume and complexity of wage and salary negotiations affecting the Board's employees. In the case of the manual workers, these negotiations stemmed from the recommendations of the Commission of Inquiry set up under the Electricity (Temporary Provisions) Act, 1961, which recommended the completion of a formal National Agreement on wages and conditions for Board employees. The negotiations continued throughout the year and involved close investigation by the Board and the Unions concerned of all the main conditions of employment. Agreement was reached between the parties on many aspects and the remaining items were referred to the Manual Workers' Tribunal for adjudication. The final outcome was the acceptance by the Board and the

Unions of a schedule of new or revised conditions for incorporation in a comprehensive National Agreement which has since been signed on behalf of the Board and on behalf of the Irish Congress of Trade Unions. It is generally accepted by the parties to the Agreement that it consolidates the basis for good relationships between the Board and its employees, thus making a significant advance in ensuring the stability of the industry.

The "ninth round" of salary and wage increases, arising from the agreement reached at national level between employer organisations and the Irish Congress of Trade Unions, has been implemented by the Board in respect of all its staffs.

The additional cost to the Board which arises directly from the implementation of the National Agreement and the "ninth round" is expected to be about £900,000 per year, of which approximately one-third will be allocated to capital construction costs and the remaining two-thirds to electricity supply costs. The "ninth round" also gives rise to increased prices of many materials and services purchased in the conduct of the Board's business.

Turnover tax appears in the Accounts for the first time, the charge in respect of electricity sales for the period of the year during which it operated being £132,000. The additional cost represented by the tax is estimated at £280,000 in a full year.

While it is hoped that continued technological improvements and increases in efficiency of production and distribution will offset these increased costs to some degree, it is feared that they may eventually affect the price of electricity.

The continuing growth in demand for electricity necessitated a review of future plant requirements and a revised programme of extensions of the generating plant in the period up to March, 1971, was prepared by the Board and approved by the Minister for Transport and Power. This programme includes, in addition to the plant outlined in last year's report, a new oil-burning station at Tarbert (Co. Kerry) and a new thermal station at Dublin (Ringsend B).

Work was started on the construction of the new 220 kV transmission grid and the first section between Shannonbridge and Cork was well advanced at the end of the year.

The initial construction programme for rural electrification is almost finished—at the end of the year only seven areas out of a total of 792 remained to be completed. In addition, almost 100 areas have been re-canvassed under the revised rural post-development scheme and work is in progress in many of these.

The deficit on the Rural Revenue Account (No. 3) for the year amounted to £898,545.

In March, 1964, the Board issued £10,500,000 Stock entitled "E.S.B. 6% Stock, 1984-1989." This stock issued at par and was fully subscribed on the day of issue. The cash proceeds are needed for financing the construction of new assets for generation, transmission and distribution in accordance with the approved constructional programme.

The amount subscribed for the Stock referred to included the proceeds of a five-year loan of 10 million dollars negotiated directly with the First National City Bank of New York with the appropriate ministerial approvals. This loan, which is repayable in five equal annual instalments, carries an interest rate of 5½%. In the Balance Sheet at 31st March, 1964, the amount due to the First National City Bank of New York is shown on the liabilities side under the heading "Short-term Loan," and the stock transaction is reflected on the assets side under the heading "Electricity Supply Board Stocks (nominal £3,459,256) at cost held by the Munster & Leinster Bank Nominees Ltd., as depositaries of the Board."

BOARD MEMBERSHIP

Mr. J. P. Digby, who was a member of the Board since 1st May, 1953, resigned with effect from 1st December, 1963. The Board desires to place on record its appreciation of the contribution made by Mr. Digby to the successful development of electricity supply during his period of office.

Mr. C. Gordon Lambert was appointed a member of the Board as from 3rd March, 1964.

STAFF

At the 31st March, 1964, the numerical strength of the Board's regular staff was 5,972. In addition, there was a temporary staff of 3,228.

The Board again desires to express its appreciation of the efficient manner in which the staff performed their duties.

(Signed) *T. Murray*, CHAIRMAN
Henry Kennedy
C. Gordon Lambert
T. MacMahon
Breandán Ó Cearbhaill
J. A. Ryan
J. C. Tonge

(Signed) *J. G. Gargan*, SECRETARY
9th June, 1964.

CAPITAL

The value of the capital assets brought into commission was £11,013,875 of which £1,668,575 related to rural electrification. The total investment in assets in productive use at 31st March, 1964, was :—

	£
Generation	55,806,370
Transmission	11,302,856
Distribution (includes rural £32,882,544)	58,805,071
Premises, equipment, transport, etc.	3,874,121
	£129,788,418

In addition, expenditure of £10,762,915 had been incurred on new capital works still under construction at the end of the year. The fixed capital investment was over £140,500,000.

BORROWING POWERS

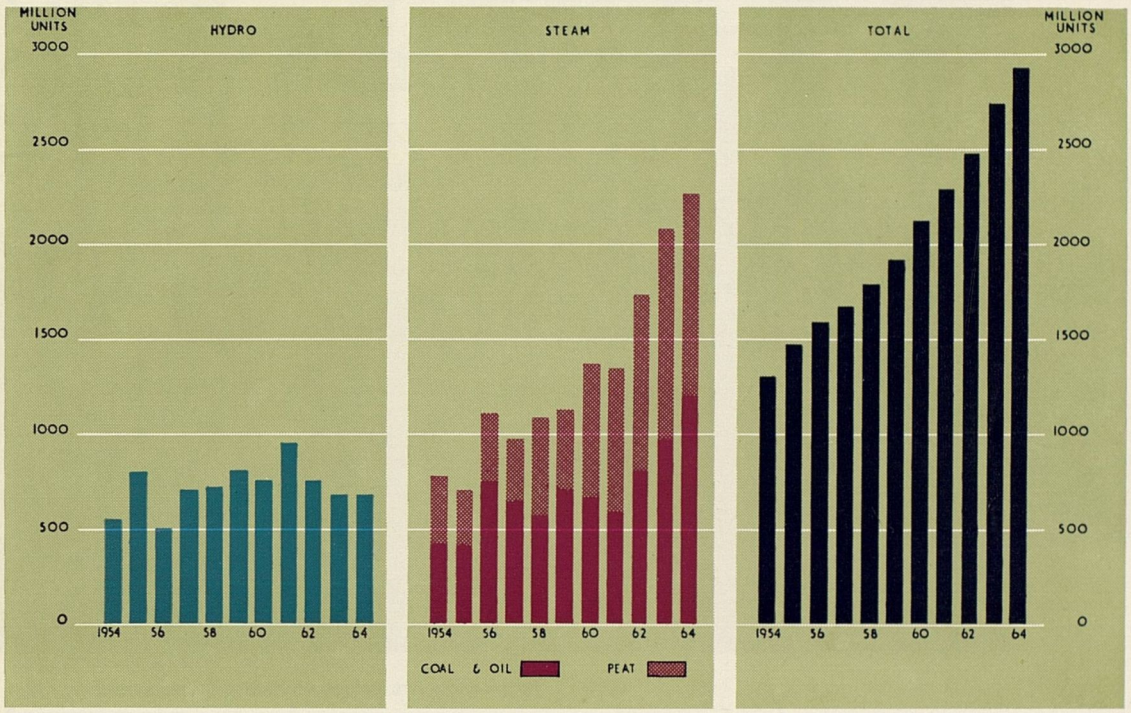
The capital requirements for the year were provided from internal resources, by temporary advances from the Trustees of the Superannuation Funds and from the proceeds of an issue in March, 1963, of £7 million 6% Development Stock 1982/87. To assist in financing the capital programme during the years ending 31st March, 1966, a further issue of £10·5 million E.S.B. 6% Stock 1984/89 was made in March, 1964, which, as stated earlier, includes the proceeds of the loan from the First National City Bank of New York.

The Electricity (Supply) (Amendment) Act, 1963, authorises a capital expenditure not exceeding £160 millions for general purposes, excluding rural electrification. At 31st March, 1964, the Board had approved expenditure totalling £137,005,126 of which £96,905,874 represented electricity assets in commission, the balance £40,099,252 representing either work in progress or work approved.

The legislative limit to expenditure on rural electrification is £37 millions inclusive of the subsidy for rural development provided by the State. At the 31st March, 1964, the amount approved was £34,481,873 of which £32,882,544 represents assets in commission and £1,599,329 work in progress or approved.

ELECTRICITY PRODUCTION

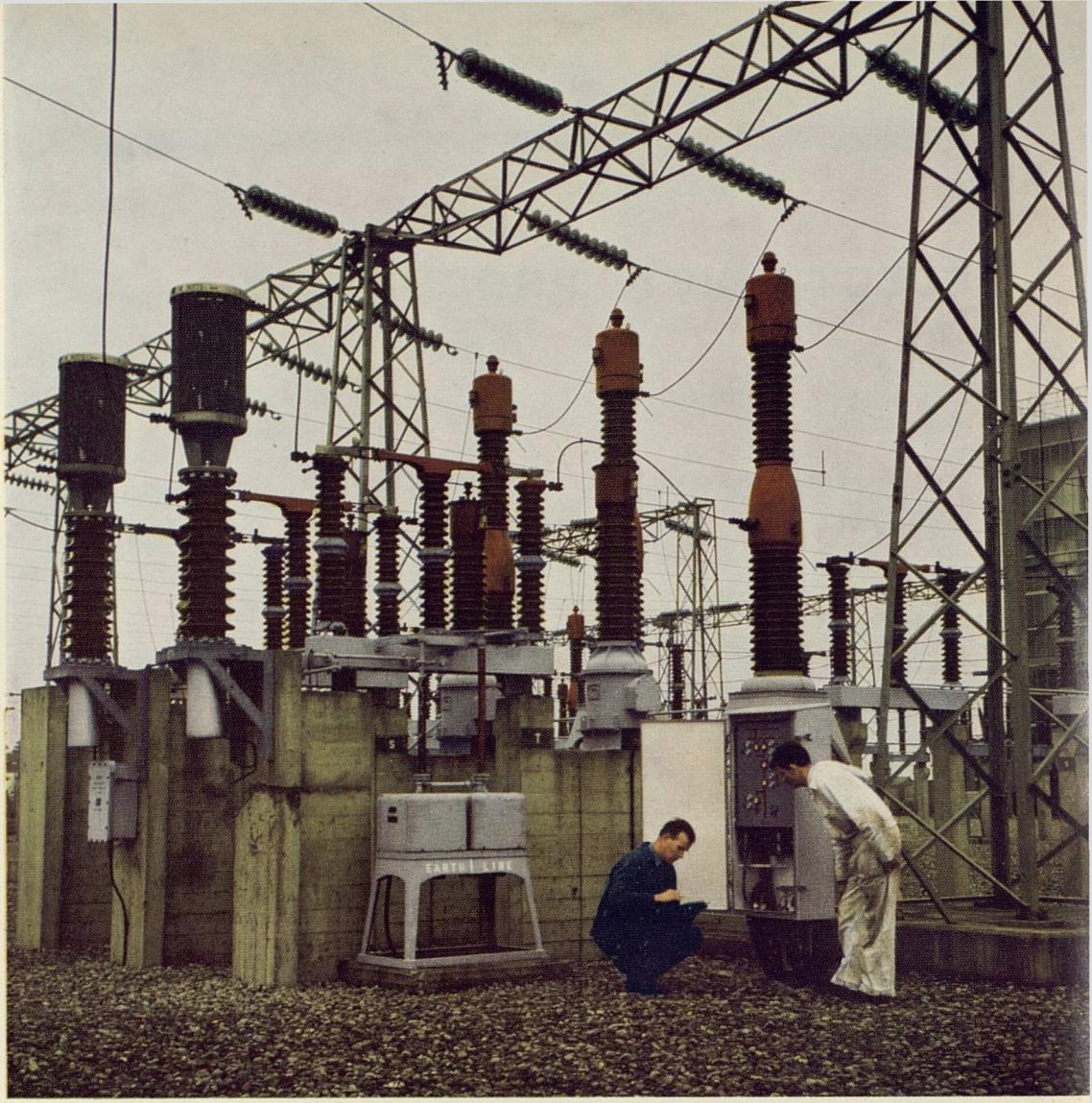
The diagram below illustrates the output of the generating stations each year since 1954.



