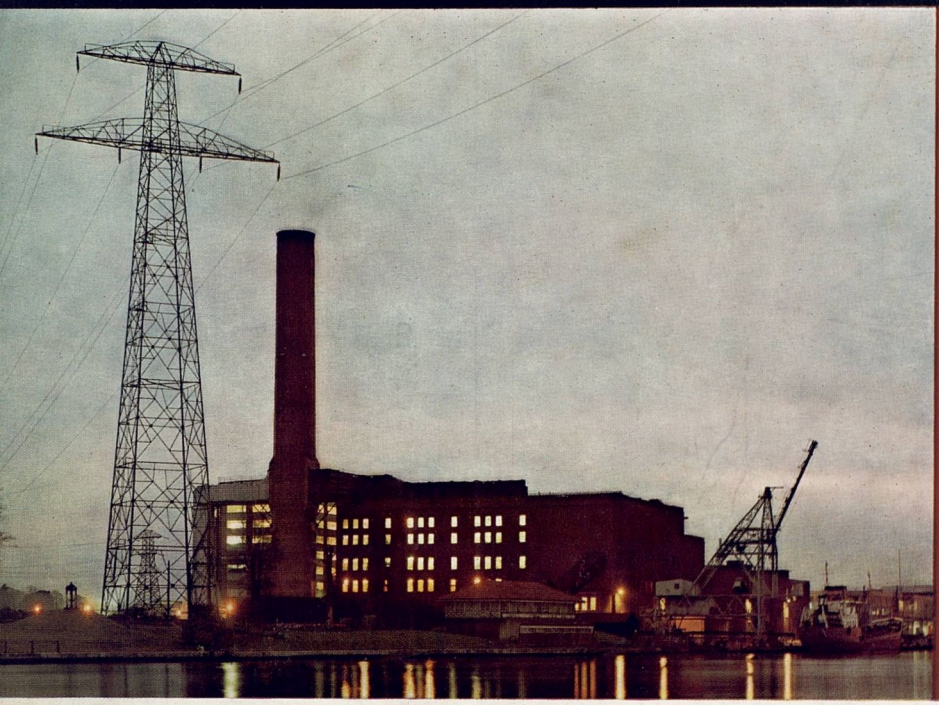
38th

ANNUAL REPORT

ELECTRICITY SUPPLY BOARD · IRELAND



For the year ended 31st March 1965

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

A. HARKIN, M.E., M.I.E.E., M.I.Mech.E.

Chief Accountant

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

Pr. 8255

ELECTRICITY SUPPLY BOARD

LOWER FITZWILLIAM STREET: DUBLIN 2: IRELAND



General Outline of the GENERATION and TRANSMISSION SYSTEM

31st March, 1965

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

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COVER—Marina generating station by night

TO THE MINISTER FOR TRANSPORT AND POWER

REPORT of the ELECTRICITY SUPPLY BOARD
LOWER FITZWILLIAM STREET
DUBLIN 2

The Board presents the Annual Report and Accounts for the year ended 31st March, 1965, in accordance with Section 7 (4) and Section 32 (1) of the Electricity (Supply) Act, 1927.

In the year 1964-5 the demand for electricity at 3,240 million units showed an increase of 339 million units, or 11·7% compared with an average increase of 9·1% over the last five years. Despite increases in wages and salaries and in the cost of materials, the accounts for the year ended 31st March, 1965, show only a small deficit. An important factor in this achievement is that it was attained without recourse to any increase in electricity charges, notwithstanding the increases in outgoings mentioned. The Board hopes that it will not be necessary to increase the present price levels during the coming year.

As total demand rises, it has become feasible to install larger generating units and during the year two 60 MW sets were put into operation—one at Marina, Cork and one at Ringsend, Dublin. Six further sets of similar capacity are on order; two are being installed in the extension to Ringsend station and, for their first development, the new stations at Great Island, Co. Wexford, and at Tarbert, Co. Kerry, will also have two 60 MW sets each. At the end of the year, tenders had been invited for two 120 MW sets for the initial development of the proposed Pigeon House "B" generating station in Dublin.

The economic operation of these larger generating sets is improved by 24-hour operation, a factor which makes the development of night load especially important. A wide public acceptance of electric night storage heating in homes is contributing to this development, and in 1964-5 this particular load showed an increase of 34%.

An encouraging feature of the year's operation was the fact that increased demand occurred in all categories (industrial, commercial, domestic) of supply and in all parts of the country, both urban and rural.

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

	Million units sent out	Percentage
hydro	775	25·2
peat (sod)	439	14·3
peat (milled)	533	17·4
coal (native)	83	2·7
oil/coal	1,242	40·4

Generation from native sources amounted to 59·6% of the total output.

During the year the 40 MW milled peat fired station at Shannonbridge was commissioned and this, together with the new 60 MW sets at Marina and Ringsend, added 160 MW to the existing plant bringing the total up to 1009·5 MW.

To meet the estimated increases in demand during the next five years, work continued on the sites at Great Island and Tarbert and on the extensions to Lanesborough and Ringsend. Completion dates on these projects range from 1965-6 to 1970 and the total additional capacity thus provided will be 400 MW.

Agreement was reached with the Dublin Port and Docks Board on the site for the proposed Pigeon House "B" station and site research and design work is being continued.

Work continued on the 220 kV transmission grid and the section from Cork to Shannonbridge was completed. The 220 kV transformer station at Shannonbridge was commissioned and a similar station at Cork was nearing completion. A new 110 kV station at Shelton Abbey was also commissioned.

Work was completed in the 792 areas selected under the original Rural Electrification Scheme. In addition 277 areas have been recanvassed under the revised rural post-development scheme. Work was completed in 138 of these areas and was in progress in 67 others. The deficit on the Rural Revenue Account for the year amounted to £1,216,652.

The extension and strengthening of the distribution networks throughout the country imposes a heavy demand on the Board's labour and capital resources. In the year 1964-5 £2,416,000 was spent on these tasks. In the Dublin Districts a special problem has been created because of the large volume of building, the increases in the domestic use of electricity and the shortage of skilled labour for network construction and improvement. During 1964-5, 102 new substations were erected in these Districts and in 1965-6 it is estimated that expenditure of up to £1,600,000 will be required to carry out further improvements to maintain a satisfactory supply position.

Sales of electricity realised £22,488,000, an increase of £2,105,000 or 10·3% over the previous year.

Turnover tax on electricity sales in the year totalled £273,000.

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

	Year ended 31st March, 1965	Preceding year
	£	£
Gross revenue (including miscellaneous revenue)	22,572,233	20,441,967
Less working expenditure on wages, fuel and other materials, overheads and turnover tax	12,898,296	11,283,050
Balance	£9,673,937	£9,158,917
From this balance the following charges are met:—		
Interest (Net)	4,414,992	4,092,612
Provision for plant renewal	3,829,000	3,428,000
Capital redemption	1,520,482	1,273,364
	£9,764,474	£8,793,976
Leaving residue	£90,537 (Deficit)	£364,941 (Surplus)

Taking credit for Merchandise and Installations profits and allowing for the deficit on Fisheries, the result for the year, as shown in the Net Revenue Account, is a deficit of £80,066.

The balance forward from 1963/64 is a credit of £369,112 against which the deficit for the year has been offset. The Board also decided to write off £185,955 being the cost of issuing £6 million of 6% E.S.B. Stock 1984/89 in March, 1965. The result of these transactions is that there is a balance of £103,091 to be carried forward to next year.

In March, 1965, the Board issued £6,000,000 Stock at £98 per £100 Stock with an interest rate of 6%. It was fully subscribed on the day of issue. This capital will be used in financing the approved development programme.

INDUSTRIAL RELATIONS

The National recommendation ratified by employers and trade unions in January, 1964, has not succeeded in lessening the pressure of claims either on the Board or on other employers. The expectation was that this freely negotiated recommendation would usher in a long period of industrial peace and that it would be maintained by both parties in a responsible and disciplined way. This expectation has not been realised. Several claims considered to be in violation of the agreement were pressed strongly, some of them to the point of withdrawal of labour.

Unless it can be demonstrated in practice that agreements of this nature work well and will be upheld, then their value and justification must come under serious question.

The Board is providing a service which is vital to the needs of the individual and of the national economy as a whole. The service so provided cannot be interrupted without the most serious consequences to the community at large. Accordingly, industrial relations arrangements in this essential service must receive a fresh and constructive re-appraisal.

NORTH-SOUTH ELECTRICITY CO-OPERATION COMMITTEE

In March, 1965, the Minister for Transport and Power and the Minister of Commerce for Northern Ireland agreed to set up a committee to investigate the technical and economic problems involved in the transfer of power and in the inter-connection of the electricity supply systems, North and South.

The terms of reference for the Committee were "to investigate the scope for agreement in cross-border co-operation between the electricity supply systems, to advise on the economic and technical problems involved, and to estimate broadly the savings in cost which might be achieved."

The Chairman of the Committee is Sir Josiah Eccles. The Board's representatives are Mr. A. Harkin, Chief Engineer and Mr. R. S. McDowell, Head of System Operation Department. The Northern Ireland representatives are Mr. C. M. Stoupe, General Manager and Chief Engineer of the Electricity Board for Northern Ireland and Mr. R. P. Watson, Belfast City Electricity Engineer and General Manager.

The Committee has commenced its work and it is hoped that the investigations may be completed in about twelve months.

STAFF

At the 31st March, 1965, the numerical strength of the Board's regular staff was 6,479. In addition, there was a temporary staff of 3,240.

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

Since the close of the year Dr. P. G. Murphy, who has been in the Board's service since 1927, retired from the position of Chief Engineer, on reaching the age limit. He was the Board's first Chief Engineer, a post which he filled with distinction for over seventeen years. He was succeeded by Mr. A. Harkin, M.E., M.I.E.E., M.I.Mech.E., as Chief Engineer as from 19th May, 1965.

(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
2nd July, 1965.

CAPITAL

The value of the capital assets brought into commission was £14,400,467 of which £1,933,710 related to rural electrification. The total investment in assets in productive use at 31st March, 1965, was:—

	£
Generation	62,713,933
Transmission	13,338,050
Distribution (includes rural £34,724,076)	63,178,921
Premises, equipment, transport, etc.	4,157,216
	£143,388,120

In addition, expenditure of £9,306,215 had been incurred on new capital works still under construction at the end of the year. The fixed capital investment was approximately £152,700,000.

