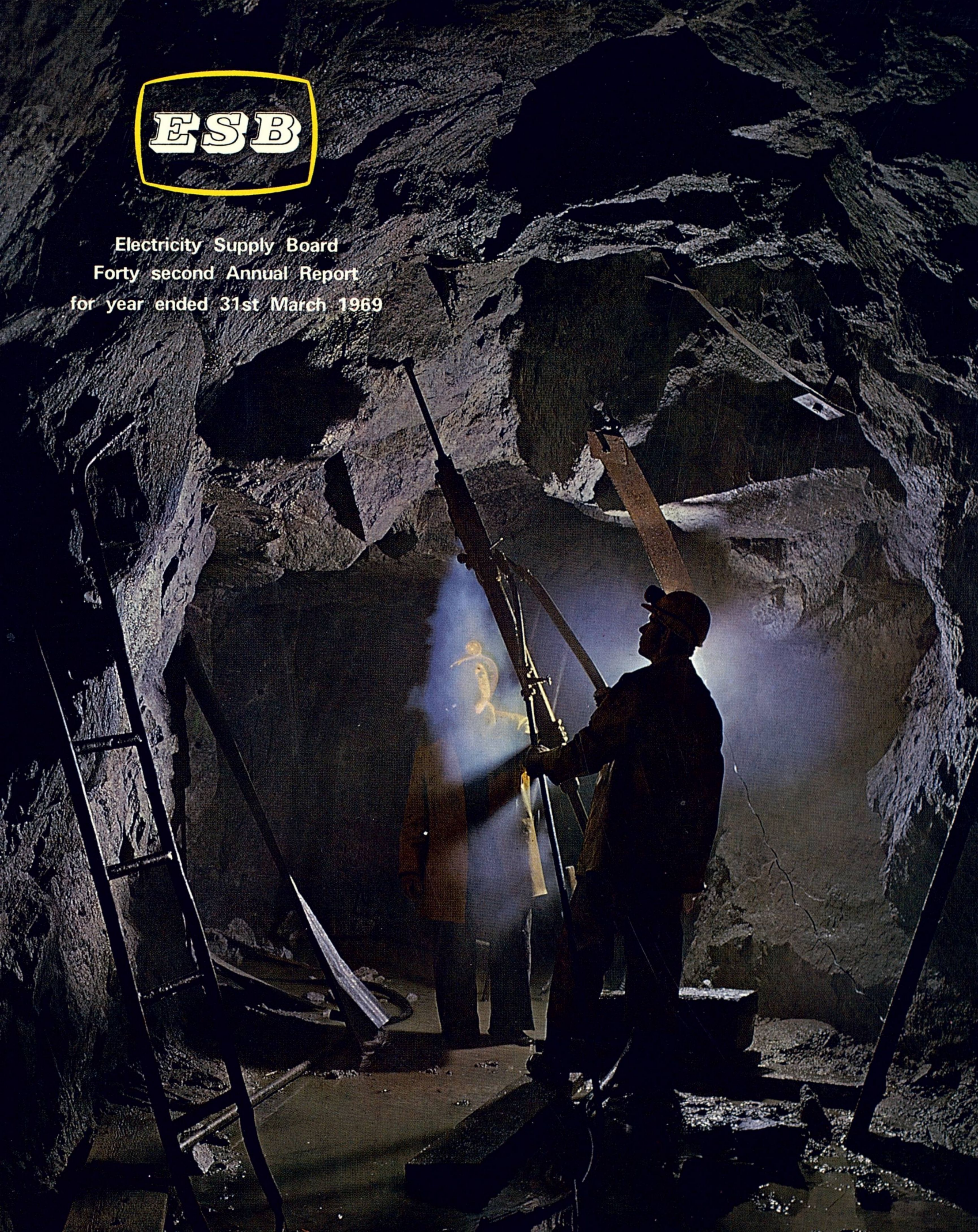


ESB

Electricity Supply Board
Forty second Annual Report
for year ended 31st March 1969