INCREASE IN UNITS GENERATED AND PURCHASED

The units generated and purchased showed an increase of 186 million units or 6·8% higher than the preceding year. The annual load factor, on the basis of units generated, was 48·9% the same as in the previous year.

An analysis of the cost of generation appears in the Electricity Production Account (No. 1).



Rhode generating station—switchgear compound

GENERATION

With the commissioning during the year of a 40 MW milled peat fired unit at Rhode station, a 30 MW milled peat fired unit at Ferbane station and a 16 MW oil fired unit at North Wall station, the total installed capacity of the Board's generating stations at 31st March, 1964, was :

	MW
hydro plant	219
steam plant (coal/oil)	303
steam plant (sod peat)	117·5
steam plant (milled peat)	210
	849·5

This figure includes 90 MW of old plant at Pigeon House Station, which is available for stand-by purposes and the four 5 MW stations fired by hand-cut peat.

The following additional generating plant, amounting to 560 MW, was under construction or being planned :

SHANNONBRIDGE STATION, Co. Offaly

Milled Peat

This station is designed for an ultimate capacity of 80 MW.

Constructional work on the buildings and erection of the first 40 MW unit was well advanced.

Scheduled completion date 1964/65.

MARINA STATION, Cork City

Oil

Work on the 60 MW extension was practically completed.

Scheduled completion date April, 1964.

RINGSEND STATION, Dublin City

Oil

The construction of the building and work on the installation of two 60 MW units was well advanced.

Scheduled commissioning date 1965/66.

The deep piling for the further extension of the station by a 60 MW unit was completed. Work had commenced on the construction of the foundations.

Scheduled completion date 1966/67.

LANESBOROUGH STATION, Co. Longford

Milled Peat

The foundations for the extension to house the 40 MW unit were completed and erection of the structural steelwork and manufacture of the plant were in progress.

Scheduled completion date 1965/66.

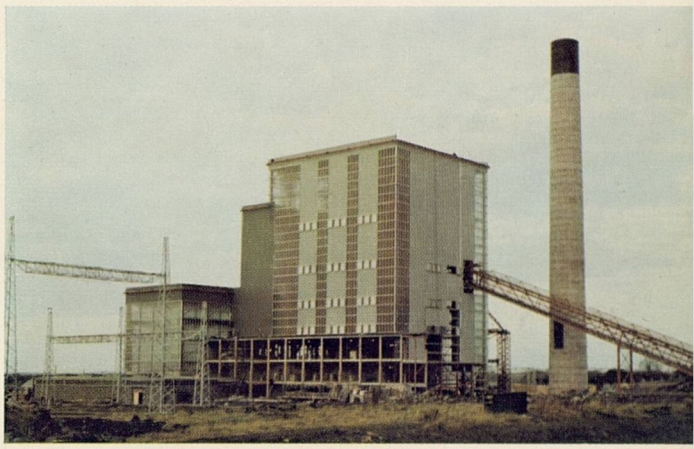
GREAT ISLAND, Co. Wexford

Oil

Site development work for the first two 60 MW units was in progress.

Orders for the boiler units and generating sets were placed and specifications for the auxiliary plant prepared.

Scheduled completion dates 1967/68 for No. 1 unit and 1968/69 for No. 2 unit.



Peat-fired generating station under construction at Shannonbridge

TARBERT STATION, Co. Kerry

Oil

The initial development comprises two 60 MW units.

Site investigations were in progress for the location of the station and berthing facilities.

Specifications for the boiler units and generating sets were nearing completion.

Scheduled completion date 1969/70.

RINGSEND "B" STATION, Dublin City

Coal/oil

Preliminary site investigation and design work for this station were in progress.

WATER STORAGE AND RIVER CONTROL

The inflows to the catchments at the Shannon and Erne were well below the long term average flows. The inflows to the catchments of the Lee, Liffey and Clady were about average. Generally, the inflows were less than average from June to September and again from December to February. The utilisation of the available flows varied between 95·3% and 100%.

The important hydrometric figures at the hydro stations are given in Appendix 9.

The total average inflows for the calendar year 1963 were:—

	m^3/sec.
River Shannon at Killaloe	158·2
,, Liffey at Pollaphuca	11·3
,, Liffey at Leixlip	16·7
,, Erne at Ballyshannon	78·1
,, Lee at Inniscarra	26·2
,, Clady at Gweedore	3·8

WATER POWER INVESTIGATIONS AND HYDROMETRIC SURVEY

The collection of hydrometric data on the Rivers Shannon, Liffey, Erne, Lee and Clady was continued. Data was also collected with a view to the investigation and possible later development of further water power resources.

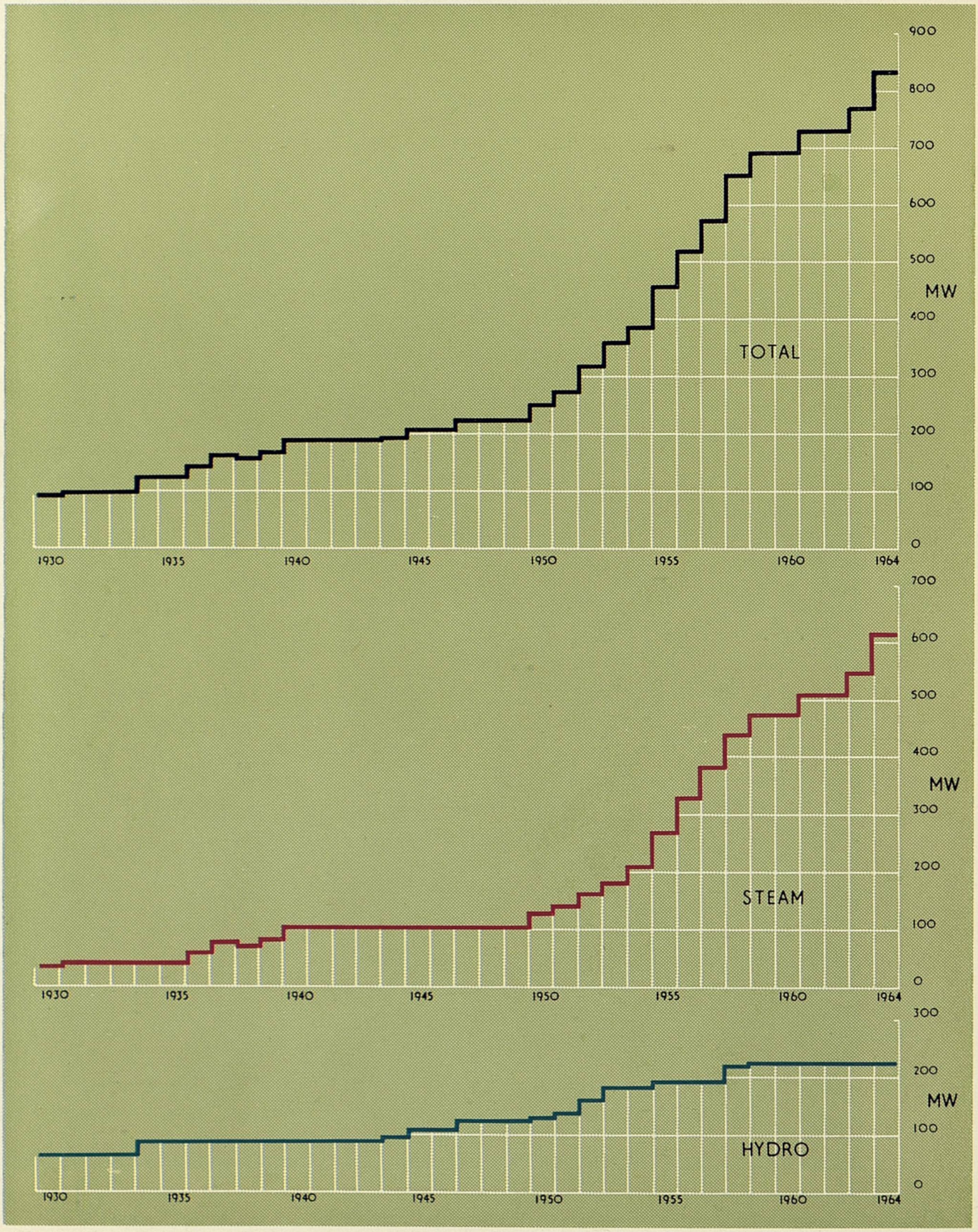
Preliminary investigation work into projects for possible future development of pumped storage schemes was continued.

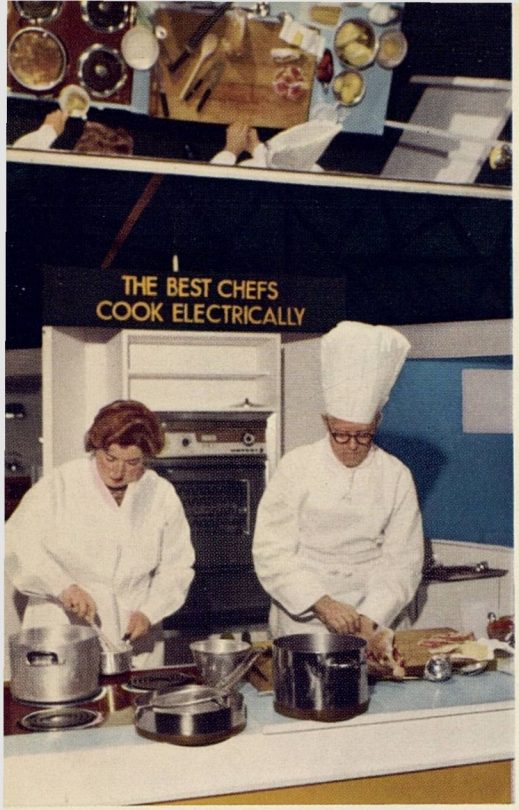


Marina (Cork) generating station, which is being extended

GENERATION CAPACITY

1930—1964





Electric cooking demonstration

SALES OF APPLIANCES

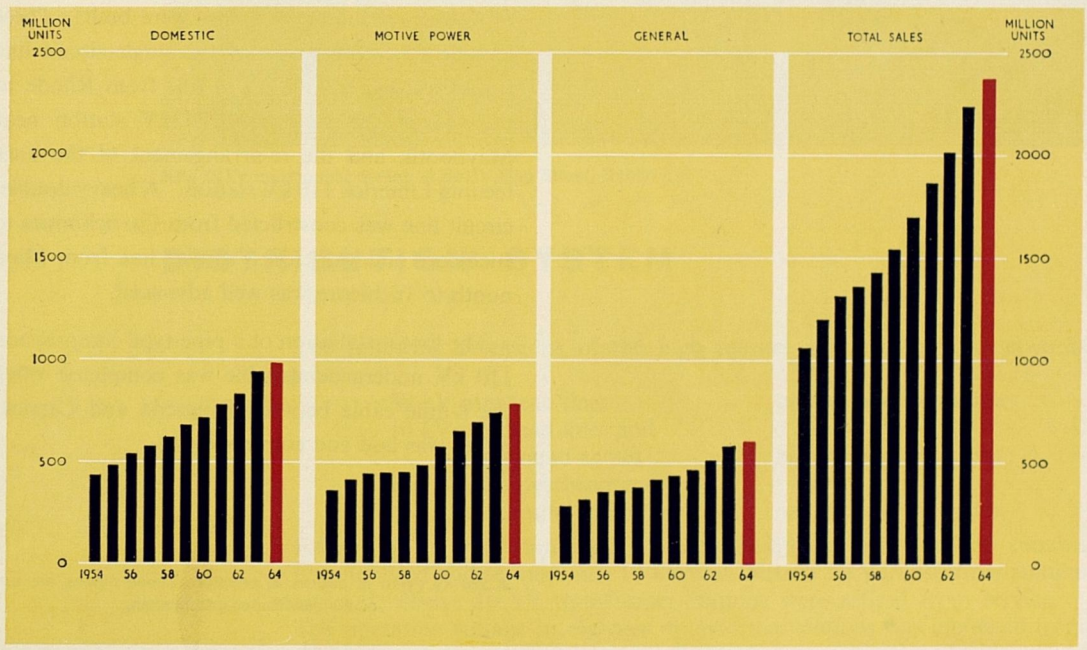
Sales of appliances on the Merchandise Trading Account amounted to £1,300,674 as compared with £1,204,630 last year. The gross profit was £246,832 representing a rate of 19·0%. The Merchandise Trading Account, having been charged with overhead expenses and interest on working capital, showed a net profit of £12,199.