BORROWING POWERS

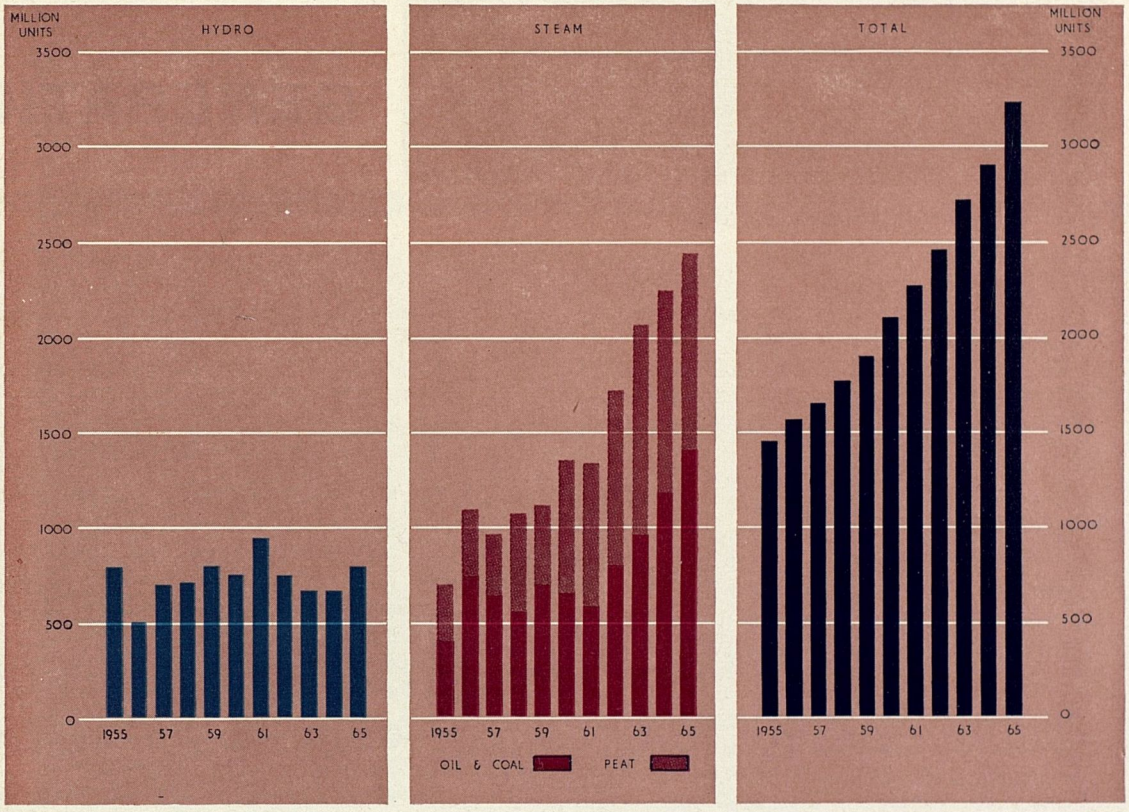
The capital requirements for the year were provided from internal resources, by temporary advances from the Trustees of the Superannuation Funds and from the proceeds of an issue in March, 1964, of £10·5 million E.S.B. 6% Stock 1984/89. To assist in financing the future capital programme, a further issue of £6 million E.S.B. 6% Stock 1984/89 was made in March, 1965.

The Electricity (Supply) (Amendment) Act, 1963 authorises a capital expenditure not exceeding £160 million for general purposes, excluding rural electrification. At 31st March, 1965, the Board had approved expenditure totalling £151,503,579 of which £108,664,044 represented electricity assets in commission, the balance £42,839,535 representing either work in progress or work approved.

The legislative limit to expenditure on rural electrification is £37 million inclusive of the subsidy for rural development provided by the State. At the 31st March, 1965, the amount approved was £36,408,908 of which £34,724,076 represents assets in commission and £1,684,832 work in progress or approved.

ELECTRICITY PRODUCTION

The diagram below illustrates the output of the generating stations each year since 1955.



INCREASE IN UNITS GENERATED

The units generated (and purchased) showed an increase of 339 million or 11·7% 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).



GENERATION

Thermal control room, Ringsend generating station

With the addition during the year of a 60 MW oil fired unit at Marina, a 60 MW oil fired unit at Ringsend and a 40 MW milled peat unit at Shannonbridge, the total installed capacity of the Board's generating stations at 31st March, 1965, was:

	MW
hydro plant	219
steam plant (coal/oil)	423
steam plant (sod peat)	117·5
steam plant (milled peat)	250
	1009·5

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 640 MW, was under construction or planned:

RINGSEND STATION, Dublin City
Oil

The installation of the second 60 MW unit was almost completed.

Scheduled completion date 1965.

Foundations for the third 60 MW unit were completed and work on the buildings and erection of the plant commenced.

Scheduled completion date 1966/67.

LANESBOROUGH STATION, Co. Longford
Milled Peat

Construction of the building and erection of the 40 MW milled peat fired unit were well advanced.

Scheduled completion date 1965/66.

GREAT ISLAND STATION, Co. Wexford
Oil

Site development work was completed and work on the foundations and buildings and manufacture of the first two 60 MW units were in progress.

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

TARBERT STATION, Co. Kerry
Oil

Site development work for the first two 60 MW units was in progress. Tenders were received for the boilers and generating sets.

Scheduled completion date 1969/70.

PIGEON HOUSE "B" STATION, Dublin City
Oil

The initial development comprises two 120 MW units. Site investigations were practically completed.

The specification for the generating sets was completed and tenders were invited. The specification for the boilers was practically completed.

Scheduled completion dates 1970/71 for No. 1 unit and 1971/72 for No. 2 unit.



Site for new generating station at Great Island, Co. Wexford.

WATER STORAGE AND RIVER CONTROL

The inflows to the Shannon and Clady catchments were above the long term average flows. The inflow to the Erne catchment was about average and the inflows to the Lee and the Liffey were below average. The inflows to all the hydro stations were well below average in the month of February.

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

The total average inflows for the calendar year 1964 were:—

	m^3/sec.
River Shannon at Killaloe	171·3
River Liffey at Pollaphuca	7·7
River Liffey at Leixlip	11·7
River Erne at Ballyshannon	84·7
River Lee at Inniscarra	27·9
River Clady at Gweedore	4·2

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.

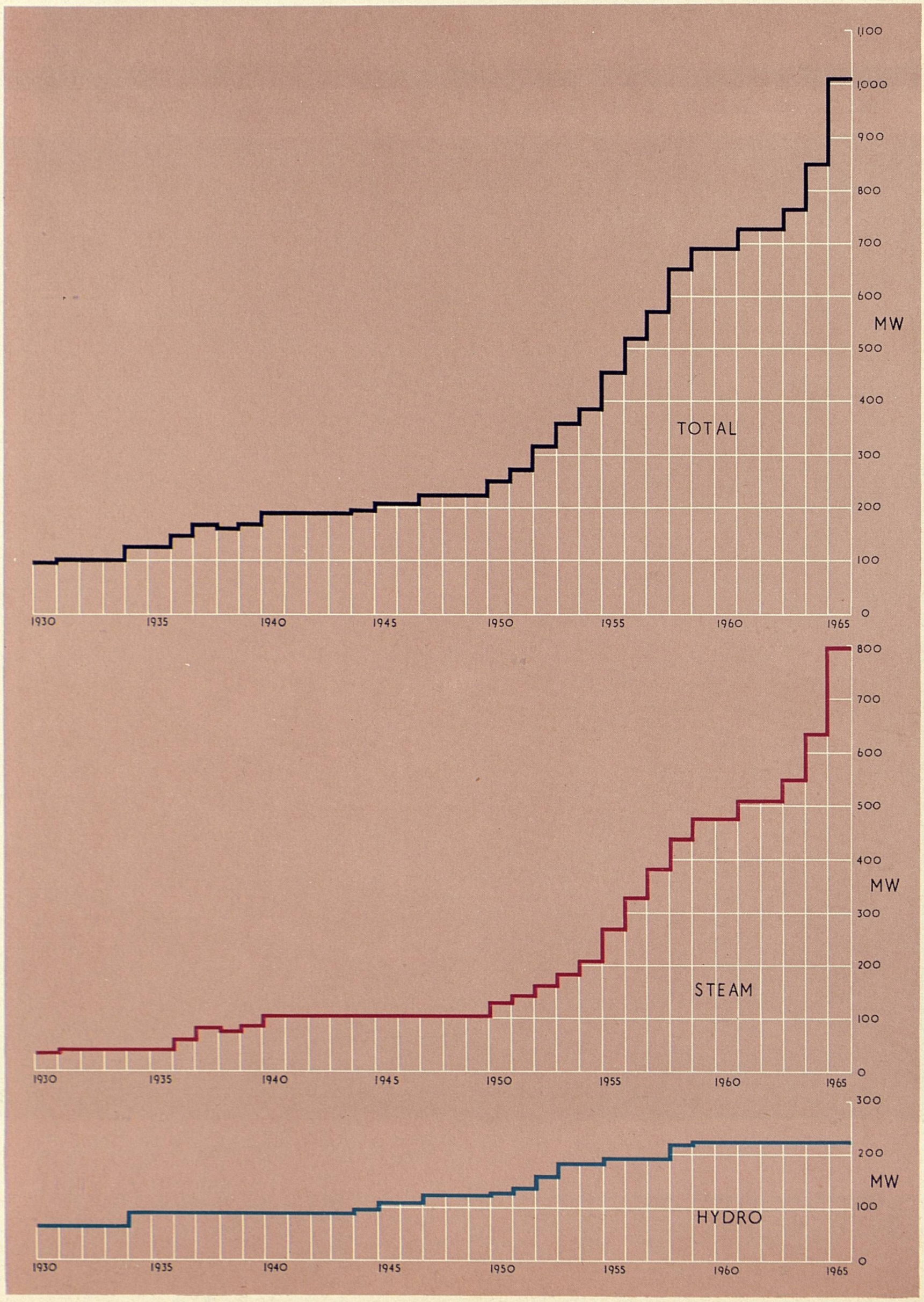
An examination of the feasibility and economics of pumped storage projects at a number of potential sites in Co. Wicklow was completed.

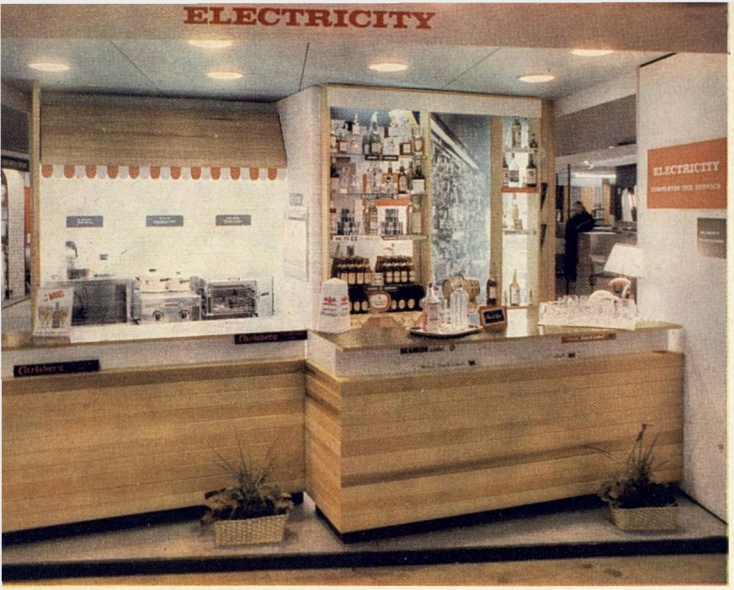


Ringsend generating station showing new extension.