Board Members

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

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

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

B. Ó CEARBHAILL, B.A., LL.B.

J. A. RYAN, M.A.

Secretary

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

Chief Engineer

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

Chief Financial Officer

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

Personnel Officer

W. V. DOHERTY, A.A.C.C.A.

ELECTRICITY SUPPLY BOARD · Lower Fitzwilliam Street · Dublin 2 · IRELAND

Pr I. 696

GWEEDORE
CLADY
Letterkenny
CATHALEEN'S FALL
CLIFF
Sligo
BELLACORICK
ARIGNA
To E.B.N.I.
Shankill
Dundalk
Louth
Carrick - on - Shannon
Castlebar
Drybridge
Platten
LANESBOROUGH
Mullingar
Sean McDermott St.
Francis St.
Maynooth
Finglas
Athlone
NORTH WALL
LEIXLIP
RHODE
PIGEON HO.
PIGEON HO. B
SCREEB
SHANNON BRIDGE
Inchicore
ALLENWOOD
FERBANE
RINGSEND
Derryfrench Tynagh
Galway
PORTARLINGTON
Newbridge
Carrick mines
Blackrock
Milltown
GOLDEN FALLS
Portlaoise
POLLAPHUCA
Carlow
TURLOUGH HILL
Ennis
Arklow
MILTOWN MALBAY
Shelton Abbey
ARDNACRUSHA
Killonan
Thurles
Kilkenny
Limerick
TARBERT
Rathkeale
Wexford
Cahir
Waterford
GREAT ISLAND
Tralee
Dungarvan
Mallow
Knockraha
Kilbarry
CAHIRCIVEEN
CARRIGADROHID
INNISCARRA
MARINA
Trabeg
Haulbowline
Whitegate
Raffeen
Dunmanway

General Outline of the

GENERATION and TRANSMISSION SYSTEMS

31st March, 1969

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

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Inside Front Cover

General Outline of Generation and Transmission System

COVER—Drilling the exploratory tunnel at Turlough Hill; the site for Ireland's first pumped storage generating station

TO THE MINISTER FOR TRANSPORT AND POWER

The Board presents the Annual Report and Accounts for the year ended 31st March, 1969, in accordance with Section 7 (4) and Section 32 (1) of the Electricity (Supply) Act, 1927.

Electricity Output

The total electricity output for the year was 4,749 million units, an increase of 503 million units over the previous year. This rise in demand of 11·8% is one of the highest in Europe.

Electricity supplied to the system was provided as follows:

	million units sent out	percentage
Hydro	762	16·9
Peat (sod)	467	10·4
Peat (milled)	1,186	26·3
Coal (native)	60	1·3
Oil	2,027	45·1

Generation from native sources was 54·9% of total output. The high proportion of generation from native sources was due to the excellent weather conditions which enabled the maximum utilisation of peat.

Financial Results

The accounts for the year show a deficit of £368,992 or 1·07% of gross revenue. This deficit was caused by higher salary and wages costs and by the greater use of peat. The price of milled peat was increased by 9% from September, 1968.

Revenue from the sales of electricity totalled £34,456,822 an increase of £4,558,995 over the previous year. Turnover tax, which is paid directly by the Board, amounted to £313,040.

The summarised revenue and expenditure figures are as follows:

	Year ended 31st March, 1969	Preceding year
	£	£
Working expenditure on Wages, Fuel, etc.	21,189,295	17,251,792
Interest (net)	6,228,797	5,523,189
Depreciation Provision	5,217,000	4,797,000
Capital redemption	2,305,612	2,166,105
	£34,940,704	£29,738,086
Revenue (including miscellaneous revenue)	34,571,712	29,986,961
Deficit	368,992	248,875(Surplus)

Taking credit for installations and merchandise profits and allowing for the deficit on fisheries, the result for the year as shown in the Net Revenue Account (No. 8) is a deficit of £343,364. The credit balance brought forward on that account from the previous year, £76,359, has been augmented by £300,000 transferred from Contingencies Reserve and the balance now carried forward on the Net Revenue Account is £30,797. This depletion of reserves will have to be made good as soon as possible and, indeed, the Board later in this Report draws attention to the need for providing increased reserves commensurate with the continually increasing scale of the Board's business.



Following the official opening of the Great Island Generating Station, Mr. P. J. Lalor, T.D., Parliamentary Secretary to the Minister for Transport and Power, examines the controls, watched by Most Rev. Dr. Donal J. Herlihy, Bishop of Ferns, Mr. Thomas Murray, Chairman, E.S.B., Mr. John Grant, Station Superintendent, Great Island, and Rt. Rev. Dr. H. R. McAdoo, Bishop of Ossory, Ferns and Leighlin.