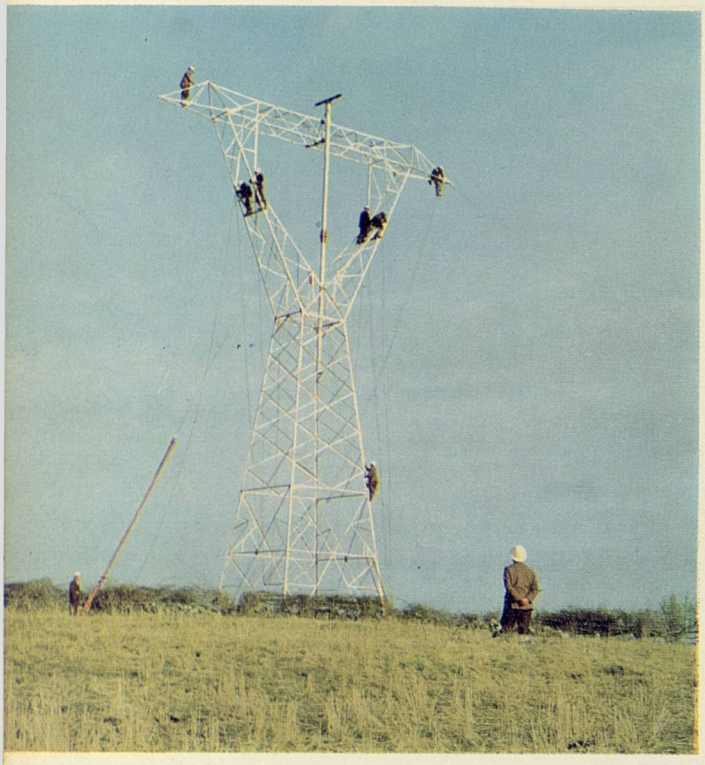
CONSUMERS' INSTALLATIONS

The value of installation contracts completed amounted to £597,963 as compared with £493,736 for last year. The gross profit amounted to £110,199 representing a rate of 18·4%. The Installations Trading Account, having been charged with overhead expenses and interest on working capital, showed a net profit of £26,690.

ANALYSIS OF UNITS SOLD

The following diagram illustrates the analysis of units sold, from 1954 to 1964





MAIN TRANSMISSION SYSTEM

Work was commenced on the first section of the new 220,000 volt system. Building of the 220 kV stations at Cork (Knockraha) and Shannonbridge was commenced and the construction of the 220 kV transmission line between these stations was well advanced at the end of the year.

New 110 kV stations at Dunmanway and Carrigadrohid were constructed and extensions to four existing stations were completed. Work on two new 110 kV stations and on the extension of a further four was commenced.

Sixty-five miles of single-circuit and eleven miles of double-circuit 110 kV lines were built. These included the completion of the single-circuit line from Arklow to Wexford, a line from Rhode to the site of the proposed 220 kV station near Maynooth, and the re-arrangement of the lines feeding Limerick 110 kV station. A heavy double-circuit line was constructed from Carrickmines to Inchicore and work on a similar line from Maynooth to Inchicore was well advanced.

The first installation of a pipe-type compression 110 kV underground cable was completed when the 8-mile cable between Ringsend and Carrickmines was laid and commissioned.

A 220 kV pylon in course of erection. These pylons are part of the new Super-grid system.



New 38 kV transformer station at South King Street, Dublin

DISTRIBUTION SYSTEM

The following extensions of the high tension and low tension networks were carried out:

38 kV overhead lines	net increase 121 miles
10 kV overhead lines and underground cables	net increase 68 miles
low tension overhead and underground mains	net increase 57 miles

Fifteen 38 kV transformer stations were completed and put into commission.

One hundred and seventy-nine 10 kV and thirteen 5 kV transformer stations were completed; twelve 10 kV transformer stations were retired from service.

The operating voltage in eighteen transformer stations was increased from 5 kV to 10 kV.



I.C.A. all-electric demonstration kitchen at An Grianan, Co. Louth

RURAL ELECTRIFICATION

During the year construction and initial development work was completed in twelve areas. These included the last area to be developed in the Board's Portlaoise District. Initial area construction and development has now been completed in six of the Board's ten country districts.

Of the 10,820 new rural consumers, 7,692 were connected under post development of areas in which the first development had been completed prior to the beginning of the year.

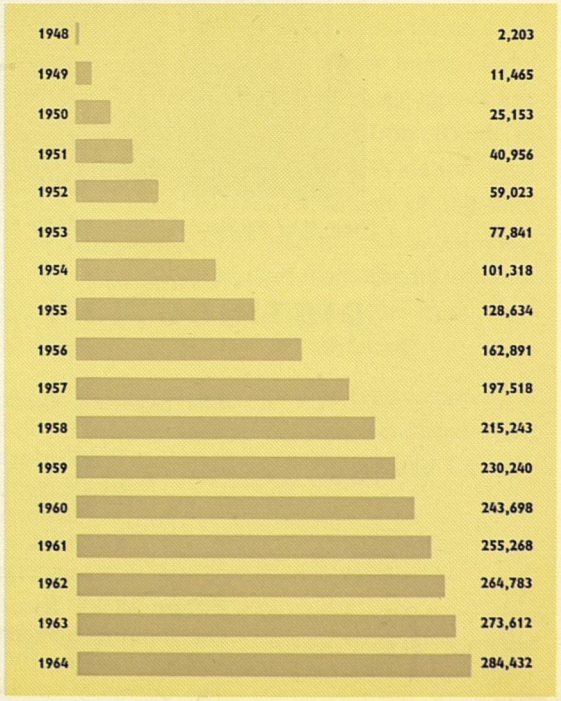
Construction and initial development work has been completed in 785 (99 %) of the 792 rural areas in the country. In the remaining seven areas work is in progress and will be completed during 1964.

The areas now completed cover 23,103 square miles or an average of 29·4 sq. miles per area. The proportion of dwellings connected in the completed areas is approximately 78·3 %.

The total value of materials used during the year was approximately £1,006,000 of which about £850,000 or 84·5 % was obtained from native suppliers. There was little change generally in prices except for poles and bare aluminium conductors which increased by about 6 % and 3 % respectively.

Capital expenditure during the year was

The following diagram illustrates the cumulative total of consumers connected, under the Rural Electrification Scheme, as at 31st March each year from 1948 to 1964:—



£1,725,643. The total invested in the Scheme at 31st March, 1964, amounted to £34,028,602 of which £7,969,826 was by way of subsidy.

The consumption of electricity by rural consumers amounted to 523 million units as against 478 million units last year. The average consumption for all consumers supplied under the rural electrification scheme was 1,780 units as against 1,684 units in the preceding year, an increase of 5·7%. The average consumption per domestic consumer increased from 1,069 units to 1,114 units. The revenue earned was £5,856,004, representing an average price per unit of 2·69d.

The use of electrically warmed floors for the rearing of young pigs was introduced on a number of farms and results to date indicate that this is an excellent method of providing the necessary conditions of temperature for this purpose. The development of warm floors is significant in view of the increasing rate of establishment of pig fattening co-operative enterprises.

Experimental work on a cold air method of barn hay drying was carried out for the third year in succession. Despite the poor weather conditions during the summer of 1963 the results were very satisfactory and demonstrated that this particular method of barn hay drying is effective under Irish climatic conditions.

The rate of development of co-operative water schemes continued to increase during the year. Of these schemes 95 have been completed and, at the end of the year, a further 69 were in various stages of design and construction.

The Board again sponsored a number of educational courses run by the Irish Countrywomen's Association at "An Grianan", Termonfeckin, Co. Louth.

The Board is very appreciative of the co-operation it received from the various authorities and organisations interested in the improvement of living conditions and in the raising of productivity in the rural areas.

SUPERANNUATION SCHEMES AND TRIBUNALS

The number of contributing members in the General Employees' Superannuation Scheme at the end of the year was 2,144 and in the Manual Workers' Superannuation Scheme 2,759.

The Manual Workers' Tribunal, established under the Electricity Supply Board (Superannuation) Act, 1942, dealt with sixteen cases during the year and the General Employees' Tribunal established under the Electricity (Supply) (Amendment) Act, 1949, dealt with twelve cases.

PREMISES

HEAD OFFICE BUILDINGS—At the close of the year detailed plans were under consideration in accordance with a general permission dated 17th January, 1962, from the Dublin Corporation to rebuild the Fitzwilliam Street frontage.

GENERAL—Extensions to Sligo and Athlone District headquarters were completed; construction of the extension to Tralee headquarters premises was expected to start soon; Limerick operation stores depot and staff canteens at Ferbane and Ardnacrusha were nearing completion.

Five new service depots were opened. Eleven new depots and extensions to seven existing depots were under construction or planned.

Staff houses were constructed at Ferbane, Shannonbridge, Lanesborough and Ardnacrusha; others were planned for New Ross, Drumshanbo, Rhode, Ferbane and Lanesborough.