GENERATION CAPACITY

1930—1965





E.S.B. stand – Catering Exhibition

SALES OF APPLIANCES

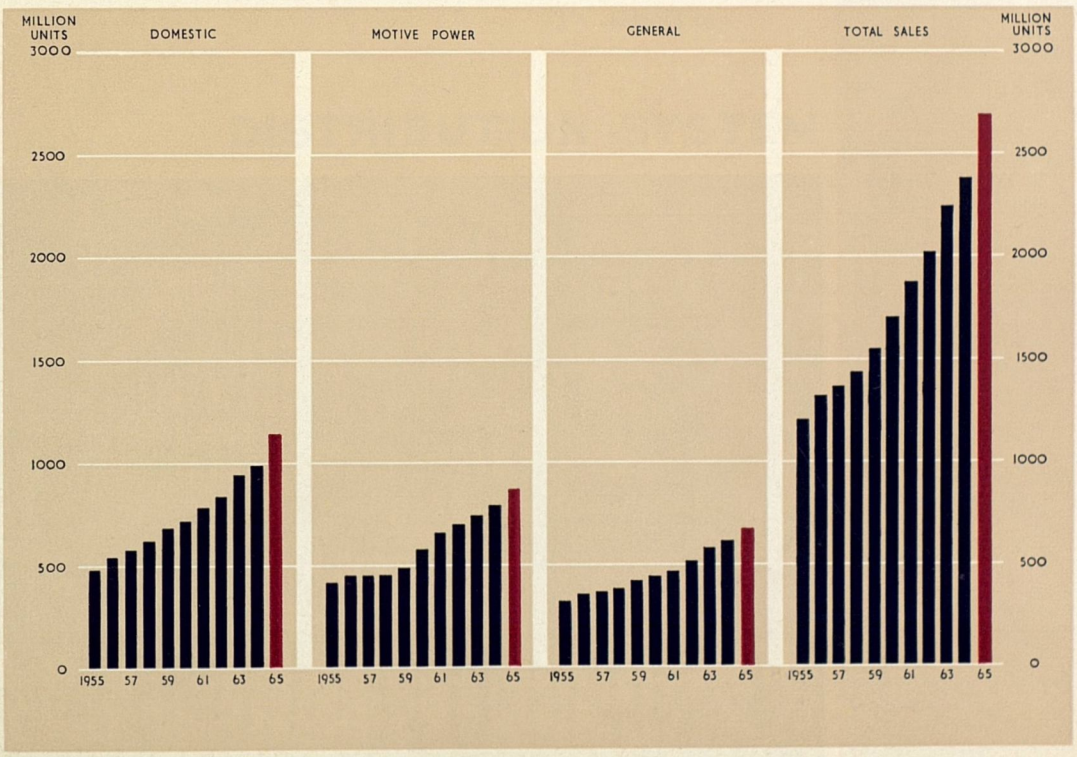
Sales of appliances on the Merchandise Trading Account amounted to £1,578,881 as compared with £1,300,674 last year. The gross profit was £299,289 representing a rate of 19%. The Merchandise Trading Account, having been charged with overhead expenses and interest on working capital, showed a net profit of £30,126.

CONSUMERS' INSTALLATIONS

The value of installation contracts completed amounted to £596,663 as compared with £597,963 for last year. The gross profit amounted to £96,545 representing a rate of 16·2%. The Installations Trading Account, having been charged with overhead expenses and interest on working capital, showed a net profit of £7,916.

ANALYSIS OF UNITS SOLD

The following diagram illustrates the analysis of units sold, from 1955 to 1965.



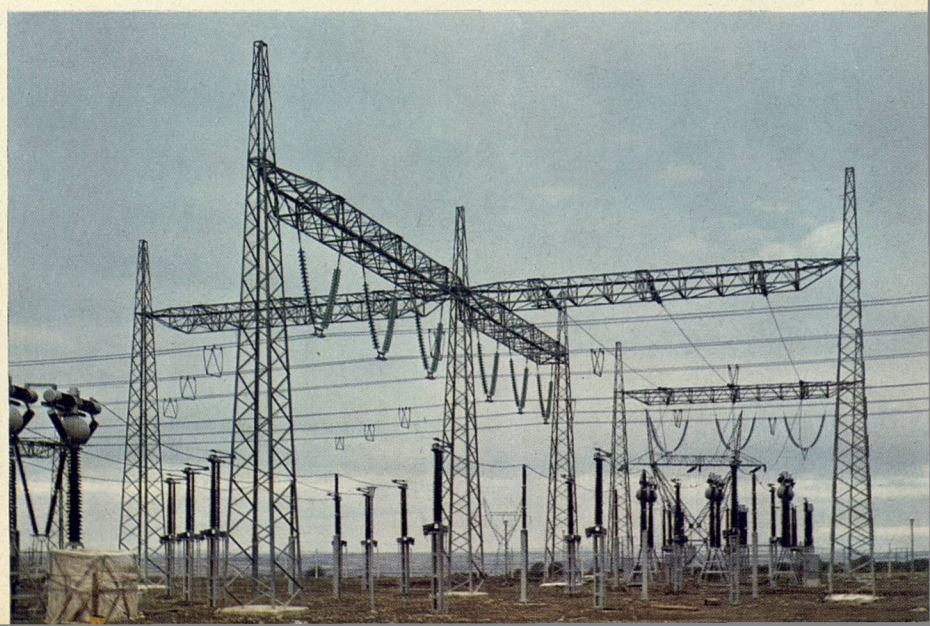
MAIN TRANSMISSION SYSTEM

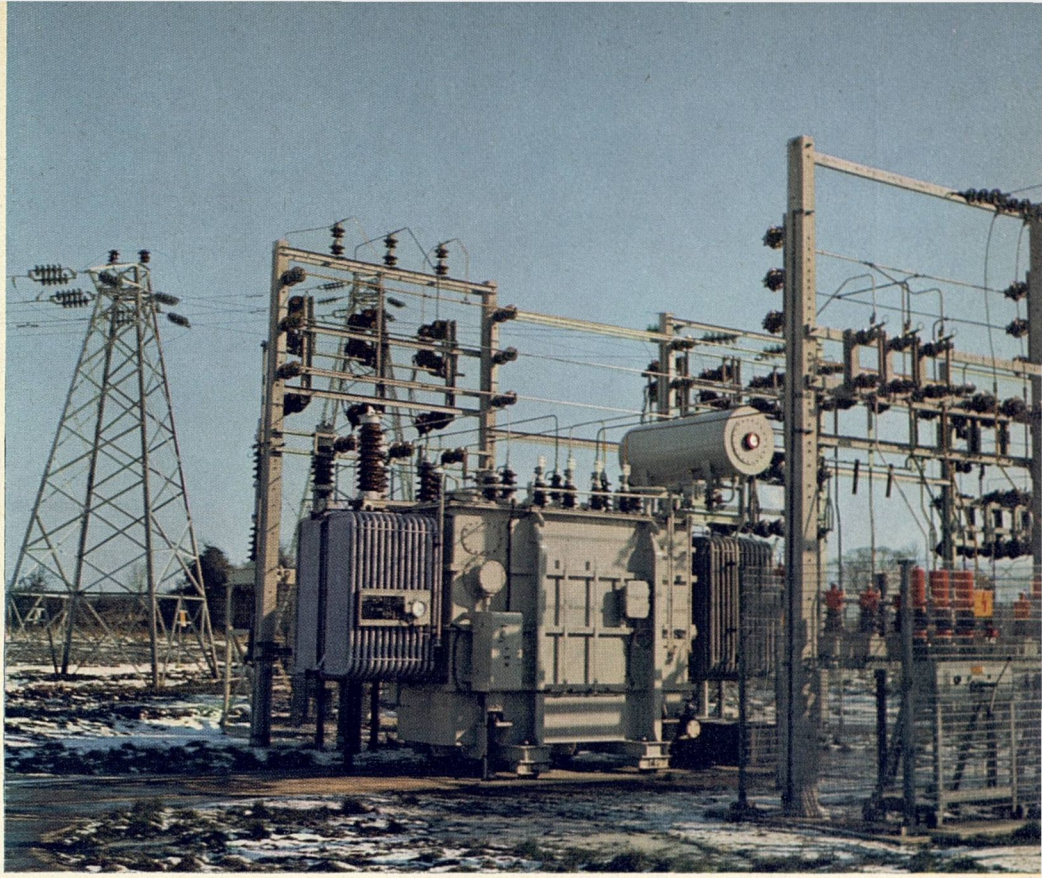
Work was completed on the 220,000 volt line from Cork to Shannonbridge. This is the first section of the new 220,000 volt system. Erection of the second section, between Shannonbridge and Dublin, was well under way. The terminal station at Shannonbridge was put into commission and work on the station at Cork was nearing completion.

Eighty-five miles of new 110 kV overhead lines were erected and twenty-five miles of existing lines were retired from service. New lines included a connection from Cahir to Waterford, a supply to the Nitrigin Eireann Teoranta factory at Shelton Abbey and a rearrangement of lines in the vicinity of Cork. Work was in hands to strengthen the supply to Whitegate Oil Refinery and also to extend supply to the Tynagh Mines. The first stage of the rearrangement of transmission lines in Greater Dublin was completed.

One new 110 kV switching station was put in commission and large-scale extensions of eight existing stations were well advanced. Work commenced on the laying of a pipe-type compression 110 kV underground cable from Ringsend to Finglas.

220 kV transmission station at Knockraha





38 kV transformer station at Unidare Limited, Finglas.

DISTRIBUTION SYSTEM

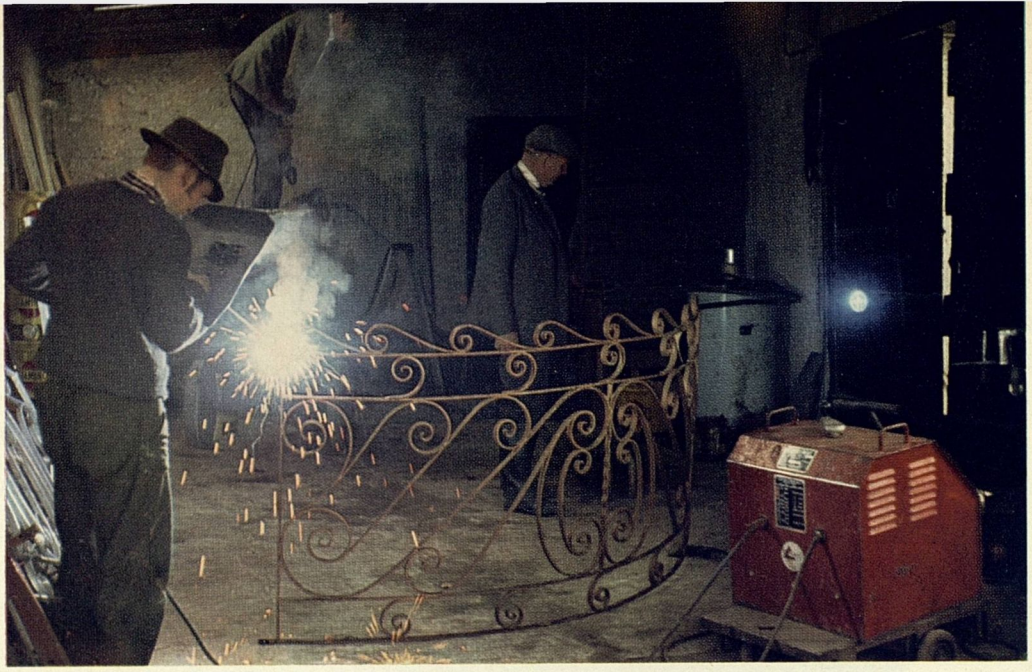
The following extensions and alterations to the high tension and low tension networks were carried out:—

38 kV overhead lines	net increase 49 miles
10 kV overhead lines and underground cables	net increase 64 miles
low tension overhead and underground mains	net increase 69 miles

Fourteen 38 kV transformer stations were completed and put in commission.