Capital

In such a capital intensive business as the electricity supply industry the assured annual flow of new capital is of primary importance. A generating station takes up to five years to build, while the construction of other electricity assets—transmission and distribution lines, buildings, etc.—may take two years or longer. Moreover, the sustained and continuing growth in demand for electric power means that each year more and more plant must be programmed to come into commission on pre-determined dates. The Board's capital programme is now running at the rate of £20 million per annum, this figure representing the capital cash outflow each year on the many projects and not the cost of the projects themselves. The continuing provision of these funds to meet commitments is a major problem in the present world shortage of capital.

During the past year the Board sought and obtained capital from many sources. Loans were negotiated with the International Bank for Reconstruction and Development (the World Bank), with Irish, German, Swiss and American Banks and through credits from major foreign plant suppliers who are able to avail themselves of their own countries' special export financing arrangements. The duration of these loans varies from 21 years for the World Bank loan to 15 years, 10 years and 5 years for others. A stock issue on the home market during the early months of this year was planned but had to be deferred due to the instability of international interest rates at the time. Whilst the Board is pleased to have succeeded in meeting immediate requirements, it is concerned at the prospects of securing sufficient long-term capital finance at a reasonable cost to its consumers.

Looking to the future, the Board sees no likelihood of an easing of the pressure in demand for long-term capital. In these circumstances, it becomes still more important to ensure an adequate flow of internal resources to assist in financing the capital programme. The principal internal finance available to the Board is provided by the reinvestment in its capital programme of depreciation provisions as provided for under the Electricity Acts. To ensure the availability of the cash these funds represent, deficits must be avoided and adequate revenue reserves must be created and maintained in line with the scale of the Board's business.

Again, as capital is scarce and expensive, it is essential that the price of electricity continues to reflect its true cost. An element of cost which is assuming ever growing importance is the erosion of the real value of reserves which arises from continuing money inflation. Some contribution towards recouping this loss should be recovered from revenue as the practical alternative to increasing competition in the market for capital funds and their consequentially heavy annual cost in interest and sinking fund charges.

The Board is satisfied that its prices for electricity are insufficient to meet these requirements and accordingly, is making application for an increase in prices in compliance with the Prices Acts. The Board is also satisfied that such an increase in prices will still leave electricity competitive with the prices of alternative fuels and comparing favourably with international electricity price levels.

Sales

Sales of electricity totalled 4,012 million units, an increase of 12·4% over the previous year. The increases may be analysed as follows:

	1968–9 units (millions)	1967–8 units (millions)	
Industrial	1,303	1,147	+13·6%
Domestic	1,791	1,581	+13·3%
Commercial	918	842	+9·1%

A feature of the year's activity was the number of enquiries received in connection with the provision of very large industrial loads. These enquiries indicate the prospects of substantial development in the near future, whilst the growth rate for the year shows the high rate already achieved.

The domestic growth rate of 13·3% is one of the highest in Europe and reflects the constantly rising living standards evidenced by the ever widening use of electrical appliances.

The rural growth rate at over 13% is placing very heavy pressures on Board resources in the strengthening and extension of networks. The decision to reduce special charges to consumers in more remote locations has increased the demand for new connections and as these are in the main uneconomic, (i.e. the revenue return will not be sufficient to service the capital involved in bringing supply to them), increasing annual deficits on the Rural Revenue Account may be expected.

The greater use of electricity for off-peak heating has also been spectacular. For the first time the revenue from this load yielded over £1 million. This development of off-peak heating has helped to improve the overall load factor.

A new peak load of over one million kilowatts, the highest ever on the Board's system, was reached on December 17th, 1968, when cold and overcast weather combined with normal industrial and

commercial requirements to create this record demand.

The Board continued to provide specialist advice free of charge to industrial and commercial consumers and public authorities.
This was also availed of extensively by consulting engineers and architects.

Generation

The capacity of the Board's generating plant was increased to a total of 1,290 MW with the commissioning of the second 60 MW unit at the Great Island generating station in Co. Wexford. Work is in progress on the extension of this station which will bring its total capacity to 240 MW.

At the close of the year, work was nearing completion on the first 60 MW unit at the Tarbert generating station on the Shannon Estuary.

Reclamation work on the Pigeon House 'B' site at Ringsend in Dublin was completed at the end of the year and the tanker jetty was nearing completion. The buildings for the indoor transformer station were erected and also the structural steelwork for the engine room and boiler house buildings. The foundations for the fuel storage tanks were laid and work had commenced on the 680 foot chimney stack for the station. Orders were placed for the boilers and for the two 120 MW units which, with the two 14 MW gas turbines ordered last year, will comprise the initial development of this site.