Continuous billing procedure

ACCOUNTS 1963-1964

ACCOUNT No. 1

Electricity Production Account for the Year Ended 31st March, 1964

	Fuel	Operating Expenses	Maintenance and Repair	Supervision and Local Administration	Works Cost	Per Unit Sent Out 1962/63		Depreciation and Renewals	Interest and Capital Repayments Allocation	Total	Per Unit Sent Out	1962/63 Total	1962/63 Per Unit Sent Out
GENERATION	£	£	£	£	£	Pence	Pence	£	£	£	Pence	£	Pence
Coal/Oil													
North Wall	194,599	51,317	31,950	10,084	**287,950**	·736	1·018	74,000	79,324	**441,274**	**1·129**	**408,489**	**1·652**
Marina	523,103	82,275	52,885	17,346	**675,609**	·531	·570	107,000	147,140	**929,749**	**·731**	**842,510**	**·839**
Ringsend	877,773	115,951	73,212	19,400	**1,086,336**	·490	·513	167,000	301,023	**1,554,359**	**·701**	**1,421,955**	**·785**
Arigna	238,150	32,796	21,085	5,557	**297,588**	·788	·780	30,000	43,803	**371,391**	**·984**	**381,604**	**·971**
					2,347,483	·551	·596			**3,296,773**	**·774**	**3,054,558**	**·884**
Sod Peat (Machine)													
Portarlington	556,283	68,157	42,517	11,142	**678,099**	1·074	1·023	53,000	68,087	**799,186**	**1·266**	**796,628**	**1·200**
Allenwood	681,290	70,113	54,462	11,550	**817,415**	1·017	·955	79,000	102,030	**998,445**	**1·242**	**1,152,183**	**1·140**
Lanesborough	285,315	31,495	19,206	6,288	**342,304**	·900	·885	31,000	49,135	**422,439**	**1·111**	**374,099**	**1·137**
					1,837,818	1·012	·966			**2,220,070**	**1·223**	**2,322,910**	**1·160**
Milled Peat													
Ferbane	662,371	86,602	77,651	15,490	**842,114**	·843	·874	122,000	193,637	**1,157,751**	**1·160**	**1,312,059**	**1·161**
Rhode	405,797	65,550	29,560	15,095	**516,002**	·786	·824	146,000	218,076	**880,078**	**1·341**	**793,618**	**1·083**
Bellacorick	256,881	63,085	28,412	9,790	**358,168**	·806	—	81,000	90,309	**529,477**	**1·192**	**230,589**	—
					1,716,284	·818	·855			**2,567,306**	**1·223**	**2,336,266**	**1·141**
Sod Peat (Hand-won)													
Four 5 MW stations	139,349	47,776	37,001	5,352	**229,478**	1·517	1·312	45,000	70,125	**344,603**	**2·278**	**410,407**	**1·849**
Stand-by													
Pigeon House	292,148	81,375	49,894	16,751	**440,168**	—	—	73,000	80,222	**593,390**	—	**527,712**	—
TOTAL—FUEL STATIONS	5,113,059	796,492	517,835	143,845	**6,571,231**	·753	·798	1,008,000	1,442,911	**9,022,142**	**1·033**	**8,651,853**	**1·080**
Hydro													
Shannon	—	52,739	85,123	22,342	**160,204**	·136	·139	45,000	227,461	**432,665**	**·368**	**455,988**	**·377**
Erne	—	33,422	45,093	12,069	**90,584**	·103	·094	83,000	328,958	**502,542**	**·572**	**519,176**	**·544**
Liffey	—	18,894	25,076	9,366	**53,336**	·256	·249	24,000	75,475	**152,811**	**·734**	**151,976**	**·807**
Lee	—	17,472	11,446	6,264	**35,182**	·102	·121	54,000	229,465	**318,647**	**·923**	**321,137**	**1·056**
Clady	—	5,841	2,940	725	**9,506**	·179	·209	10,000	54,431	**73,937**	**1·389**	**74,228**	**1·715**
TOTAL—HYDRO STATIONS	—	128,368	169,678	50,766	**348,812**	·131	·130	216,000	915,790	**1,480,602**	**·556**	**1,522,505**	**·564**
TOTAL—ALL STATIONS	5,113,059	924,860	687,513	194,611	**6,920,043**	·607	·630	1,224,000	2,358,701	**10,502,744**	**·922**	**10,174,358**	**·950**
TRANSMISSION	—	39,113	113,003	81,861	**233,977**	—	—	330,000	481,603	**1,045,580**	—	**826,030**	—
	5,113,059	963,973	800,516	276,472	**7,154,020**	—	—	1,554,000	2,840,304				
Electricity purchased in Bulk										**13,867**	—	**12,952**	—
General Administration :									£				
Generation									439,881				
Transmission									198,439				
										638,320	—	**582,482**	—
Total Cost										**12,200,511**	**1·071**	**11,595,822**	**1·082**
Transferred to Revenue Accounts :									£				
Non-Rural									9,250,769			**8,892,753**	
Rural									2,949,742			**2,703,069**	
										12,200,511		**11,595,822**	

See note on Capital Account

ACCOUNT No. 2

Electricity (Non-Rural) Revenue Account for the Year Ended 31st March, 1964

Dr. *Cr.*

	£	£	1962/63 £		£	1962/63 £
To Electricity Production Account		9,250,769	*8,892,753*	**By Electricity Charges**	14,364,573	*13,800,438*
,, Distribution Charges :				**,, Meter and Other Charges**	162,825	*155,447*
Operation and maintenance	1,032,893					
Reserve for depreciation and renewals	753,249					
Interest and capital repayments	1,116,670					
Supervision and local administration	724,326					
		3,627,138	*3,346,004*			
,, General Administration :						
Salaries and wages	835,701					
Travelling expenses	43,283					
Stationery	23,990					
Telephones and postage	12,405					
Lighting and heating	17,282					
Rents and rates	18,048					
Insurance	76,838					
Professional fees	16,927					
Publicity	120,223					
Maintenance of office buildings and equipment	32,605					
Staff training	76,363					
Pensions	88,973					
Capital charges—general assets	250,728					
Provision for bad debts	17,943					
Sundry expenses	18,313					
	1,649,622					
Less apportionments charged to :						
Production Account	638,320					
Rural Revenue Account	329,633					
Capital Works and other accounts	195,309					
		486,360	*454,693*			
,, Turnover Tax		107,887	—			
,, Balance carried to Profit and Loss Account		1,055,244	*1,262,435*			
See note on Capital Account		£14,527,398	*£13,955,885*		£14,527,398	*£13,955,885*

ACCOUNT No. 3

Electricity (Rural) Revenue Account for the Year Ended 31st March, 1964

Dr. *Cr.*

	£	£	1962/63 £		£	1962/63 £
To Electricity Production Account		2,949,742	*2,703,069*	**By Electricity Charges**	5,820,805	*5,455,619*
,, Distribution Charges :				**,, Meter and Other Charges**	35,199	*33,968*
Operation and maintenance	541,628			**,, Balance,** carried to Profit and Loss Account	898,545	*801,391*
Reserve for depreciation and renewals	1,057,751					
Interest and capital repayments	1,370,951					
Supervision and local administration	481,161					
		3,451,491	*3,286,182*			
,, General Administration		329,633	*301,727*			
,, Turnover Tax		23,683	—			
See note on Capital Account		£6,754,549	*£6,290,978*		£6,754,549	*£6,290,978*

ACCOUNT No. 4

Profit and Loss Account for the Year Ended 31st March, 1964

Dr.	£	£	1962/63 £	Cr.	£	1962/63 £
To Interest payable to the Minister for Finance	2,762,029			By Interest and Capital Repayments :		
,, Interest on E.S.B. Stocks (*less* temporary investment earnings) and on funded loan	1,055,403			Production Account	2,840,304	*2,637,126*
,, Stock management and transfer charges	35,840			Non-Rural Revenue Account	1,116,670	*1,007,132*
,, Other Interest	919,957			Rural Revenue Account	1,370,951	*1,315,000*
		4,773,229	*4,390,485*	Administration	187,728	*178,229*
,, Reserves :				Fisheries Account	5,553	*4,746*
Repayment of capital advances from the Minister for Finance	703,467			Installations Account	12,100	*10,300*
Repayment of funded loan	9,547			Merchandise Sales Account	15,000	*18,000*
Sinking fund provision for redemption of E.S.B. Stocks	561,656			Capital Works	499,593	*291,309*
		1,274,670	*1,071,357*			
		£6,047,899	*£5,461,842*		£6,047,899	*£5,461,842*
,, Balance, transferred from Rural Revenue Account		898,545	*801,391*	,, Balance, transferred from Non-rural Revenue Account	1,055,244	*1,262,435*
,, Balance, carried to Net Revenue Account		364,941	*619,351*	,, Miscellaneous revenue	58,565	*50,305*
				,, Interest receivable	149,677	*108,002*
		£1,263,486	*£1,420,742*		£1,263,486	*£1,420,742*

ACCOUNT No. 5

Preservation and Operation of Fisheries for the Year Ended 31st March, 1964

Dr.	£	1962/63 £	Cr.	£	1962/63 £
To Preservation, operation and other direct costs	38,701	*33,927*	By Sales of fish, letting of fishing rights and miscellaneous income	32,004	*32,944*
			,, Balance, carried down	6,697	*983*
	£38,701	*£33,927*		£38,701	*£33,927*
To Balance, brought down	6,697	*983*	By Balance, carried down	30,587	*13,971*
,, Salaries and sundry expenses	4,933	*4,136*			
,, Workmen's compensation	8,237	—			
,, Fishery rates	3,473	*3,248*			
,, Reserve for depreciation and renewals	2,900	*1,900*			
,, General overhead expenses and interest	4,347	*3,704*			
	£30,587	*£13,971*		£30,587	*£13,971*
To Balance, brought down	30,587	*13,971*	By Balance, carried to Net Revenue Account	31,893	*15,113*
,, Capital repayments	1,306	*1,142*			
	£31,893	*£15,113*		£31,893	*£15,113*

Installations Trading Account for the Year Ended 31st March, 1964

ACCOUNT No. 6

Dr.			1962/63	Cr.		1962/63
		£	£		£	£
To Cost value of work for which credit had not been taken at 31st March, 1963		163,345	*146,035*	By Credit taken for contracts completed and charged	597,963	*493,736*
,, Cost of installation work carried out during the year		551,976	*419,357*	,, Cost value of work for which credit has not yet been taken	227,557	*163,345*
,, Gross profit, carried down		110,199	*91,689*			
		£825,520	*£657,081*		£825,520	*£657,081*
	£					
To Salaries, wages and state insurance	46,614			By Gross profit, brought down	110,199	*91,689*
,, Travelling expenses	4,747					
,, Sundry expenses	4,450					
,, General overhead expenses and interest, as apportioned	27,698					
		83,509	*75,993*			
,, Balance, carried to Net Revenue Account		26,690	*15,696*			
		£110,199	*£91,689*		£110,199	*£91,689*

Merchandise Trading Account for the Year Ended 31st March, 1964

ACCOUNT No. 7

Dr.			1962/63	Cr.		1962/63
		£	£		£	£
To Cost of goods sold		999,565	*932,030*	By Sales	1,300,674	*1,204,630*
,, Direct costs in connection with sales		40,069	*35,995*			
,, Turnover tax		14,208	—			
,, Gross profit, carried down		246,832	*236,605*			
		£1,300,674	*£1,204,630*		£1,300,674	*£1,204,630*
	£					
To Direct salaries, wages, commission and travelling expenses	131,013			By Gross profit, brought down	246,832	*236,605*
,, Publicity	22,266					
,, Rents, rates and maintenance of premises	19,404					
,, Other expenses and provisions	11,760					
,, General administrative expenses and interest, as apportioned	50,190					
		234,633	*220,667*			
,, Balance, carried to Net Revenue Account		12,199	*15,938*			
		£246,832	*£236,605*		£246,832	*£236,605*

Net Revenue Account for the Year ended 31st March, 1964

ACCOUNT No. 8

Dr.	£		£	*Cr.*
To Fisheries deficit	31,893	By Balance, transferred from Profit and Loss Account		364,941
,, Balance, carried down	371,937	,, Installations trading profit	26,690	
		,, Merchandise trading profit	12,199	
				38,889
	£403,830			£403,830

To Transfer to reserve for renewals, of credits (per contra) as additional provision for the renewal of plant	334,989	By Balance, brought down	371,937
,, E.S.B. Stock Issue expenses	119,715	,, Balance, brought forward from last year's account	116,890
,, Balance, carried forward	369,112	,, Credits arising consequent on the retirement of assets and the sale of scrapped material	334,989
	£823,816		£823,816

Capital Account to the 31st March, 1964

ACCOUNT No. 9

Dr. *Cr.*

	Total at 31st March 1963 less retirements	Expenditure less retirements during year (a) and revision of classifications (b)	Total at 31st March 1964 less retirements
	£	£	£
To Generation	52,465,800	5,444,570(a) (–)2,104,000(b)	**55,806,370**
,, Transmission	8,543,443	1,186,413(a) (+)1,573,000(b)	**11,302,856**
,, Distribution	54,817,506	3,456,565(a) (+)531,000(b)	**58,805,071**
,, General	3,642,944	124,816	**3,767,760**
,, Fisheries	103,727	2,634	**106,361**
	£119,573,420	£10,214,998	**£129,788,418**
,, Capital Works in progress, including payments on account to contractors and others			**£10,762,915**
Total of Fixed Assets carried to Balance Sheet			**£140,551,333**

Note:
The revision of classifications refers to the transfer of certain plant and equipment from Generation to Transmission and Distribution. The effect of these transfers is reflected in Accounts No. 1, 2 and 3.