Two hundred and forty-nine 10 kV and six 5 kV transformer stations were completed; one 5 kV and fourteen 10 kV transformer stations were retired from service.

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



Electric welding in progress

RURAL ELECTRIFICATION

The total number of areas in the rural electrification scheme is 792. With the completion of work in seven areas during the year, the initial construction and development work in all areas has been effected.

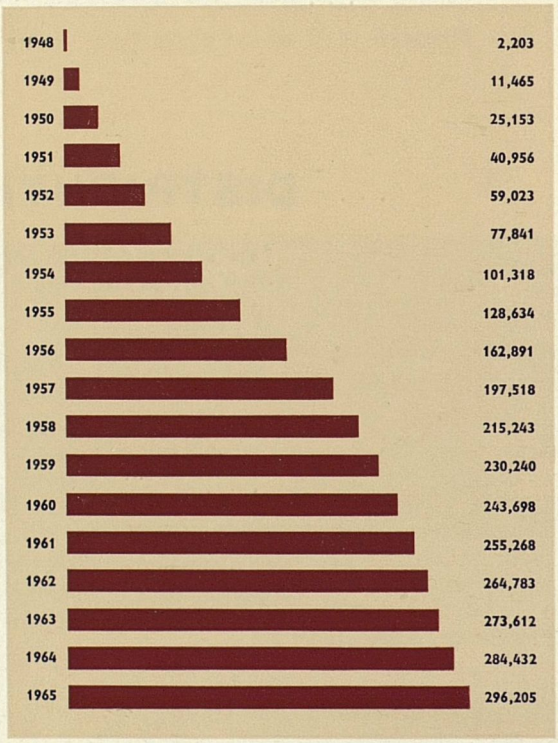
The areas completed cover 23,425 sq. miles or an average of 29·6 sq. miles per area. The proportion of dwelling houses connected is 80·9%.

The recanvass of rural areas under the revised post-development scheme was continued and by the end of the year 277 areas had been recanvassed. Work was completed in 138 of these and was in progress in 67 others. Of the 11,773 new rural consumers who were connected during the year, 10,776 were connected under the post-development scheme.

Work was continued on the strengthening of networks where the growth of load was found to be taxing the existing capacity.

The total value of materials used was approximately £1,066,500 of which about £895,860 or 84% was obtained from native suppliers. Prices in general tended to rise; the effect on major items being increases in the costs

The following diagram illustrates the cumulative total of consumers connected, under the Rural Electrification Scheme, as at 31st March each year from 1948 to 1965:—



of poles, transformers, conductors and ironwork of approximately 12%, 5%, 4·5% and 6% respectively.

Capital expenditure during the year was £2,064,071. The total invested in the scheme at 31st March, 1965 amounted to £36,000,495 of which £9,280,826 was by way of subsidy.

The consumption of electricity by rural consumers amounted to 602 million units as against 523 million units last year. The average consumption for all consumers supplied under the rural electrification scheme was 1,971 units as against 1,780 units in the preceding year, an increase of 11%. The average consumption per domestic consumer increased from 1,114 units to 1,233 units. The revenue earned was £6,432,261, representing an average price per unit of 2·56d.

There was a satisfactory increase in the number of installations of electrically warmed floors for the rearing of young pigs and this development is expected to continue particularly with the establishment of new pig fattening co-operatives.

The expansion in the rate of development of co-operative water schemes continued. At the end of the year, 148 of these schemes had been completed, while a further 76 were in various stages of design or construction.

With the increasing demand from visitors for holiday accommodation on Irish farms, the Board's scholarship courses at An Grianan, the College of the Irish Countrywomen's Association at Termonfeckin, Co. Louth, were revised to include a Farmhouse Holiday Course. A total of five courses was sponsored by the Board at this College.

The Board again wishes to express its appreciation of the co-operation it receives from the various authorities and organisations interested in the development of the uses of electricity in rural areas.

SUPERANNUATION SCHEMES AND TRIBUNALS

The number of contributing members in the General Employees' Superannuation Scheme at the end of the year was 2,175 and in the Manual Workers' Superannuation Scheme 2,989.

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

PREMISES

HEAD OFFICE BUILDINGS—At the end of the year demolition work had begun on the Lower Fitzwilliam Street houses and rebuilding specifications were being prepared.

GENERAL—A major operations depot at Limerick and staff canteens at Ardnacrusha and Ferbane were completed. Showrooms premises were opened at Dun Laoghaire. Plans were being prepared for a new district headquarters building at Tralee; a three-storey stores extension at Lower Erne Street, Dublin; extensions of the buildings at Stillorgan operations depot and of the district headquarters building at Portlaoise.

Four new service depots were opened and extensions made to seven others. Ten new depots and extensions to eleven existing depots were under construction or planned.

Thirty-two staff houses were in course of construction for the Ferbane, Shannonbridge and Great Island generating stations. Sites were acquired and a further sixty houses were planned for Lanesborough, Rhode, Ferbane, Great Island and Tarbert generating stations.



Computer Room

ACCOUNTS 1964-1965

Electricity Production Account for the Year ended 31st March, 1965

	Fuel	Operating Expenses	Maintenance and Repair	Supervision and Local Administration	Works Cost	Per Unit Sent Out 1963/64		Depreciation and Renewals	Interest and Capital Repayments Allocation	Total	Per Unit Sent Out	1963/64 Total	1963/64 Per Unit Sent Out
GENERATION	£	£	£	£	£	Pence	Pence	£	£	£	Pence	£	Pence
Coal/Oil													
North Wall	252,501	64,156	44,748	11,570	**372,975**	·719	·736	93,000	120,802	**586,777**	**1·130**	**441,274**	**1·129**
Marina	739,056	109,886	72,109	23,220	**944,271**	·482	·531	205,000*	260,488	**1,409,759**	**·720**	**929,749**	**·731**
Ringsend	978,230	132,204	86,570	22,127	**1,219,131**	·481	·490	167,000	310,592	**1,696,723**	**·669**	**1,554,359**	**·701**
Arigna	234,082	37,860	23,998	6,268	**302,208**	·868	·788	30,000	45,221	**377,429**	**1·084**	**371,391**	**·984**
					2,838,585	·529	·551			**4,070,688**	**·759**	**3,296,773**	**·774**
Sod Peat (Machine)													
Portarlington	580,370	74,804	40,198	12,332	**707,704**	1·142	1·074	53,000	68,244	**828,948**	**1·338**	**799,186**	**1·266**
Allenwood	631,217	78,197	57,482	13,010	**779,906**	1·122	1·017	79,000	102,078	**960,984**	**1·382**	**998,445**	**1·242**
Lanesborough	324,360	38,296	18,424	7,134	**388,214**	·912	·900	31,000	50,955	**470,169**	**1·104**	**422,439**	**1·111**
					1,875,824	1·078	1·012			**2,260,101**	**1·299**	**2,220,070**	**1·223**
Milled Peat													
Ferbane	676,674	106,698	72,460	21,645	**877,477**	·923	·843	181,000	286,956	**1,345,433**	**1·415**	**1,157,751**	**1·160**
Rhode	594,374	75,574	45,814	17,915	**733,677**	·754	·786	146,000	227,033	**1,106,710**	**1·137**	**880,078**	**1·341**
Bellacorick	165,378	59,668	37,933	10,521	**273,500**	1·139	·806	81,000	125,901	**480,401**	**2·000**	**529,477**	**1·192**
Shannonbridge	48,381	8,360	1,798	2,122	**60,661**	†	—	—	—	**60,661**	†	—	—
					1,945,315	·865	·818			**2,993,205**	**1·332**	**2,567,306**	**1·223**
Sod Peat (Hand-won)													
Four 5 MW Stations	127,422	49,170	32,620	5,504	**214,716**	1·923	1·517	45,000	72,492	**332,208**	**2·975**	**344,603**	**2·278**
Stand-by													
Pigeon House	177,630	81,817	40,028	16,421	**315,896**	—	—	67,000	76,431	**459,327**	—	**593,390**	—
TOTAL—FUEL STATIONS	5,529,675	916,690	574,182	169,789	**7,190,336**	·742	·753	1,178,000	1,747,193	**10,115,529**	**1·043**	**9,022,142**	**1·033**
Hydro													
Shannon	—	61,281	91,328	24,422	**177,031**	·115	·136	53,000	233,266	**463,297**	**·301**	**432,665**	**·368**
Erne	—	36,633	58,813	13,574	**109,020**	·091	·103	83,000	332,416	**524,436**	**·439**	**502,542**	**·572**
Liffey	—	19,628	32,713	9,437	**61,778**	·358	·256	24,000	75,517	**161,295**	**·935**	**152,811**	**·734**
Lee	—	17,842	15,968	6,067	**39,877**	·120	·102	54,000	236,926	**330,803**	**·997**	**318,647**	**·923**
Clady	—	6,622	3,019	800	**10,441**	·156	·179	10,000	56,180	**76,621**	**1·143**	**73,937**	**1·389**
TOTAL—HYDRO STATIONS	—	142,006	201,841	54,300	**398,147**	·120	·131	224,000	934,305	**1,556,452**	**·471**	**1,480,602**	**·556**
TOTAL—ALL STATIONS	5,529,675	1,058,696	776,023	224,089	**7,588,483**	·584	·607	1,402,000	2,681,498	**11,671,981**	**·898**	**10,502,744**	**·922**
TRANSMISSION	—	48,042	143,801	92,829	**284,672**	—	—	362,000	588,436	**1,235,108**	—	**1,045,580**	—
	5,529,675	1,106,738	919,824	316,918	**7,873,155**	—	—	1,764,000	3,269,934				
Electricity purchased in Bulk										**14,809**	—	**13,867**	—
General Administration :									£				
Generation									570,448				
Transmission									224,039				
										794,487	—	**638,320**	—
Total Cost										**13,716,385**	**1·055**	**12,200,511**	**1·071**
Transferred to Revenue Accounts :									£				
Non-Rural									10,299,123			**9,250,769**	
Rural									3,417,262			**2,949,742**	
										13,716,385		**12,200,511**	

* *Includes £23,065 for asset retired prior to the end of its estimated life*
† *Station recently commissioned*

Electricity (Non-Rural) Revenue Account for the Year ended 31st March, 1965

No. 2

Dr.

	£	£	1963/64 £
To Electricity Production Account		10,299,123	*9,250,769*
,, Distribution Charges :			
Operation and maintenance	1,249,189		
Reserve for depreciation and renewals	808,232		
Interest and capital repayments	1,239,228		
Supervision and local administration	846,697		
		4,143,346	*3,627,138*
,, General Administration :			
Salaries and wages	946,329		
Travelling expenses	52,675		
Stationery	31,809		
Telephones and postage	14,460		
Lighting and heating	16,857		
Rents and rates	21,572		
Insurance	83,758		
Professional fees	18,275		
Publicity	124,128		
Maintenance of office buildings and equipment	29,589		
Staff training	130,764		
Pensions	93,007		
Capital charges—general assets	343,463*		
Provision for bad debts	19,380		
Sundry expenses	20,633		
	1,946,699		
Less apportionments charged to:			
Production Account	794,487		
Rural Revenue Account	384,619		
Capital Works and other accounts	199,760		
		567,833	*486,360*
,, Turnover Tax		221,642	*107,887*
,, Balance carried to Profit and Loss Account		823,360	*1,055,244*
		£16,055,304	*£14,527,398*

**Includes £80,815 for amortisation of assets retired prior to the end of their estimated life.*

Cr.