Site development work was commenced at the Turlough Hill pumped storage project in Co. Wicklow as announced in the last annual report. Access roads to the upper and lower reservoirs were under construction and the tail race channel was excavated. Work had also commenced on the clearing of peat from the site of the upper reservoir.

The Board is at present carrying out experiments in the latest methods of mass re-seeding on the road embankments in this area to restore natural growth as quickly as possible and care is being taken in the course of all works to ensure the restoration of natural features.

The Board has commenced the first stage of its nuclear development programme by sending the first team of engineers for training in nuclear technology to the United Kingdom Atomic Energy Authority. It is proposed to send other teams abroad for training in 1969–70 and following years. This training will enable these engineers to advise the Board in due course on the design, siting and construction of a nuclear station and it is probable that work on the first such station will commence in the mid-seventies.

Project Department

A new engineering department, which will be responsible for the control of new major generation projects was established in July, 1968. The sizes of generating stations and of individual generating units will increase considerably within the next few years and will involve the application of new major technologies in the Board.

Future of Turf Stations

The turf-fired stations and the associated bog developments were all designed originally for a 20 to 25 years life. The first of these stations, Portarlington, is now 19 years old, and Allenwood 17 years. The load factor on these stations has been well above average and the boilers and turbines in each of the stations have completed almost 100,000 running hours. A recent survey shows that there is sufficient turf on the bogs to enable these stations to run at very high load factors for a further 15 years or more.

Generating plant is designed to have a working life of about 100,000 hours, the expectation being that as the plant gets older the load factor will decrease progressively. This reflects the normal pattern of usage of plant in the electricity supply industry, i.e. base load running in the early years, followed by two-shift running after 5 years or so, reducing to peak load or stand-by duties in the later years.

This pattern is in turn based on the fact that the industry is characterised by rapid growth, involving the constant addition of newer, larger and more efficient generating units to the system and the gradual phasing out of older and less economic plant.

The fact that supplies of turf will continue to be available on the present scale for so many years ahead raises a special problem. The Board must now decide between a policy of heavy expenditure to maintain these stations for a very extended period and a policy of capital investment to install new and more efficient plant. A detailed study of this problem is in hand.

Some years ago a decision on the proposed second generating unit at Shannonbridge was postponed with a view to using the initial produce of the bogs for a briquetting factory. The Government has now decided that the Board should proceed with the installation of a 40 MW generating set in Shannonbridge station using milled peat. The new set, which will be included in the generating programme for commissioning in the year 1974–75, will cost about £2·6 million. This will be

in addition to all the other projects at present in the programme as the inclusion at this stage of such a small set would not, in the present scale of the Board's operations, affect the size or timing of other planned installations.

Transmission

The programme to strengthen and extend the Board's 220 kV network was continued. Work was commenced on the laying of a 220 kV underground cable from the Pigeon House 'B' site at Ringsend to the main transformer station at Inchicore, from where the 220 kV supply will be brought by overhead line to the 220 kV transformer station at Maynooth.

The construction of the North-South 220 kV interconnection line, announced in last years report, was commenced and excellent progress was made. It is expected that this line will be in its first phase of operation for winter 1969.

The 220 kV transformer station at Maynooth was completed and commissioned and six 110 kV transformer stations were completed.

Distribution

The extensive programme to improve and extend urban distribution networks, outlined in last year's report was implemented and £4·7 million was spent on the work. The growth in demand in both established and new housing development areas requires that this work should continue in order to maintain satisfactory standards of supply. In 1969–70 a further £5·4 million will be invested in the work.

The Board has decided as a matter of general policy that supply to new major housing developments will, in future, be placed underground. This decision was influenced by the Board's desire to contribute to environmental improvement and the implementation has been made possible by the development of new techniques in the provision of such supply.

Fourteen 38 kV transformer stations and 205 10 kV stations were built and commissioned.

Rural Electrification

The post development programme was continued and at the end of the year work had been completed in 475 areas; a total of 541 areas had been re-canvassed. 8,725 new consumers were connected and £2,338,799 was spent on rural networks. The loss for the year was £2,167,229, an increase of £484,882 over last year.