		Total at 31st March 1964
		£
By Repayable Capital as per Statement No. 10		**£95,587,645**
,, Non-Repayable Capital :		
Contributions from Minister for Finance under Electricity (Supply) Acts towards capital cost of supplying rural areas	**7,969,826**	
Contributions from consumers and others for capital works	**1,646,732**	
,, Capital Reserves :		
Repaid capital, less intangible assets written off	**9,531,307**	
Provision for depreciation, renewal and retirement of physical assets, together with proceeds of sale of assets, less physical assets retired	**40,297,323**	
Total Capital Reserves (including non-repayable capital)		**£59,445,188**
Total of Capital Receipts and Reserves carried to Balance Sheet		**£155,032,833**

ACCOUNT No. 10

Statement of Repayable Capital and Redemption thereof to the 31st March, 1964

	Total Receipts to 31st March 1964	Redeemed			Balance Outstanding 31st March 1964
		Total to 31st March 1963	Redeemed during Year	Total to 31st March 1964	
	£	£	£	£	£
Minister for Finance :					
Advances under the Electricity (Supply) Acts and the Shannon Fisheries Act, 1935	**68,450,236**	6,997,186	703,467	7,700,653	**60,749,583**
Electricity Supply Board Stocks :					
5% redeemable 1966–1975	**10,000,000**	1,330,850	776,350†	2,107,200	**7,892,800**
6% redeemable 1968–1978	**5,000,000**	475,943	—	475,943	**4,524,057**
6% redeemable 1982–1987	**12,000,000**	106,500	180,000	286,500	**11,713,500**
6% redeemable 1984–1989	**10,226,250***	—	—	—	**10,226,250**
Funded loans and loan stocks:					
Local Authority Undertakings	**756,021**	756,021	—	756,021	—
New Ireland Assurance Co. Ltd.	**500,000**	8,998	9,547	18,545	**481,455**
	£106,932,507	£9,675,498	£1,669,364	£11,344,862	**£95,587,645**

†Includes utilization of "Electricity Supply Board Stocks Amortisation Reserve" provided in 1962/63.

*£10,500,000 stock issued. Further calls due on 22nd April and 20th May, 1964.

Balance Sheet as at 31st March, 1964

Liabilities and Reserves		£	31/3/63 £
Repayable Capital as per Capital Account		95,587,645	*86,421,435*
Capital Reserves as per Capital Account		59,445,188	*52,791,745*
		155,032,833	*139,213,180*
Loans under the Electricity Supply Board (Superannuation) Act, 1942		—	*281,000*
Short-Term Loan		3,573,726	—
Sundry Creditors		5,844,018	*4,689,181*
Electricity Supply Board Stock Sinking Funds. (Incl. Interest due but unpaid)		249,005	*60,003*
Reserves :	£		
Contingencies reserve	1,500,000		
Plant self-insurance—special risks	500,000		
Other reserves and provisions	50,192		
		2,050,192	*2,538,500*
Surplus : per Net Revenue Account		369,112	*116,890*
		£167,118,886	*£146,898,754*

Note ;
At 31st March, 1964, there were outstanding contractual commitments in respect of capital and other expenditure, estimated to amount to £6,500,000.

Assets	£	31/3/63 £
Fixed Assets, as per Capital Account	140,551,333	*127,876,232*
Electricity Supply Board Stocks (nominal £3,459,256) at cost, held by the Munster and Leinster Bank Nominees Ltd., as depositaries of the Board	3,440,770	*385,616*
Sinking Fund Investments (nominal £246,500) at cost	242,368	*59,100*
Stocks on Hand and in Transit	4,872,418	*4,711,549*
Cost Value of Installation and Other Repayable Work in Progress	281,172	*210,886*
Sundry Debtors, after providing for bad and doubtful debts and including advances for goods not yet delivered	7,968,540	*6,950,137*
Temporary Cash Investment	9,500,000	*6,000,000*
Cash in Hand and with Banks	262,285	*705,234*
	£167,118,886	*£146,898,754*

Signed: T. Murray, *Chairman*

J. G. Gargan, *Secretary*

Signed: L. J. Barry, *Chief Accountant*

AUDITORS' REPORT

As Auditors appointed by the Minister for Transport and Power, with the consent of the Minister for Finance, we have examined the foregoing Accounts and Balance Sheet which are in agreement with the books of account.

Allocations to the various Accounts, made by the Board's officials and approved by the Board, covering Overhead Expenses, Interest and Capital Repayments, and Costs of Generation, Transmission and Distribution have been made on the same basis as in the previous year. Additions have continued to be made to the Depreciation Reserve towards increased costs of renewals of physical assets, the original cost of which has already been fully provided.

In our opinion proper books of account have been kept and proper returns received from offices not visited by us. We have obtained all the information and explanations which we considered necessary for our audit.

In our opinion the foregoing Accounts and the Balance Sheet, give respectively a true and fair view of the balance of revenue for the year ended 31st March, 1964, and of the state of the Board's affairs as at that date.

KENNEDY, CROWLEY & CO.
Auditors

4 and 5 Westmoreland Street,
Dublin 2.
17*th June*, 1964.

APPENDICES

No.	
1	Number of consumers and other particulars relating to areas supplied by the Board
2	Growth of electricity sales and number of consumers
3	Analysis of units sold
4	Distribution at high tension of units generated
5	Generation load duration and integrated load duration curves
6	Generation statistics for the year and the number of units sent out in the preceding year
7	Monthly outputs generated (kWh x 10^6) and supply purchased
8	Particulars of generating plant
9	Performance of generating plant
10	Typical daily generation load curves
11	Transmission system in commission at 31st March, 1964
12	Progress of the rural electrification scheme
13	Weekly generation (inside back cover)

NUMBER OF CONSUMERS AND OTHER PARTICULARS RELATING TO AREAS SUPPLIED BY THE BOARD

Appendix 1

District	Approximate population	No. of consumers at 31st March		Motive power units sold year ended 31st March	
				thousands	
	thousands	1964	1963	1964	1963
ATHLONE	**177·1**	**40,070**	**38,788**	**24,996**	**23,998**
Town	50·4	11,447	11,232	20,550	20,372
Rural	126·7	28,623	27,556	4,446	3,626
CORK	**302·1**	**76,063**	**73,876**	**122,017**	**110,902**
Town	167·3	45,913	44,946	108,365	97,725
Rural	134·8	30,150	28,930	13,652	13,177
DUBLIN No. 1	**486·2**	**134,121**	**133,107**	**147,752**	**136,138**
Town	486·2	134,121	133,107	147,752	136,138
DUBLIN No. 2	**305·5**	**84,187**	**80,907**	**134,219**	**135,135**
Town	227·8	67,040	64,267	117,517	120,549
Rural	77·7	17,147	16,640	16,702	14,586
DUNDALK	**227·0**	**52,806**	**51,513**	**101,680**	**94,465**
Town	75·2	19,645	19,276	79,625	74,951
Rural	151·8	33,161	32,237	22,055	19,514
GALWAY	**166·9**	**37,087**	**36,220**	**17,758**	**13,882**
Town	47·1	11,304	10,967	14,221	11,057
Rural	119·8	25,783	25,253	3,537	2,825
LIMERICK	**270·7**	**63,813**	**62,375**	**86,442**	**77,829**
Town	94·7	25,411	24,867	68,598	63,267
Rural	176·0	38,402	37,508	17,844	14,562
PORTLAOISE	**196·8**	**46,092**	**44,553**	**66,019**	**61,903**
Town	75·0	18,577	18,222	55,604	52,666
Rural	121·8	27,515	26,331	10,415	9,237
SLIGO	**252·0**	**60,189**	**57,036**	**14,923**	**15,543**
Town	46·4	12,359	12,144	7,468	8,663
Rural	205·6	47,830	44,892	7,455	6,880
TRALEE	**143·3**	**32,808**	**31,868**	**12,167**	**11,069**
Town	31·1	7,429	7,721	4,937	4,683
Rural	112·2	25,379	24,147	7,230	6,386
WATERFORD	**210·6**	**50,818**	**49,689**	**59,719**	**52,793**
Town	95·4	25,243	24,873	42,275	37,630
Rural	115·2	25,575	24,816	17,444	15,163
TOTALS	**2,738·2**	**678,054**	**659,932**	**787,692**	**733,657**
TOWN	1,396·6	378,489	371,622	666,912	627,701
RURAL	1,341·6	299,565	288,310	120,780	105,956

Appendix 2

GROWTH OF ELECTRICITY SALES AND NUMBER OF CONSUMERS

The following table shows, quinquennially from 1930 to 1950 and for each year since, the number of units generated and sold, the revenue, the average price per unit and the number of consumers.

Year ended 31st March	Units generated (and purchased) millions	Units sold millions	Revenue from sales of energy thousands £	Average price in pence per unit sold	Total consumers
1930 ..	60·948	43·177	478	2·66	48,606
1935 ..	206·106	156·964	1,258	1·92	103,037
1940 ..	406·999	318·552	1,946	1·47	172,545
1945 ..	406·273	319·010	2,458	1·85	228,008
1950 ..	784·776	626·174	4,774	1·83	310,639
1951 ..	972·951	770·377	5,584	1·74	343,376
1952 ..	1,032·697	835·326	6,531	1·88	372,743
1953 ..	1,163·616	929·641	7,628	1·97	402,395
1954 ..	1,295·520	1,051·746	8,517	1·94	435,985
1955 ..	1,461·736	1,192·172	9,522	1·92	461,901
1956 ..	1,573·150	1,306·642	10,465	1·92	509,546
1957 ..	1,647·713	1,352·642	11,555	2·05	547,910
1958 ..	1,774·821	1,424·645	12,903	2·17	570,345
1959 ..	1,898·215	1,549·402	13,784	2·14	590,921
1960 ..	2,096·027	1,692·154	14,724	2·09	610,946
1961 ..	2,262·307	1,863·578	16,263	2·09	628,241
1962 ..	2,453·001	2,005·098	17,731	2·12	642,753
1963 ..	2,714·903	2,238·536	19,445	2·08	659,932
1964 ..	2,900·829	2,375·947	20,383	2·06	678,054

Appendix 3

ANALYSIS OF UNITS SOLD

Class of supply	Units sold		Increase	Percentage increase
	Year ended 31st March, 1964 millions	Year ended 31st March, 1963 millions	millions	
Domestic	993·780	933·168	60·612	6·5
General lighting	136·040	125·083	10·957	8·8
General heating, cooking and water heating	245·503	241·098	4·405	1·8
Night storage heating	160·007	152·697	7·310	4·8
Motive power	789·580	734·500	55·080	7·5
Public lighting	35·732	35·543	0·189	0·5
Miscellaneous	15·305	16·447	−1·142	−6·9
TOTALS	2,375·947	2,238·536	137·411	6·1