	£	1963/64 £
By Electricity Charges	15,900,398	*14,364,573*
,, Meter and Other Charges	154,906	*162,825*
	£16,055,304	*£14,527,398*

Electricity (Rural) Revenue Account for the Year ended 31st March, 1965

No. 3

Dr.

	£	£	1963/64 £
To Electricity Production Account		3,417,262	*2,949,742*
,, Distribution Charges:			
Operation and maintenance	676,982		
Reserve for depreciation and renewals	1,115,768		
Interest and capital repayments	1,441,936		
Supervision and local administration	560,356		
		3,795,042	*3,451,491*
,, General Administration		384,619	*329,633*
,, Turnover Tax		51,990	*23.683*
		£7,648,913	*£6,754,549*

Cr.

	£	1963/64 £
By Electricity Charges	6,396,321	*5,820,805*
,, Meter and Other Charges	35,940	*35,199*
,, Balance, carried to Profit and Loss Account	1,216,652	*898,545*
	£7,648,913	*£6,754,549*

Profit and Loss Account for the Year ended 31st March, 1965

No. 4

Dr.

	£	£	1963/64 £
To Interest payable to the Minister for Finance	2,730,976		
,, Interest on E.S.B. Stocks (*less* temporary investment earnings) and on funded loan	1,392,228		
,, Stock management and transfer charges	31,323		
,, Other Interest	1,143,450		
		5,297,977	*4,773,229*
,, Reserves:			
Repayment of capital advances from the Minister for Finance	734,172		
Repayment of funded loan	10,128		
Sinking fund provision for redemption of E.S.B. Stocks	777,558		
		1,521,858	*1,274,670*
		£6,819,835	*£6,047,899*
,, Balance, transferred from Rural Revenue Account		1,216,652	*898,545*
,, Balance, carried to Net Revenue Account		—	*364,941*
		£1,216,652	*£1,263,486*

Cr.

	£	1963/64 £
By Interest and Capital Repayments:		
Production Account	3,269,934	*2,840,304*
Non-Rural Revenue Account	1,239,228	*1,116,670*
Rural Revenue Account	1,441,936	*1,370,951*
Administration	202,463	*187,728*
Fisheries Account	5,674	*5,553*
Installations Account	14,100	*12,100*
Merchandise Sales Account	13,500	*15,000*
Capital Works	633,000	*499,593*
	£6,819,835	*£6,047,899*
,, Balance transferred from Non-Rural Revenue Account	823,360	*1,055,244*
,, Miscellaneous revenue	84,668	*58,565*
,, Interest receivable	218,087	*149,677*
,, Balance, carried to Net Revenue Account	90,537	—
	£1,216,652	*£1,263,486*

Preservation and Operation of Fisheries for the Year ended 31st March, 1965

No. 5

Dr.

	£	1963/64 £
To Preservation, operation and other direct costs	44,775	*38,701*
	£44,775	*£38,701*
To Balance, brought down	9,773	*6,697*
,, Salaries and sundry expenses	5,344	*4,933*
,, Workmen's compensation	—	*8,237*
,, Fishery rates	3,610	*3,473*
,, Reserve for depreciation and renewals	3,070	*2,900*
,, General overhead expenses and interest	4,398	*4,347*
	£26,195	*£30,587*
,, Balance, brought down	26,195	*30,587*
,, Capital repayments	1,376	*1,306*
	£27,571	*£31,893*

Cr.

	£	1963/64 £
By Sales of fish, letting of fishing rights and miscellaneous income	35,002	*32,004*
,, Balance, carried down	9,773	*6,697*
	£44,775	*£38,701*
By Balance, carried down	26,195	*30,587*
	£26,195	*£30,587*
By Balance, carried to Net Revenue Account	27,571	*31,893*
	£27,571	*£31,893*

Installations Trading Account for the Year ended 31st March, 1965

No. 6

Dr.			963/64		Cr.		1963/64
		£	£			£	£
To Cost value of work for which credit had not been taken at 31st March, 1964		227,557	*163,345*	By Credit taken for contracts completed and charged		596,663	*597,963*
,, Cost of installation work carried out during the year		523,209	*551,976*	,, Cost value of work for which credit has not yet been taken		250,648	*227,557*
,, Gross profit, carried down		96,545	*110,199*				
		£847,311	*£825,520*			£847,311	*£825,520*
	£						
To Salaries, wages and state insurance	49,061			By Gross profit, brought down		96,545	*110,199*
,, Travelling expenses	4,920						
,, Sundry expenses	4,701						
,, General overhead expenses and interest, as apportioned	29,947						
		88,629	*83,509*				
,, Balance carried to Net Revenue Account		7,916	*26,690*				
		£96,545	*£110,199*			£96,545	*£110,199*

Merchandise Trading Account for the Year ended 31st March, 1965

No. 7

Dr.			1963/64		Cr.		1963/64
		£	£			£	£
To Cost of goods sold		1,193,262	*999,565*	By Sales		1,578,881	*1,300,674*
,, Direct costs in connection with sales		49,545	*40,069*				
,, Turnover Tax		36,785	*14,208*				
,, Gross profit, carried down		299,289	*246,832*				
		£1,578,881	*£1,300,674*			£1,578,881	*£1,300,674*
	£						
To Direct salaries, wages, commission and travelling expenses	151,944			By Gross profit, brought down		299,289	*246,832*
,, Publicity	25,930						
,, Rents, rates and maintenance of premises	20,944						
,, Other expenses and provisions	14,085						
,, General administrative expenses and interest, as apportioned	56,260						
		269,163	*234,633*				
,, Balance, carried to Net Revenue Account		30,126	*12,199*				
		£299,289	*£246,832*			£299,289	*£246,832*

Net Revenue Account for the Year ended 31st March, 1965

No. 8

Dr.	£		£	*Cr.* £
To Balance transferred from Profiit and Loss Account	90,537	By Installations trading profit	7,916	
,, Fisheries deficit	27,571	,, Merchandise trading profit	30,126	
				38,042
		,, Balance, carried down		80,066
	£118,108			£118,108

To Balance brought down		80,066	By Balance brought forward from last year's account	369,112
,, Transfer to reserve for renewals, of credits (per contra) as additional provision for the renewal of plant		387,494	,, Credits arising consequent on the retirement of assets and the sale of scrapped material	387,494
,, E.S.B. 6% Stock 1984/89:	£			
Flotation expenses	65,955			
Discount on issue	120,000			
		185,955		
,, Balance, carried forward		103,091		
		£756,606		£756,606

Statement of Repayable Capital and Redemption thereof to the 31st March, 1965

	Total Receipts to 31st March 1965	Redeemed			Balance Outstanding 31st March 1965
		Total to 31st March 1964	Redeemed during Year	Total to 31st March 1965	
	£	£	£	£	£
Minister for Finance:					
Advances under the Electricity (Supply) Acts and the Shannon Fisheries Act, 1935	**68,450,236**	7,700,653	734,172	8,434,825	**60,015,411**
Electricity Supply Board Stocks:					
5% redeemable 1966–1975	**10,000,000**	2,107,200	278,500	2,385,700	**7,614,300**
6% ,, 1968–1978	**5,000,000**	475,943	85,900	561,843	**4,438,157**
6% ,, 1982–1987	**12,000,000**	286,500	50,300	336,800	**11,663,200**
6% ,, 1984–1989	**10,500,000**	—	223,200	223,200	**10,276,800**
6% 'A' ,, 1984–1989	**5,855,300***	—	—	—	**5,855,300**
Funded Loans and Loan Stocks:					
Local Authority Undertakings	**756,021**	756,021	—	756,021	—
New Ireland Assurance Co. Ltd.	**500,000**	18,545	10,128	28,673	**471,327**
	£113,061,557	£11,344,862	£1,382,200	£12,727,062	**£100,334,495**

* £6,000,000 Stock issued. Further calls due on 21st April and 19th May, 1965.

Statement of Capital Reserves at 31st March, 1965

No. 10

	£	£	1963/64 £
Non-repayable contributions from Minister for Finance under Electricity (Supply) Acts towards capital cost of supplying rural areas	9,280,826		
Other non-repayable contributions for capital works	1,766,112	**11,046,938**	*9,616,558*
Repaid capital, less intangible assets written off		**10,839,508**	*9,531,307*
Provision for depreciation, renewal and retirement of physical assets, together with proceeds of sale of assets, less physical assets retired		**44,756,264**	*40,297,323*
Total Capital Reserves		**£66,642,710**	*£59,445,188*

Statement of Capital Investment in Fixed Assets at 31st March, 1965

No. 11

	Total at 31st March, 1964, less retirements	Expenditure less retirements during year	Total at 31st March, 1965, less retirements
	£	£	£
Generation	55,806,370	6,907,563	**62,713,933**
Transmission	11,302,856	2,035,194	**13,338,050**
Distribution	58,805,071	4,373,850	**63,178,921**
General	3,767,760	286,497	**4,054,257**
Fisheries	106,361	(—) 3,402	**102,959**
	£129,788,418	£13,599,702	**£143,388,120**
Capital Works in Progress, including payments on account to contractors and others			**9,306,215**
Total Capital Investment in Fixed Assets			**£152,694,335**

Balance Sheet as at 31st March, 1965

Liabilities and Reserves		£	31/3/64 £
Repayable Capital as per Statement No. 9		100,334,495	*95,587,645*
Capital Reserves as per Statement No. 10		66,642,710	*59,445,188*
		166,977,205	*155,032,833*
Loans under the Electricity Supply Board (Superannuation) Act, 1942		32,143	—
Short-Term Loan		3,573,726	*3,573,726*
Sundry Creditors		5,895,687	*5,844,018*
Electricity Supply Board Stock Sinking Funds (Incl. Interest due but unpaid)		497,872	*249,005*
Reserves :	£		
Contingencies reserve	1,500,000		
Plant, self-insurance—special risks	500,000		
Other reserves and provisions	66,174		
		2,066,174	*2,050,192*
Surplus : per Net Revenue Account		103,091	*369,112*
		£179,145,898	*£167,118,886*

Note :
At 31st March, 1965, there were outstanding contractual commitments in respect of capital and other expenditure, estimated to amount to £8,500,000.

Assets	£	31/3/64 £
Fixed Assets, as per Statement No. 11	152,694,335	*140,551,333*
Electricity Supply Board Stocks (nominal £2,990,215) at cost, held by the Munster and Leinster Bank Nominees Ltd., as depositaries of the Board	2,969,994	*3,440,770*
Sinking Fund Investments (nominal £496,500, market value £479,725) at cost	492,368	*242,368*
Stocks (at average cost) **and Tools** (at depreciated cost) **on Hand and in Transit**	6,186,336	*4,872,418*
Cost Value of Installation and Other Repayable Work in Progress	305,966	*281,172*
Sundry Debtors, after providing for bad and doubtful debts and including advances for goods not yet delivered	8,462,005	*7,968,540*
Temporary Cash Investment	7,500,000	*9,500,000*
Cash in Hand and with Banks	534,894	*262,285*
	£179,145,898	*£167,118,886*

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 outcome of the revenue operations of the Board for the year ended 31st March, 1965, and of the state of the Board's affairs as at that date.

KENNEDY, CROWLEY & CO.
Auditors

4 and 5 Westmoreland Street,
Dublin 2.
5th July, 1965

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 and distribution systems in commission at 31st March, 1965

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	1965	1964	1965	1964
ATHLONE	**177·1**	**41,488**	**40,070**	**27,860**	**24,996**
Town	50·4	11,677	11,447	21,655	20,550
Rural	126·7	29,811	28,623	6,205	4,446
CORK	**302·1**	**78,393**	**76,063**	**133,767**	**122,017**
Town	167·3	46,837	45,913	118,442	108,365
Rural	134·8	31,556	30,150	15,325	13,652
DUBLIN No. 1	**486·2**	**134,492**	**134,121**	**158,570**	**147,752**
Town	486·2	134,492	134,121	158,570	147,752
DUBLIN No. 2	**305·5**	**88,429**	**84,187**	**149,483**	**134,219**
Town	227·8	70,724	67,040	131,024	117,517
Rural	77·7	17,705	17,147	18,459	16,702
DUNDALK	**227·0**	**54,375**	**52,806**	**115,383**	**101,680**
Town	75·2	19,961	19,645	91,198	79,625
Rural	151·8	34,414	33,161	24,185	22,055
GALWAY	**166·9**	**38,254**	**37,087**	**20,856**	**17,758**
Town	47·1	11,649	11,304	16,536	14,221
Rural	119·8	26,605	25,783	4,320	3,537
LIMERICK	**270·7**	**65,546**	**63,813**	**101,725**	**86,442**
Town	94·7	26,188	25,411	83,196	68,598
Rural	176·0	39,358	38,402	18,529	17,844
PORTLAOISE	**196·8**	**47,380**	**46,092**	**68,681**	**66,019**
Town	75·0	19,033	18,577	57,672	55,604
Rural	121·8	28,347	27,515	11,009	10,415
SLIGO	**252·0**	**62,834**	**60,189**	**17,708**	**14,923**
Town	46·4	12,551	12,359	8,160	7,468
Rural	205·6	50,283	47,830	9,548	7,455
TRALEE	**143·3**	**33,931**	**32,808**	**13,926**	**12,167**
Town	29·3	7,580	7,429	5,667	4,937
Rural	114·0	26,351	25,379	8,259	7,230
WATERFORD	**210·6**	**52,369**	**50,818**	**68,085**	**59,719**
Town	95·4	25,588	25,243	48,342	42,275
Rural	115·2	26,781	25,575	19,743	17,444
TOTALS	**2,738·2**	**697,491**	**678,054**	**876,044**	**787,692**
TOWN	1,394·8	386,280	378,489	740,462	666,912
RURAL	1,343·4	311,211	299,565	135,582	120,780

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
1965	3,240·163	2,682·629	22,488	2·01	697,491

Appendix 3

ANALYSIS OF UNITS SOLD

Class of supply	Units sold		Increase	Percentage increase
	Year ended 31st March, 1965 millions	Year ended 31st March, 1964 millions	millions	
Domestic	1,131·677	993·780	137·897	13·9
General lighting	152·680	136·040	16·640	12·2
General heating, cooking and water heating	269·590	245·503	24·087	9·8
Night storage heating	192·940	160·007	32·933	20·6
Motive power	882·569	789·580	92·989	11·8
Public lighting	36·500	35·732	0·768	2·1
Miscellaneous	16·673	15·305	1·368	8·9
TOTALS	2,682·629	2,375·947	306·682	12·9

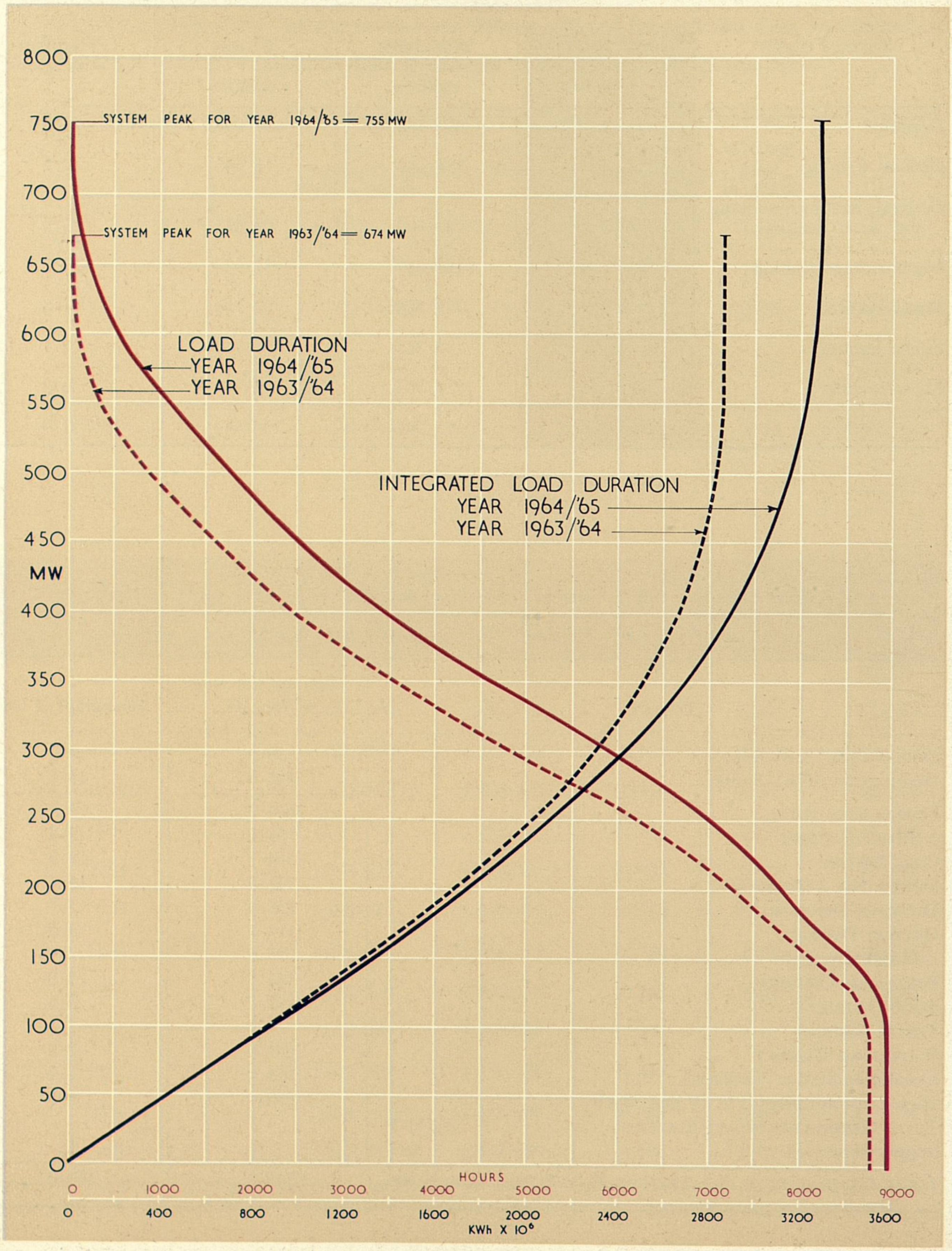
Appendix 4

DISTRIBUTION AT HIGH TENSION OF UNITS GENERATED
Year Ended 31st March, 1965

District		High tension units kWh × 10^6	Percentage of total
DUBLIN CITY 5 kV Supply		138·8	4·3
DUBLIN CITY 10 kV Supply		505·5	15·6
DUBLIN CITY TOTAL		644·3	19·9
ATHLONE DISTRICT		108·8	3·4
CORK DISTRICT		354·7	10·9
DUBLIN NO. 2 DISTRICT		501·4	15·5
DUNDALK DISTRICT		250·4	7·7
GALWAY DISTRICT		113·1	3·5
LIMERICK DISTRICT		257·5	7·9
PORTLAOISE DISTRICT		161·3	5·0
SLIGO DISTRICT		122·7	3·8
TRALEE DISTRICT		76·7	2·4
WATERFORD DISTRICT		209·9	6·5
Generating Station Auxiliaries		159·0	4·9
High Tension Losses (110 kV and 38 kV)		280·4	8·6
TOTAL GENERATION OF ALL STATIONS	3,231·5		
Supply Purchased	8·7		
TOTAL GENERATION OF ALL STATIONS PLUS SUPPLY PURCHASED		3,240·2	100·0

Appendix 5

GENERATION LOAD DURATION
AND INTEGRATED LOAD DURATION CURVES
Year ended 31st March, 1965



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

Station	Year ended 31st March, 1965			Year ended 31st March, 1964
	Generated million units	Station use million units	Sent out million units	Sent out million units
Ardnacrusha	364·483	3·070	361·413	285·575
Cliff	82·687	0·690	81·997	61·912
Cathaleen's Fall	199·943	2·080	197·863	152·407
Carrigadrohid	21·018	0·335	20·683	24·023
Inniscarra	57·112	0·648	56·464	61·294
Pollaphuca	20·101	0·811	19·290	26·202
Golden Falls	8·058	0·163	7·895	9·964
Leixlip	13·409	0·179	13·230	14·320
Clady	16·084	0·142	15·942	12·802
Ferbane	247·907	21·353	226·554	240·519
Rhode	248·967	17·896	231·071	158·185
Bellacorick	62·363	5·209	57·154	106·868
Shannonbridge	20·053	1·466	18·587	—
Portarlington	158·793	11·247	147·546	151·828
Allenwood	176·840	11·967	164·873	193·427
Lanesborough	104·870	4·716	100·154	92·053
Cahirciveen	4·472	0·547	3·925	6·738
Miltown-Malbay	2·516	0·373	2·143	2·389
Screeb	2·457	0·332	2·125	2·820
Gweedore	19·491	1·477	18·014	24·728
Pigeon House	62·523	7·150	55·373	98·010
North Wall	134·063	9·890	124·173	93·881
Ringsend	628·559	29·615	598·944	534·513
Marina	486·889	22·424	464·465	306·203
Arigna	87·814	5·214	82·600	90·705
Purchased	8·691	—	8·691	7·326
Totals	3,240·163	158·994	3,081·169	2,758·692
Maximum daily generation, million units			13·143	11·957
Maximum load generated in kW			755,000	674,000