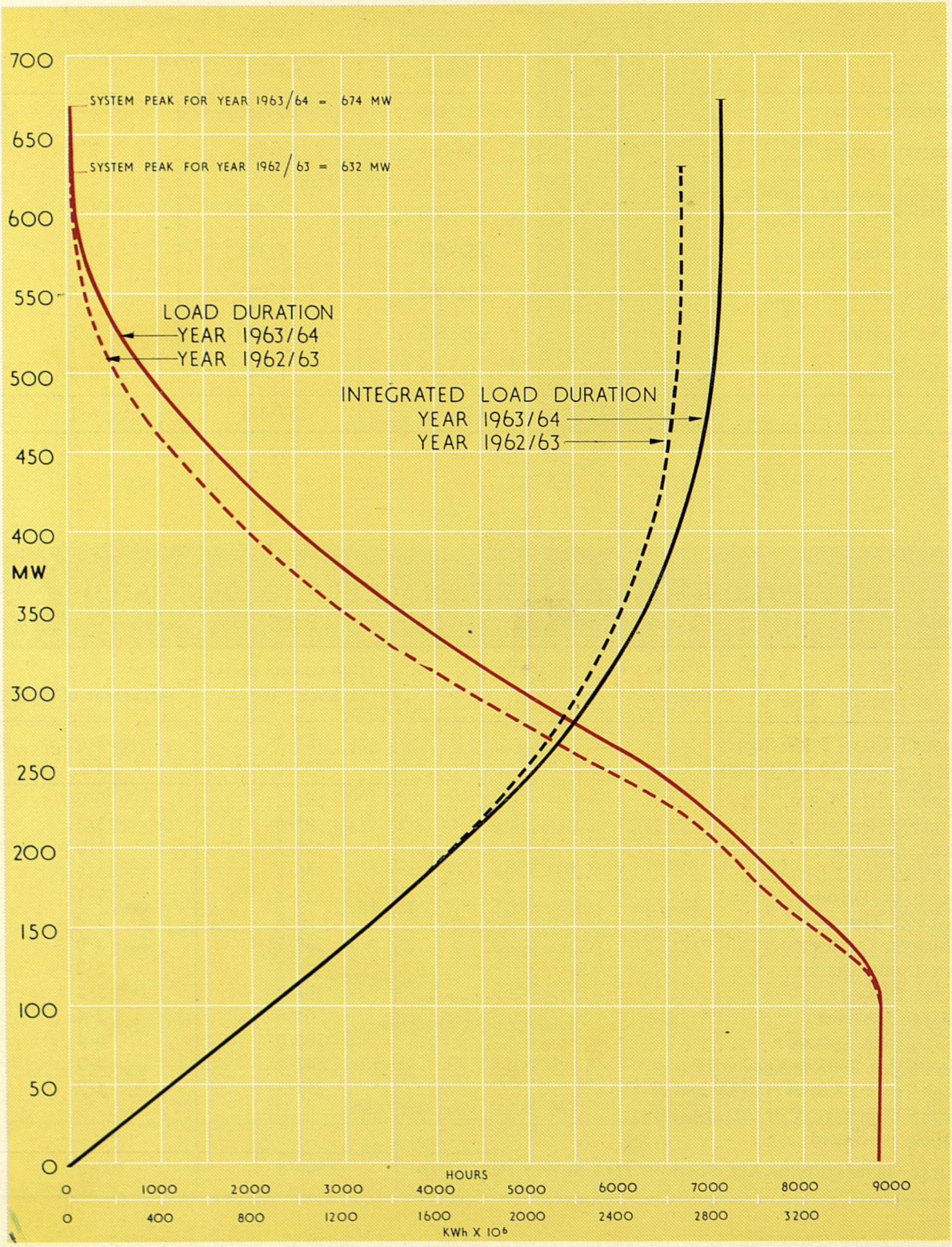
Appendix 4

DISTRIBUTION AT HIGH TENSION OF UNITS GENERATED
Year Ended 31st March, 1964

District		High tension units kWh × 10^6	Percentage of total
DUBLIN CITY 5 kV Supply		161·3	5·6
DUBLIN CITY 10 kV Supply		432·2	14·9
DUBLIN CITY TOTAL		593·5	20·5
ATHLONE DISTRICT		95·6	3·3
CORK DISTRICT		319·3	11·0
DUBLIN No. 2 DISTRICT		446·8	15·4
DUNDALK DISTRICT		223·1	7·7
GALWAY DISTRICT		93·8	3·2
LIMERICK DISTRICT		232·7	8·0
PORTLAOISE DISTRICT		151·1	5·2
SLIGO DISTRICT		109·9	3·8
TRALEE DISTRICT		69·6	2·4
WATERFORD DISTRICT		186·0	6·4
Generating Station Auxiliaries		142·1	4·9
High Tension Losses (110 kV and 38 kV)		237·3	8·2
TOTAL GENERATION OF ALL STATIONS	2,893·5		
Supply purchased	7·3		
TOTAL GENERATION OF ALL STATIONS PLUS SUPPLY PURCHASED		2,900·8	100·0

Appendix 5

GENERATION LOAD DURATION
AND INTEGRATED LOAD DURATION CURVES
Year ended 31st March, 1964



GENERATION STATISTICS FOR THE YEAR AND THE NUMBER OF UNITS SENT OUT IN THE PRECEDING YEAR

Appendix 6

Station	Year ended 31st March, 1964			Year ended 31st March, 1963
	Generated million units	Station use million units	Sent out million units	Sent out million units
ARDNACRUSHA	288·583	3·008	285·575	292·130
CLIFF	62·612	0·700	61·912	65·697
CATHALEEN'S FALL	154·503	2·096	152·407	164·124
CARRIGADROHID	24·315	0·292	24·023	20·648
INNISCARRA	61·866	0·572	61·294	52·480
POLLAPHUCA	26·909	0·707	26·202	23·171
GOLDEN FALLS	10·120	0·156	9·964	8·853
LEIXLIP	14·495	0·175	14·320	13·508
CLADY	12·955	0·153	12·802	10·404
	656·358		648·499	651·015
FERBANE	262·468	21·949	240·519	271·482
RHODE	171·955	13·770	158·185	176·036
BELLACORICK	114·689	7·821	106·868	44·497
PORTARLINGTON	162·254	10·426	151·828	159·632
ALLENWOOD	206·136	12·709	193·427	242·780
LANESBOROUGH	96·384	4·331	92·053	79·300
CAHIRCIVEEN	7·584	0·846	6·738	13·900
MILTOWN-MALBAY	2·791	0·402	2·389	8·986
SCREEB	3·175	0·355	2·820	7·436
GWEEDORE	26·431	1·703	24·728	22·961
	1054		979·555	
PIGEON HOUSE	107·838	9·828	98·010	68·731
NORTH WALL	100·804	6·923	93·881	59·337
RINGSEND	559·422	24·909	534·513	435·126
MARINA	318·832	12·629	306·203	241·349
ARIGNA	96·382	5·677	90·705	94·629
			1123·312	
PURCHASED	7·326	—	7·326	5·880
TOTALS	2,900·829	142·137	2,758·692	2,583·077
Maximum daily generation, million units			11·957	11·163
Maximum load generated in kW			674,000	632,000

MONTHLY OUTPUTS (kWh × 10^6) OF THE GENERATING STATIONS AND SUPPLY PURCHASED

Year ended 31st March, 1964

Appendix 7

Month (Calendar)	PEAT STATIONS										COAL/OIL STATIONS					Total of steam stations
											DUBLIN			CORK		
	Ferbane	Rhode	Bella-corick	Port-arlington	Allen-wood	Lanes-borough	Cahir-civeen	Miltown-Malbay	Screeb	Gwee-dore	Pigeon House	North Wall	Rings-end	Marina	Arigna	
April	25·355	16·227	8·348	16·772	9·630	11·519	0·739	0·333	—	2·601	1·654	3·992	37·263	20·571	9·904	164·908
May	24·015	21·505	19·760	6·166	18·544	5·274	0·253	—	—	3·353	1·415	3·890	35·880	16·491	9·695	166·241
June	17·263	19·143	12·158	16·216	15·984	12·723	—	—	—	2·502	3·948	5·082	29·594	21·826	8·791	165·230
July	11·288	8·505	5·548	14·396	14·589	9·166	1·131	—	—	1·945	10·865	10·170	36·369	34·587	10·102	168·661
August	9·792	4·454	3·134	10·310	15·068	8·801	1·143	—	—	—	15·478	14·600	62·613	12·629	7·306	165·328
September	11·613	9·459	4·661	9·847	14·159	3·591	0·731	—	0·188	0·752	14·219	7·495	49·533	36·929	8·198	171·375
October	9·913	8·234	4·997	11·563	16·005	2·736	0·766	0·484	0·716	1·684	10·725	9·797	58·071	36·491	0·754	172·936
November	15·624	10·676	5·537	9·236	16·156	0·186	0·683	0·680	0·634	1·284	7·244	3·298	41·160	14·640	6·022	133·060
December	36·498	16·309	12·905	17·242	22·498	5·104	0·561	0·515	0·065	2·443	12·571	7·344	50·175	25·428	7·238	216·896
January	40·018	16·879	16·712	17·875	25·402	12·603	0·770	0·779	0·557	3·338	10·902	9·386	56·387	37·376	10·755	259·739
February	28·383	13·592	7·212	17·202	19·773	13·617	0·657	—	0·579	2·966	12·232	19·328	56·942	37·594	9·484	239·561
March	32·706	26·972	13·717	15·429	18·328	11·064	0·150	—	0·436	3·563	6·585	6·422	45·435	24·270	8·133	213·210
TOTALS	262·468	171·955	114·689	162·254	206·136	96·384	7·584	2·791	3·175	26·431	107·838	100·804	559·422	318·832	96·382	2,237·145

Month (Calendar)	HYDRO STATIONS										Total generation of all stations	Total supply purchased	Total generation and supply purchased
	River Shannon	River Erne		River Lee		River Liffey			River Clady	Total of hydro stations			
	Ardnacrusha	Cliff	Cathaleen's Fall	Carrigadrohid	Inniscarra	Pollaphuca	Golden Falls	Leixlip					
April	26·120	5·526	13·181	2·118	5·202	4·359	1·528	2·157	0·616	60·807	225·715	1·383	227·098
May	21·067	4·823	11·760	1·275	3·413	0·425	0·215	0·503	1·758	45·239	211·480	0·605	212·085
June	9·104	1·083	2·442	0·128	0·604	0·385	0·196	0·335	0·397	14·674	179·904	0·459	180·363
July	11·520	2·050	5·079	0·717	1·466	0·324	0·204	0·281	0·459	22·100	190·761	0·314	191·075
August	5·156	1·140	2·739	0·587	1·429	2·847	1·030	1·213	1·151	17·292	182·620	0·302	182·922
September	11·329	4·121	9·862	0·658	1·345	2·401	0·894	1·201	1·678	33·489	204·864	0·443	205·307
October	25·761	8·112	20·623	1·821	4·235	2·212	0·843	1·123	2·091	66·821	239·757	0·629	240·386
November	58·343	12·638	31·076	5·206	13·260	5·047	1·820	2·674	2·394	132·458	265·518	0·706	266·224
December	41·414	9·166	22·942	2·618	7·788	3·253	1·200	1·745	0·710	90·836	307·732	0·781	308·513
January	30·570	3·649	9·502	1·510	3·833	0·781	0·370	0·682	0·723	51·620	311·359	0·893	312·252
February	19·238	4·415	11·157	2·737	6·722	1·519	0·609	0·870	0·575	47·842	287·403	0·622	288·025
March	28·961	5·889	14·140	4·940	12·569	3·356	1·211	1·711	0·403	73·180	286·390	0·189	286·579
		62·612	154·503	24·315	61·866	26·909	10·120	14·495					
TOTALS	288·583	217·115		86·181		51·524			12·955	656·358	2,893·503	7·326	2,900·829

PARTICULARS OF GENERATING PLANT

Hydro Stations

Station	River	Catchment area km.²	Average available head metres	Average annual generation kWh × 10⁶	Generating sets		Type of turbine
					No.	Capacity each kW	
ARDNACRUSHA	Shannon	10,400	28·3	310	3 1	20,000 25,000 **85,000**	Francis Kaplan
POLLAPHUCA	Liffey	309	48·7	45	2	15,000 **30,000**	Kaplan
GOLDEN FALLS		312	16·6		1	**4,000**	Propeller
LEIXLIP		843	17·3		1	**4,000**	Kaplan
CLIFF	Erne	4,320	12·1	275	2	10,000 **20,000**	Kaplan
CATHALEEN'S FALL		4,350	29·7		2	22,500 **45,000**	
CARRIGADROHID	Lee	610	15·4	77	1	**8,000**	Kaplan
INNISCARRA		790	31·9		1 1	15,000 4,000 **19,000**	
CLADY	Clady	80	57·8	13	1	**4,000**	Francis

Steam Stations

Station	Location	Generating Sets					Boilers			
		No.	Capacity each kW	Pressure Psi	Temp. °F	Type of cooling	No.	Capacity each k.lb./hour	Type of firing	Fuel type
Pigeon House	Dublin City	1 4	10,000 20,000 **90,000**	250	750	Estuarine	10	100	Mech. Stoker and Oil-fired	Coal and Oil
North Wall	Dublin City	3	16,000 **48,000**	400	800	Estuarine	4 3	40 165	Oil-fired	Oil
Portarlington	Co. Laoise	3	12,500 **37,500**	400	800	Tower	3	150	Mech. Stoker	Sod Peat
Allenwood	Co. Kildare	2	20,000 **40,000**	400	800	Tower	4	150	Mech. Stoker	Sod Peat
Marina	Cork City	2	30,000 **60,000**	600	850	Tidal River	3	200	P.F. and Oil-fired	Coal or Oil
Marina (under construction)	Cork City	1	**60,000**	1,150	950	Tidal River	1	550	Oil-fired	Oil
Ringsend	Dublin City	3	30,000 **90,000**	600	850	Estuarine	4	200	P.F. and Oil-fired	Coal or Oil
Ringsend (under construction)	Dublin City	3	60,000 **180,000**	1,150	950	Estuarine	3	550	Oil-fired	Oil

Steam Stations

Station	Location	Generating Sets					Boilers			
		No.	Capacity each kW	Pressure Psi	Temp. °F	Type of cooling	No.	Capacity each k.lb./hour	Type of firing	Fuel type
Ferbane	Co. Offaly	3 1	20,000 30,000 **90,000**	400 900	800 950	Tower	3 1	220 285	P.F.	Milled Peat
Miltown-Malbay	Co. Clare	1	**5,000**	400	800	Tower	1	60	Mech. Stoker	Sod Peat
Screeb	Co. Galway	1	**5,000**	400	800	Sea	1	60	Mech. Stoker	Sod Peat
Cahirciveen	Co. Kerry	1	**5,000**	400	800	Tower	1	60	Mech. Stoker	Sod Peat
Gweedore	Co. Donegal	1	**5,000**	400	800	River	1	60	Mech. Stoker	Sod Peat
Arigna	Co. Roscommon	1	**15,000**	400	800	Lake	1	165	P.F.	Coal
Lanesborough	Co. Longford	1	**20,000**	400	800	River	1	220	Mech. Stoker	Sod Peat
Lanesborough (under construction)		1	**40,000**	900	950		1	380	P.F.	Milled Peat
Rhode	Co. Offaly	2 1	20,000 40,000 **80,000**	650 900	850 950	Tower	2 1	210 380	P.F.	Milled Peat
Bellacorick	Co. Mayo	2	20,000 **40,000**	650	850	Tower	2	210	P.F.	Milled Peat
Shannonbridge (under construction)	Co. Offaly	1	**40,000**	900	950	River	1	380	P.F.	Milled Peat
Great Island (under construction)	Co. Wexford	2	60,000 **120,000**	1,150	950	Estuarine	2	520	Oil-fired	Oil
Tarbert (under construction)	Co. Kerry	2	60,000 **120,000**	1,150	950	Estuarine	2	520	Oil-fired	Oil

PERFORMANCE OF GENERATING PLANT

Year ended 31st March, 1964

Hydro-electric Stations

Station	River	Rainfall at station	Total inflow*	Discharge through sets	Water utilisation	Average available head	Water per unit generated	Installed capacity	Units sent out	Plant load factor	Total cost per unit sent out
		inches	m^3/sec	m^3/sec	%	metres	m^3	kW	kWh $\times 10^6$	%	pence
ARDNACRUSHA	Shannon	35·20	155·5	140·0	97·6	28·6	15·35	85,000	285·575	38·6	0·368
POLLAPHUCA	Liffey	34·75	9·5	7·9	100·0	48·6	9·35	30,000	26·202	10·2	
GOLDEN FALLS		34·75	9·5	8·9	100·0	16·8	28·00	4,000	9·964	28·8	0·734
LEIXLIP		25·10	13·4	12·1	99·8	17·5	26·30	4,000	14·320	41·3	
CLIFF	Erne	38·70	75·4	70·6	100·0	12·2	35·65	20,000	61·912	35·6	0·572
CATHALEEN'S FALL				72·3	98·0	29·8	14·80	45,000	152·407	39·1	
CARRIGADROHID	Lee	47·70	21·9	20·4	95·3	15·4	26·50	8,000	24·023	34·6	0·923
INNISCARRA		46·80	27·2	25·7	97·1	32·9	13·40	19,000	61·294	37·1	
CLADY	Clady	61·85	3·7	3·1	95·6	—	7·50	4,000	12·802	36·9	1·389

The percentage utilisation of the total discharge is exclusive of river compensation water and, in the case of the River Liffey, of the draw-off for the Dublin City water supply from Pollaphuca Reservoir which averaged 18·8 million gallons per day (1·0 m^3/sec).

Shannon and Erne rainfall represent average of catchment area.

*Based on discharge through sets.

PERFORMANCE OF GENERATING PLANT

Year ended 31st March, 1964

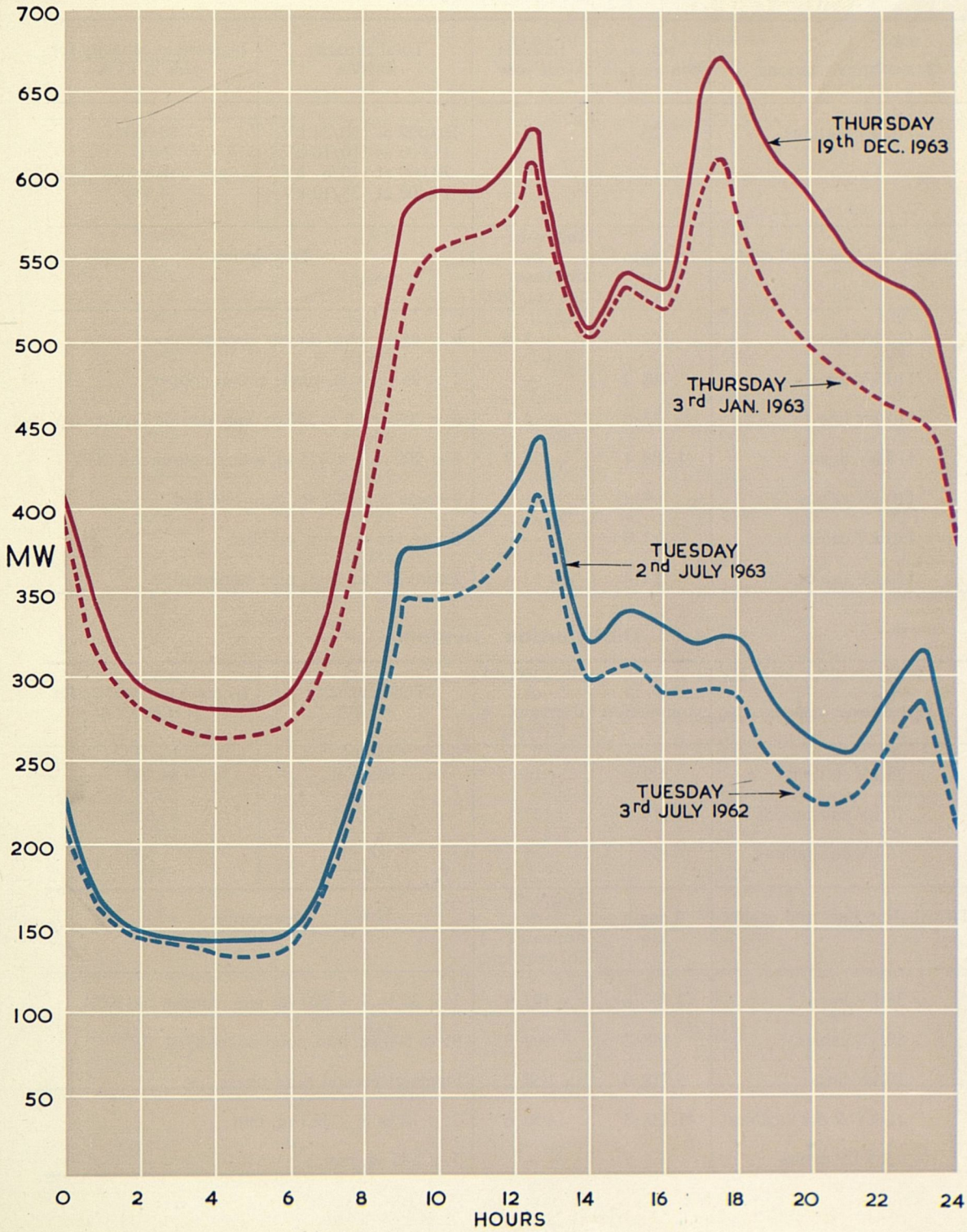
Steam Stations

Station	Location	Installed capacity kW	Units sent out kWh × 10^6	Plant load factor %	Fuel type	Total fuel used tons	Total fuel cost £	Fuel cost per unit sent out pence	Total cost per unit sent out pence
Pigeon House (Stand-by Station)	Dublin City	90,000	98·010	—	Coal Oil	9,900 47,000	—	—	—
North Wall	Dublin City	48,000	93·881	30·8	Oil	34,700	194,599	0·498	1·129
Portarlington	Co. Laoise	37,500	151·828	49·3	Sod Peat	185,900	556,283	0·881	1·266
Allenwood	Co. Kildare	40,000	193·427	58·7	Sod Peat	226,700	681,290	0·848	1·242
Marina	Cork City	60,000	306·203	60·5	Coal Oil	— 97,000	523,103	0·411	0·731
Ringsend	Dublin City	90,000	534·513	70·8	Coal Oil	— 159,700	877,773	0·396	0·701
Ferbane	Co. Offaly	90,000	240·519	47·2	Milled Peat Oil	494,300 2,800	662,371	0·663	1·160
Four 5 MW Stations	West Coast	20,000	36·675	22·8	Sod Peat	55,900	139,349	0·921	2·278
Lanesborough	Co. Longford	20,000	92·053	54·9	Sod Peat	95,700	285,315	0·750	1·111
Arigna	Co. Roscommon	15,000	90·705	73·1	Coal Oil	54,300 300	238,150	0·631	0·984
Rhode	Co. Offaly	80,000	158·185	25·9	Milled Peat Oil	300,300 2,000	405,797	0·618	1·341
Bellacorick	Co. Mayo	40,000	106·868	32·6	Milled Peat Oil	189,800 1,300	256,881	0·578	1·192

Milled peat figures in Ferbane, Rhode and Bellacorick are for equivalent standard fuel of 55% moisture content. Sod peat figures in Portarlington, Allenwood and Lanesborough are for equivalent standard fuel of 30% moisture content. Sod peat figures in the Four 5 MW Stations are actual tonnages as received. The outputs are given for the year ended 31st March, but for convenience, costing figures are for 52 weeks.

TYPICAL DAILY GENERATION LOAD CURVES

Appendix 10



Appendix 11

TRANSMISSION AND DISTRIBUTION SYSTEMS IN COMMISSION

At 31st March, 1964

Transmission System

Transformer stations	No. in commission	Increase for year	Total capacity in kVA	Increase in capacity for year in kVA
110 kV stations	25	2	760,000 at 110/38 kV 15,000 at 110/10 kV 20,000 at 110/6 kV 77,400 at 38/10 kV	60,000 NIL NIL 4,600

Transmission lines and cables	Length km.	Increase (+) or decrease (—) for year km.	Description
110 kV lines	189·0	—3·6	6 × 95 sq. mm. double circuit copper
110 kV lines	748·2	—	3 × 95 sq. mm. single circuit copper
110 kV lines	23·5	+18·1	6 × 200 and 6 × 300 sq. mm. double circuit SCA
110 kV lines	1,688·1	+106·7	3 × 200 to 3 × 425 sq. mm. single circuit SCA
110 kV cables	9·8	—	3 single core 325 sq. mm. oil-filled
110 kV cables	3·0	—	3 core 185 sq. mm. oil-filled
110 kV cables	13·4	+13·4	3 core 300 sq. mm. pipe compression

Distribution System

Transformer stations	No. in commission	Increase(+) or decrease(—) for year	Total capacity in kVA	Increase in capacity for year in kVA
38 kV stations	202	+15	939,200	84,700
10 kV substations	4,711	+167	779,532	63,655
5 kV substations	103	—5	84,183	500

Distribution lines and cables	Length km.	Increase (+) or decrease (—) for year km.	Description
38 kV lines	3,902·8	+193·9	3 × 35 to 3 × 300 sq. mm. copper and SCA
38 kV cables	148·2	+2·9	95 to 500 sq. mm. solid or oil-filled
10 kV lines	5,718·0	+58·2	Single-phase and three-phase
10 kV & 5 kV cables	1,128·8	+50·6	3 × 10 to 3 × 185 sq. mm.
3·3 kV cables	3·7	—	3 × 185 sq. mm.