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

Year ended 31st March, 1965

Appendix 7

Month (Calendar)	PEAT STATIONS											OIL/COAL STATIONS					Total of steam stations
												DUBLIN			CORK		
	Ferbane	Rhode	Bella-corick	Shannon-bridge	Port-arlington	Allen-wood	Lanes-borough	Cahir-civeen	Miltown-Malbay	Screeb	Gwee-dore	Pigeon House	North Wall	Rings-end	Marina	Arigna	
April	17·017	13·544	4·190	—	15·134	22·616	13·042	—	—	0·343	2·436	3·973	4·872	48·431	37·482	8·647	191·727
May	17·127	8·361	2·331	—	7·693	13·723	7·904	—	—	—	2·064	11·052	4·152	41·156	30·573	8·659	154·795
June	25·065	11·792	0·169	—	12·541	10·667	9·818	—	—	—	2·908	10·340	13·681	36·313	38·601	9·259	181·154
July	13·013	11·049	—	—	14·421	15·762	10·510	—	—	—	0·019	6·942	13·516	61·612	29·616	9·716	186·176
August	14·388	4·378	0·389	—	13·035	14·831	1·820	0·676	—	—	0·005	3·532	14·166	57·932	33·075	7·876	166·103
September	10·938	13·025	4·549	—	14·358	12·729	—	0·264	—	—	1·454	4·506	15·965	56·528	55·328	0·427	190·071
October	16·009	24·463	4·709	—	11·525	15·658	7·545	1·539	0·091	—	1·693	3·136	10·517	53·216	18·598	7·590	176·289
November	20·546	33·942	6·094	—	13·497	17·532	10·034	0·953	0·489	0·645	2·274	6·291	8·226	53·210	46·326	7·680	227·739
December	26·572	27·530	11·059	—	13·179	16·500	9·640	0·743	0·328	0·377	1·356	6·484	10·431	43·355	44·702	7·733	219·989
January	33·806	37·262	11·034	0·032	14·669	14·054	13·308	0·297	0·581	0·472	0·878	1·331	10·233	41·492	40·215	5·973	225·637
February	32·336	36·109	10·833	8·140	15·147	10·750	10·527	—	0·639	0·397	1·348	2·348	16·450	55·056	50·824	6·850	257·754
March	21·090	27·512	7 ·006	11·881	13·594	12·018	10·722	—	0·388	0·223	3·056	2·588	11·854	80·258	61·549	7·404	271·143
TOTALS	247·907	248·967	62·363	20·053	158·793	176·840	104·870	4·472	2·516	2·457	19·491	62·523	134·063	628·559	486·889	87·814	2,448·577

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	29·504	4·869	11·878	1·707	4·957	3·683	1·299	1·755	0·508	60·160	251·887	1·554	253·441
May	29·447	5·778	13·735	1·608	4·610	3·539	1·303	1·808	0·310	62·138	216·933	0·693	217·626
June	11·189	2·392	5·818	0·951	3·304	1·340	0·551	0·760	0·564	26·869	208·023	0·594	208·617
July	12·664	1·470	3·170	0·724	1·403	0·486	0·243	0·261	1·231	21·652	207·828	0·412	208·240
August	14·945	2·580	6·442	1·264	3·007	0·074	0·164	0·041	1·871	30·388	196·491	0·574	197·065
September	13·802	4·226	9·875	0·776	2·044	0·143	0·155	0·023	1·649	32·693	222·764	0·796	223·560
October	43·475	13·221	31·328	2·123	5·607	0·848	0·404	0·667	1·975	99·648	275·937	1·013	276·950
November	30·829	7·393	19·104	1·705	4·543	0·207	0·154	0·259	1·451	65·645	293·384	0·747	294·131
December	55·225	13·171	34·220	3·642	10·094	1·931	0·806	2·079	2·676	123·844	343·833	0·731	344·564
January	59·978	15·962	35·850	3·886	11·392	3·925	1·451	2·839	2·758	138·041	363·678	0·804	364·482
February	34·664	6·429	15·915	0·294	1·442	2·344	0·890	1·593	0·271	63·842	321·596	0·586	322·182
March	28·761	5·196	12·608	2·338	4·709	1·581	0·638	1·324	0·820	57·975	329·118	0·187	329·305
		82·687	199·943	21·018	57·112	20·101	8·058	13·409					
Totals	364·483	282·630		78·130		41·568			16·084	782·895	3,231·472	8·691	3,240·163

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 1	30,000 60,000 **120,000**	600 1,150	850 950	Tidal River	3 1	200 550	P.F. and Oil-fired Oil-fired	Coal or Oil Oil
Ringsend	Dublin City	3 1	30,000 60,000 **150,000**	600 1,150	850 950	Estuarine	4 1	200 550	P.F. and Oil-fired Oil-fired	Coal or Oil Oil
Ringsend (under construction)		2	60,000 **120,000**	1,150	950		2	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	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
Pigeon House "B" (under construction)	Dublin City	2	120,000 **240,000**	1,800	995/995	Estuarine	2	835	Oil-fired	Oil

PERFORMANCE OF GENERATING PLANT

Year ended 31st March, 1965

Appendix 9

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 × 10^6	%	pence
ARDNACRUSHA	Shannon	43·10	201·6	180·5	94·0	28·1	15·61	85,000	361·413	49·0	0·301
POLLAPHUCA		34·28	8·5	6·4	100·0	47·5	10·00	30,000	19·290	7·6	
GOLDEN FALLS	Liffey	34·28	8·5	7·2	100·0	16·5	27·91	4,000	7·895	23·0	0·935
LEIXLIP		29·52	14·0	11·2	95·5	17·5	26·32	4,000	13·230	38·3	
CLIFF	Erne	44·69	101·7	95·4	99·7	12·1	36·37	20,000	81·997	47·2	0·439
CATHALEEN'S FALL				94·7	94·1	29·6	14·96	45,000	197·863	50·7	
CARRIGADROHID	Lee	42·14	19·9	18·8	96·5	14·3	28·94	8,000	20·683	30·0	0·997
INNISCARRA		40·95	24·9	23·6	96·6	33·4	13·06	19,000	56·464	34·3	
CLADY	Clady	70·00	4·4	3·9	98·6	—	7·54	4,000	15·942	45·9	1·143

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, 1965

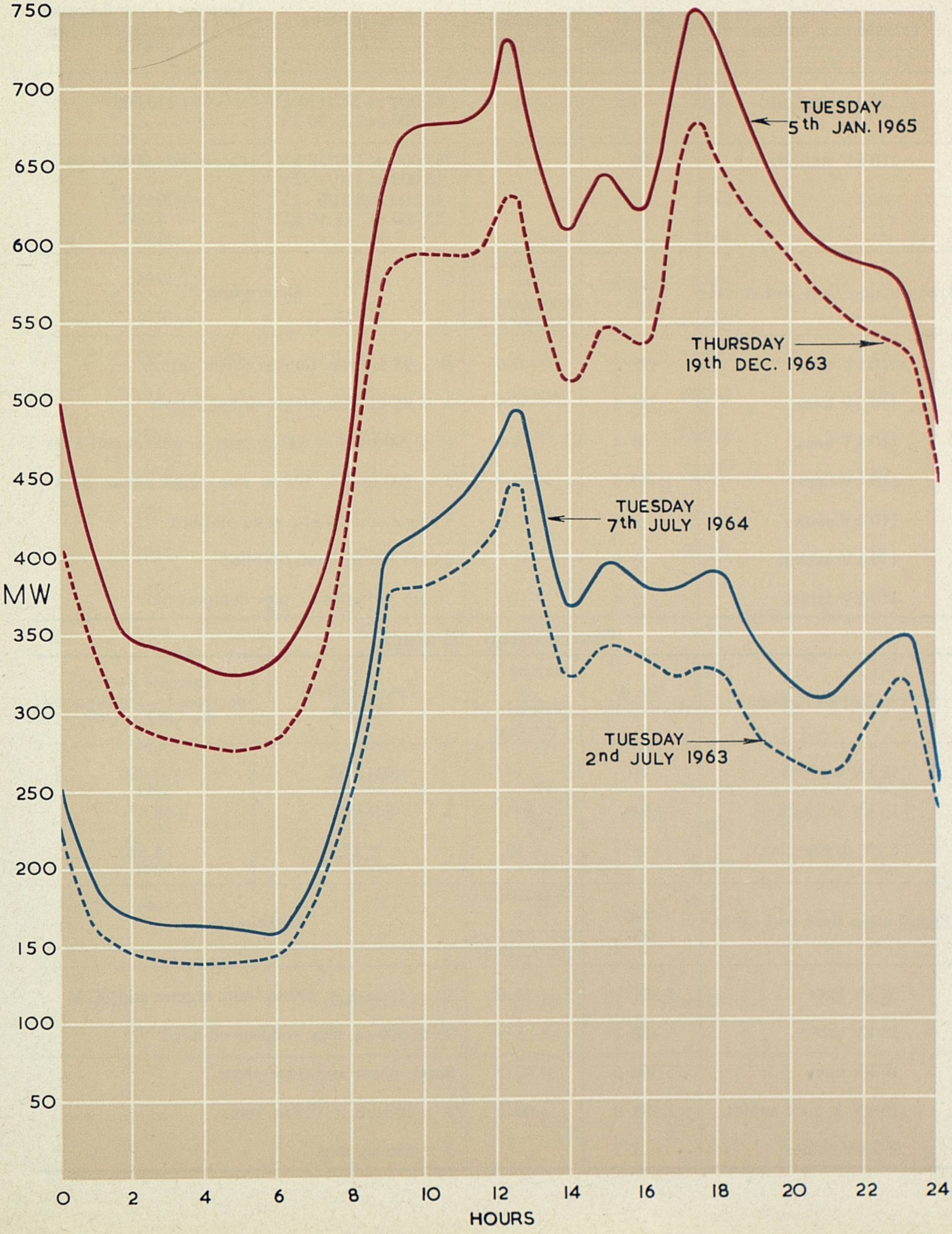
Steam Stations

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	55·373	—	Coal Oil	4,300 29,700	—	—	—
North Wall	Dublin City	48,000	124·173	31·9	Oil	45,700	252,501	0·486	1·130
Portarlington	Co. Laoise	37,500	147·546	48·3	Sod Peat	191,800	580,370	0·937	1·338
Allenwood	Co. Kildare	40,000	164·873	50·5	Sod Peat	206,900	631,217	0·908	1·382
Marina	Cork City	120,000	464·465	46·3	Coal Oil	— 137,600	739,056	0·377	0·720
Ringsend	Dublin City	150,000	598·944	69·7	Coal Oil	— 178,600	978,230	0·386	0·669
Ferbane	Co. Offaly	90,000	226·554	31·4	Milled Peat Oil	447,600 3,700	676,674	0·712	1·415
Four 5 MW Stations	West Coast	20,000	26·207	16·5	Sod Peat	46,400	127,422	1·141	2·975
Lanesborough	Co. Longford	20,000	100·154	59·9	Sod Peat	105,700	324,360	0·762	1·104
Arigna	Co. Roscommon	15,000	82·600	66·8	Coal Oil	49,600 300	234,082	0·672	1·084
Rhode	Co. Offaly	80,000	231·071	35·5	Milled Peat Oil	396,300 1,500	594,374	0·611	1·137
Bellacorick	Co. Mayo	40,000	57·154	17·8	Milled Peat Oil	102,700 1,400	165,378	0·689	2·000
Shannonbridge	Co. Offaly	40,000	18·587	*	Milled Peat Oil	28,400 300	48,381	*	*

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 53 weeks.