Appendix 12

PROGRESS OF THE RURAL ELECTRIFICATION SCHEME

Period	Poles erected	Miles of line strung	Consumers connected	Areas completed
Year ended 31st March				
1947	1,300	39	Nil	Nil
1948	15,986	721	2,203	7
1949	32,002	1,730	9,262	30
1950	40,972	2,083	13,688	45
1951	42,423	2,232	15,803	49
1952	46,008	2,466	18,067	49
1953	48,059	2,703	18,818	49
1954	68,382	3,769	23,477	60
1955	91,391	4,977	27,316	75
1956	112,616	6,196	34,257	99
1957	91,794	5,149	34,627	80
1958	61,696	3,332	17,725	60
1959	50,113	2,700	14,997	45
1960	47,982	2,592	13,458	40
1961	43,757	2,322	11,570	40
1962	30,155	1,652	9,515	26
1963	22,062	1,215	8,829	19
1964	29,616	1,551	10,820	12
TOTALS	876,314	47,429	284,432	785

TO THE MINISTER FOR LANDS

REPORT ON FISHERIES
27 LOWER FITZWILLIAM STREET
DUBLIN 2

In accordance with the provisions of Section 10 of the Electricity (Supply) (Amendment) Act, 1961, the Board presents the Annual Report on its fisheries and the Preservation and Operation of Fisheries Account (No. 5) for the year ended 31st March, 1964.

Satisfactory progress was made in the development of the salmon fisheries in the River Shannon. The run of salmon was the highest in the river since counting commenced in 1941.

Some 23,300 salmon were counted at Thomond Weir and 6,200 passed above Killaloe into the new spawning areas. Since 1959 the run of salmon through the Ardnacrusha fish pass has quadrupled. In the estuary, which is a public fishery, the maximum number of drift net licences, 70, were purchased for the first time since 1934 and the heavy exploitation of the stock in this area continues to concern the Board. Effective regulation of fishing is essential if the success of the Board's capital investment, aimed at increasing the numbers of salmon in the Shannon and its tributaries, is to be assured.

In order to rebuild the salmon stocks in the River Lee a five-year development programme was initiated. The intensive investigation into smolt movements at the hydro-electric dams, undertaken in conjunction with Fisheries Division, was continued.

Conservation measures on the River Erne were continued. Negotiations for the acquisition of the commercial fisheries on the River Clady are in progress and it is hoped that the acquisition of these fisheries will enable the Board to introduce adequate conservation measures.

HATCHERIES AND REARING STATIONS

In order to meet the increasing commitments in the Lee and Clady an extension of the Parteen Rearing Station, which will give a 30% increase in production, was completed. The rearing facilities were again utilised during the winter months and a stock of 100,000 young salmon was brought to the smolt stage. An experimental rearing station was constructed and operated successfully on the River Erne.

Hatchery production figures for 1963/64 were as follows:

Hatchery	Salmon ova	Losses during incubation
Shannon	1,700,000	1·4%
Lee	600,000	3%
Erne	700,000	1%

Great difficulty continues to be experienced in purchasing additional supplies of salmon ova. During the year the Board was facilitated by Fisheries Division in the purchase of 500,000 salmon ova from the Glenties and Lismore Hatcheries. A further 100,000 ova were purchased in Scotland.

In co-operation with the local Boards of Conservators and Angling Associations, young salmon were released during the year in the catchments of all hydro-electric rivers.

COMMERCIAL FISHING

72% of the salmon reaching Thomond Weir at Limerick during the commercial fishing season were released for propagation purposes and for angling. Salmon prices were higher than those obtaining in 1962 and the Board continued to

utilise the continental markets for salmon in addition to its traditional outlets in Britain.

Sales of salmon realised £22,241.

The run of salmon in the River Erne was 5,100 and, in the interests of conservation, the Board decided not to fish commercially on this river nor on the River Lee.

The development of the eel fisheries on the River Shannon continued. In addition to the big number of elvers using the main River Shannon through Castleconnell, over two million elvers passed upstream at Ardnacrusha and over six million were transferred from other rivers to the mid-Shannon area. During the November storms an exceptional run of migrating eels occurred at Killaloe where the biggest catch for 20 years was taken by the Board. Sales of eels realised £7,671.

CONSERVATION

The Liaison Committee, representative of the Fisheries Division, the Inland Fisheries Trust, Bord Failte and the E.S.B., continued to deal with the problems arising from the simultaneous development of the Shannon for salmon, trout and coarse fishing. The success of the Board's work in establishing a run of salmon in the midlands for the first time since the hydro scheme was built, has necessitated the introduction of angling regulations in order to safeguard the stock. With the goodwill of the local Association at Birr, satisfactory arrangements were made for fishing the Little Brosna and its tributaries in which it was reported that 3,000 salmon spawned during the winter of 1963/64.

The Board again contributed £500 to the Enniskillen Board of Fishery Conservators for the protection of the Erne fisheries. On the Liffey, investigations into the Pollaphuca trout fishery continued and the Board decided to make a substantial re-stocking with brown trout in order to assess the productivity and capacity of this water.

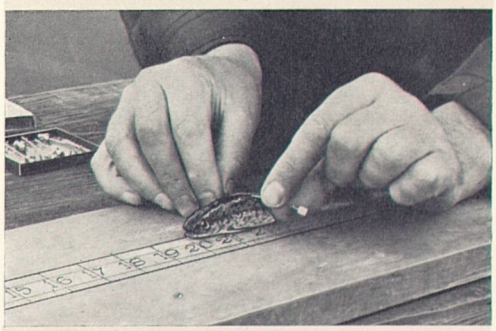
ANGLING

In spite of the heavy run of salmon in the Shannon in 1963, weather conditions militated against good sport. In 1964, the spring fishing continued to improve.

The trout fisheries in the midlands are largely



Pike netting on Lough Derg



Tagging of salmon smolt at Parteen Hatchery and Rearing Station

administered by the Inland Fisheries Trust and local angling clubs. The development of coarse fish angling, which has been sponsored by Bord Failte and the Inland Fisheries Trust, continued successfully in many areas in the Shannon. Fishing for brown trout and coarse fish was reported as very satisfactory.

COUNTING OF SALMON

The numbers of salmon counted during 1963 were as follows :

Thomond Weir, Limerick	23,322
Ardnacrusha Fish Pass	4,873
Parteen Fish Pass	1,295
Inniscarra Fish Pass	474
Carrigadrohid Fish Pass	232
Cathaleen's Fall Fish Pass	5,101
Gweedore Weir, River Clady	86
Leixlip	1,543

FINANCIAL

The financial aspects of the fisheries activities now being undertaken on the five river systems directly affected by hydro-electric development are shown in Account No. 5.

The substantial increase in work in recent years is reflected in the expenditure of £63,897 by the Board on the preservation, development and operation of the fisheries. A revenue of £32,004, mainly from the sale of salmon and eels, is offset against this figure.

The Board wishes again to record its appreciation of the co-operation it received from the officers of the Fisheries Division, Department of Lands, from the Ministry of Commerce Northern Ireland, Bord Failte Eireann, the Inland Fisheries Trust Incorporated, the Boards of Conservators and many local angling clubs.

(Signed) *T. Murray*, CHAIRMAN
Henry Kennedy
C. Gordon Lambert
T. MacMahon
Breandán Ó Cearbhaill
J. A. Ryan
J. C. Tonge

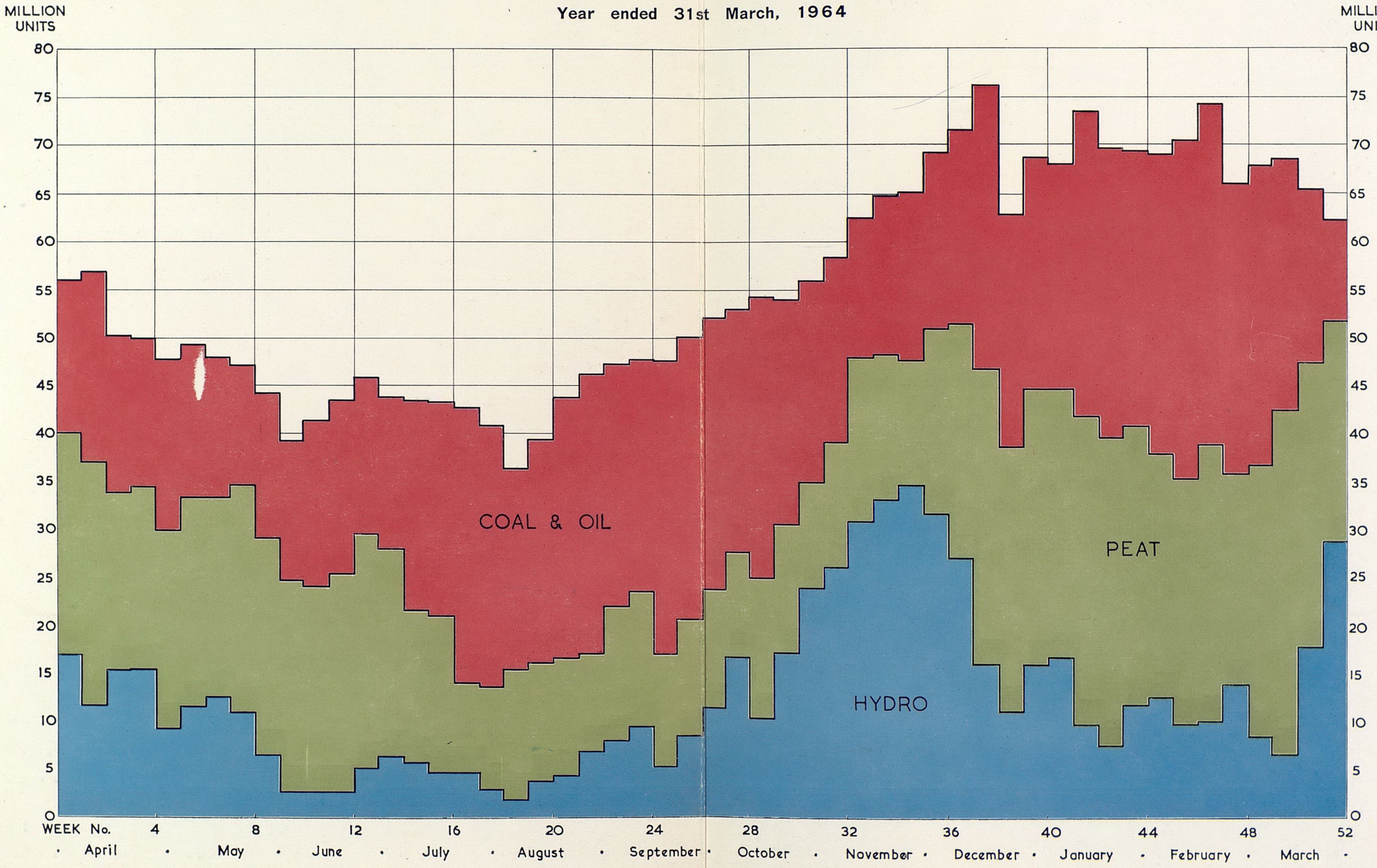
(Signed) *J. G. Gargan*, SECRETARY
9th June, 1964

Printed in the Republic of Ireland by Hely Thom Ltd., Dublin.

WEEKLY GENERATION

Year ended 31st March, 1964

Appendix 13



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and
DISTRICT MANAGERS

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