** Station recently commissioned*

TYPICAL DAILY GENERATION LOAD CURVES



Appendix 11

TRANSMISSION AND DISTRIBUTION SYSTEMS IN COMMISSION
At 31st March, 1965

Transmission System

Transformer stations	No. in commission	Increase for year	Total capacity in kVA	Increase (+) or decrease (−) in capacity for year in kVA
220 kV stations	1	1	63,000 at 220/110 kV 47,000 at 220/10 kV	+110,000
110 kV stations	26	1	783,000 at 110/38 kV 15,000 at 110/10 kV 40,000 at 110/6 kV 73,400 at 38/10 kV	+23,000 — +20,000 − 4,000

Transmission lines and cables	Length km.	Increase (+) or decrease (−) for year km.	Description
110 kV lines	188·3	−0·7	6 × 95 sq. mm. double circuit copper
110 kV lines	741·3	−6·9	3 × 95 sq. mm. single circuit copper
110 kV lines	64·4	+40·9	6 × 200 and 6 × 300 sq. mm. double circuit SCA
110 kV lines	1,752·3	+64·2	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	—	3 core 300 sq. mm. pipe compression

Distribution System

Transformer stations	No. in commission	Increase (+) or decrease (−) for year	Total capacity in kVA	Increase (+) or decrease (−) in capacity for year in kVA
38 kV stations	216	+14	1,041,600	+102,400
10 kV substations	4,946	+235	878,003	+98,471
5 kV substations	93	−10	75,873	−8,310

Distribution lines and cables	Length km.	Increase (+) or decrease (−) for year km	Description
38 kV lines	3,981·8	+79·0	3 × 35 to 3 × 300 sq. mm. copper and SCA
38 kV cables	152·1	+ 3·9	95 to 500 sq. mm. solid or oil-filled
10 kV lines	5,760·6	+42·5	Single-phase and three-phase
10 kV & 5 kV cables	1,189·0	+60·2	3 × 10 to 3 × 185 sq. mm.
3·3 kV cables	3·7	—	3 × 185 sq. mm.

PROGRESS OF THE RURAL ELECTRIFICATION SCHEME

Appendix 12

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
1965	27,737	1,501	11,773	7
TOTALS	904,051	48,930	296,205	792

TO THE MINISTER FOR AGRICULTURE AND FISHERIES

REPORT ON FISHERIES

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, 1965.

The Board's programme for the rebuilding of the fisheries affected by hydro-electric development continued to progress.

On the River Shannon, however, some concern is felt at the heavy exploitation of the salmon stocks in the public fishery in the estuary. A maximum of 70 drift and 25 draft nets is permitted by statute to operate in the public fishery. Until 1961 applications for the maximum number of licences were not received but, in recent seasons, increasing numbers of newcomers, attracted by the improved runs of fish, have applied for licences. The Board fears that the large numbers of salmon being taken by drift and draft nets, operating in the Shannon estuary, may have an adverse effect on the salmon fishing development programme. This is a position that should be carefully watched in the interests of the conservation of stocks.

5,600 salmon were moved into the newly rehabilitated salmon fisheries of the midlands where an angling amenity of great potential to the area is being successfully re-established.

The development programme for the Rivers Lee, Clady, Erne and Liffey continued. The safe passage of smolts past the hydro-electric dams is a matter of special importance and experimental work in guiding and attracting young fish continued.

Pending completion of the legal formalities in connection with the acquisition of the fishing rights in the Clady and Crolly rivers, agreement was reached with the occupiers to permit the Board to enter the fisheries in order to introduce conservation measures. Test fishing was undertaken successfully on these estuaries.

Hatcheries and Rearing Stations:

The Board's extensive rearing station at Parteen again had a very successful year. The rearing capacity was increased by one-third. The station was fully stocked with salmon parr during the winter and 130,000 salmon smolts were planted out. Salmon which were finclipped in the hatchery as smolts were identified in anglers' catches and in the commercial fishery.

The success of this project encouraged the Board to provide further rearing accommodation, and site work is in progress on a development designed to double the rearing capacity of the station.

On the Erne an experimental rearing station produced 30,000 smolts. In Knather Lough, where a small natural lough was cleared of all predators and restocked with underyearling, a smolt survival of 13·4% was noted.

Hatchery production figures for 1964/65 were as follows:

Hatchery	Salmon ova thousands	Losses during incubation
Shannon	2,100	2%
Lee	650	2%
Erne	560	1%

The Shannon figures include 315,000 ova obtained from Scotland, and 542,000 ova from the Lismore and Glenties Hatcheries.

Eels:

The eel fisheries continued to improve. The Board's revenue from Killaloe Eel Weir has continued to increase in recent years. The catches of eels by the long line fishermen have also increased. A programme for expansion of the eel fisheries is under consideration.

Commercial Fishing:

Commercial salmon fisheries were operated on the Rivers Shannon and Erne and the Gweedore estuary. At Thomond Weir, on the River Shannon, 72% of the salmon counted during the commercial season were released upstream for angling and propagation. On the Erne, commercial fishing opened when 3,000 salmon had passed the counter at Cathaleen's Fall fish pass; during the remainder of the commercial fishing season the Board released 80% of the salmon counted.

Improved salmon and eel prices were again obtained and sales of salmon and eels realised £22,171 and £10,237 respectively.

In the interests of the salmon stocks the Board did not fish commercially on the River Lee.

Conservation and Angling:

The presence of salmon in the mid-Shannon region entailed the extension of conservation on a broad basis in this area. Salmon angling regulations introduced on the Little Brosna and Suck have, of necessity, impinged on traditional trout and coarse fishing. The goodwill of local angling associations was demonstrated by their willingness to accept and support restrictions aimed at the building up of stocks. The Liaison Committee, representative of Fisheries Division, Bord Failte, the Inland Fisheries Trust Inc., and the Board, was of particular assistance in dealing with the special problems that arose in connection with the introduction of the new regulations.

The Board nominated to the Limerick Board of Fishery Conservators representatives of angling interests in the mid and upper reaches of the river whose experience and knowledge of local needs are of considerable assistance in the administration of the protection services.

The salmon angling in the midlands, although improving, is still in the development stage. In the Limerick area good spring fishing was followed by moderate summer angling although large numbers of salmon were visible in the pools in the Mulcair throughout the season.

A preliminary survey of the existing spawning facilities in the River Mulcair was carried out, as an initial step in the investigation of possible effects on the salmon stocks of the proposed arterial drainage scheme for the river.

The Board continued its financial support of the salmon protection programme administered by the Enniskillen Board of Fishery Conservators on the Erne waters in Northern Ireland.

Brown trout and coarse fish angling on the Shannon waters were further developed by the

Collecting salmon from Shannon stake weirs



Loading salmon for the Continent at Shannon Airport



Inland Fisheries Trust, Bord Failte and the local angling clubs. The Board's good relations with angling groups in the Lough Derg area were maintained and their activities received the Board's support.

Work for the improvement of brown trout fishing in the Pollaphuca Reservoir was continued.

Counting of Salmon:

The numbers of salmon counted in each of the last two years were as follows:

	1964	1963
Thomond Weir, Limerick	13,997	23,322
Ardnacrusha Fish Pass	4,662	4,873
Parteen Fish Pass	957	1,295
Inniscarra Fish Pass	341	474
Carrigadrohid Fish Pass	140	232
Cathaleen's Fall Fish Pass	8,715	5,101
Gweedore Weir, River Clady	215	86
Leixlip	1,540	1,543

Financial:

The financial aspects of the preservation, development and operation of the fisheries on the five river systems directly affected by hydro-electric development are shown in Account No. 5. Revenue amounting to £35,002 showed an increase of £3,000 arising mainly from the sale of salmon and eels.

During the year the Board received valuable assistance and advice from many sources outside Ireland. In addition, the goodwill and help of angling clubs was generously given. Their co-operation and that received from the officers of Fisheries Division, from the Ministry of Commerce for Northern Ireland, Bord Failte Eireann, the Inland Fisheries Trust Incorporated and the Boards of Conservators is acknowledged by the Board.

(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

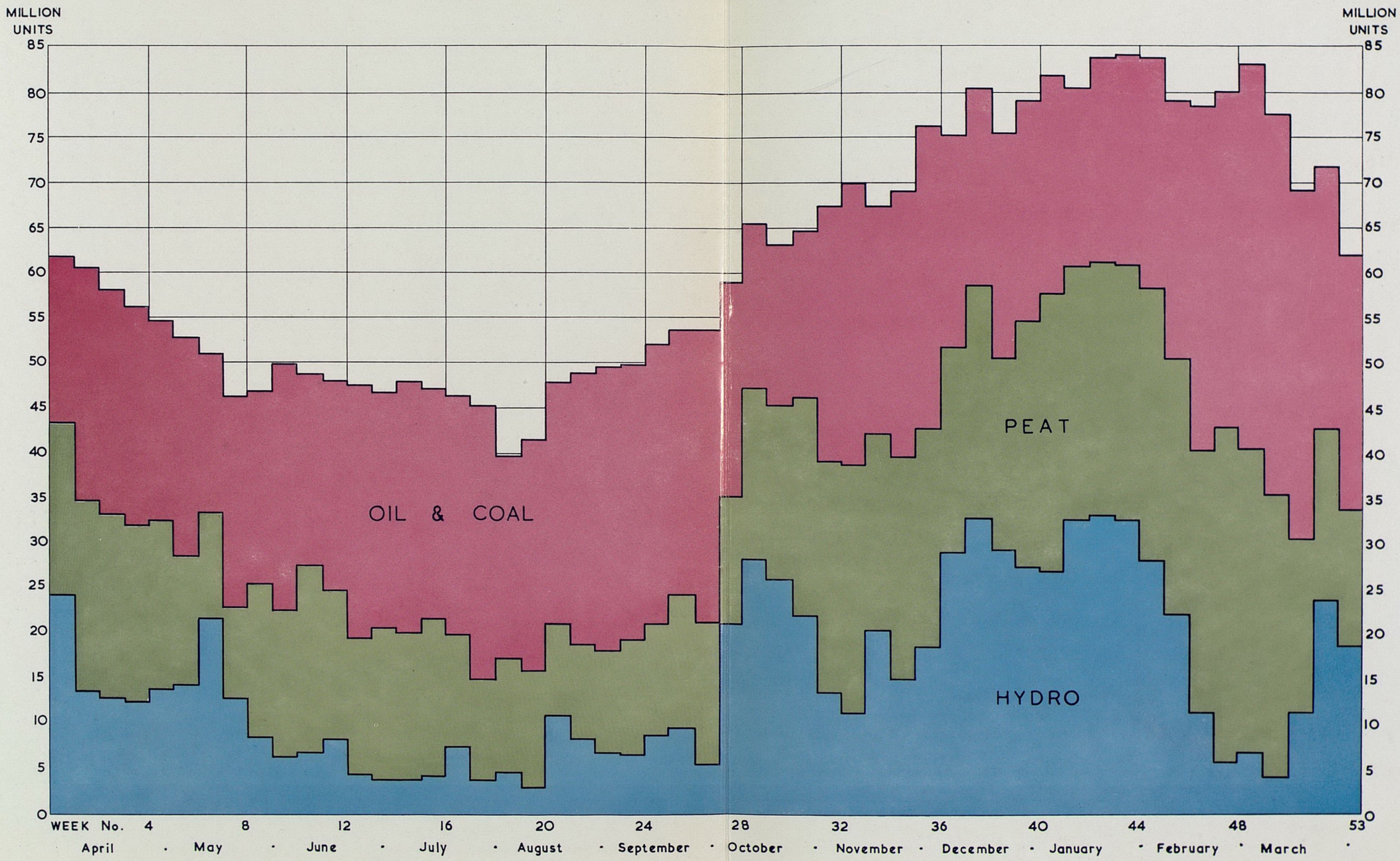
2nd July, 1965.

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WEEKLY GENERATION

Year ended 31st March, 1965

Appendix 13



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and
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