Some dissatisfaction has been expressed regarding the speed of the Board's programme in extending supply to rural consumers. In order to maintain costs at a reasonable level, it is necessary, because of the numbers of trained men and the equipment involved, to carry out such work on a planned basis, working from area to area. Any other system, as for instance taking individual applications in strict rotation would involve heavy additional costs which would eventually bear severely on all consumers. Whilst some potential consumers may have to wait a number of years for supply, the Board is working to the full limits of its physical and financial resources to bring supply to all applicants in the shortest possible time.

The importance of the availability of electricity in rural areas is reflected in the significant growth in its utilisation in small rural industries, in the provision of tourist facilities—especially in farm guesthouses—in the development of bulk milk storage and collection, in horticulture and in pig rearing.

The Board sponsored industrial exhibitions in co-operation with County Development teams in Counties Donegal, Longford, Roscommon and Cork. These exhibitions, which have attracted large attendances, have made a significant contribution to a greater community understanding of the importance of local development and of the Board's role in local industrial expansion.

Staff Development and Training

The Board is committed to a considerable expansion in its programmes and facilities for staff development and training. The programmes include special training for new skills. In a year in which training received new impetus at national level the Board added two new schools for technical training and expanded its general development and training programmes. The number of training officers was also augmented during the year. The current level of expenditure on development and training is approximately £500,000 per year. In the coming year substantial numbers of the Board's permanent staff will receive training in the field or attend courses within the Board or in outside Colleges, Universities and Institutes.

The training programmes are designed to help members of the staff to achieve optimum performance and so to make a worthwhile contribution to the industry and the community which they serve.

Industrial Relations

1. *Comprehensive Agreement:*

The first phase of the discussions referred to in last year's Annual Report concluded on 31st July, 1968, with the submission to the Unions of a draft Comprehensive Agreement covering the main conditions of employment of manual staffs. The negotiations were conducted with all the Unions affiliated to the Irish Congress of Trade Unions catering for these employees.

Following consideration of this draft, further discussions took place as a result of which many modifications were adopted and on 1st May, 1969, a revised draft was given to the Unions. One of the principal aims of the new draft, which includes a "no industrial action" clause, is to avoid interruptions of electricity supplies through strike action.

Parallel negotiations have been in progress with organisations representing the majority of the Board's general employees and have reached a similar stage.

2. *Strikes:*

One official and eleven unofficial strikes took place. The length of these varied from 2 hours to 3 days.

3. *Committee on Industrial Relations:*

In April, 1968, following settlement of an unofficial strike, the Minister for Labour appointed a Committee of Inquiry with the following terms of reference:

> "To examine the present arrangements for determining pay and conditions of employment in the Electricity Supply Board, for processing claims and settling disputes, and to make recommendations to the Minister for Labour on the changes which would safeguard electricity supply against interruption through industrial disputes."

An interim report was published in July, 1968, and the Final Report of this Committee was issued in March, 1969.

The Committee's recommendations may be classified under four broad headings requiring action by—

(i) the Board;

(ii) the Board with the Unions and/or Congress;

(iii) the Unions themselves;

(iv) the Government.

The Board is approaching the recommendations under (i) in a positive and constructive manner, having already implemented some of the recommendations involving it alone. The Board has also invited the Unions to take part in discussions on the various recommendations involving joint action; a similar approach has been made to the Irish Congress of Trade Unions. The Board is willing to co-operate with the Unions in any way open to it and acceptable to them in respect of recommendations under (iii) above.

4. *Legislation:*

The Industrial Relations Act, 1969, which dissolved the Manual Workers' and the General Employees' Tribunals and the Electricity (Special Provisions) (Repeal) Act, 1969, which repealed the Electricity (Special Provisions) Act, 1966, have become law since the close of the year.

5. *General:*

The "11th Round" wage increase for manual employees was negotiated with the I.C.T.U. Group of Unions (manual) and E.T.U. (I.) the Agreement to run until 31st December, 1969.

The general employees' "11th round" settlement, emerged from a Tribunal decision, and was for a period of one year from 1st June, 1968.

New Superannuation Scheme for Manual Employees

The first Superannuation Scheme for manual employees, which was introduced in 1943, provided for a maximum fixed pension of £3 per week and a retirement benefit of £200. As the value of money declined the fixed pension was increased from time to time until it reached £5 per week while the retirement benefit was also increased to £300. Despite these improvements it became increasingly obvious that a superannuation scheme based on fixed amounts was no longer appropriate. On its own initiative the Board undertook a comprehensive examination of the problem and as a result has introduced an entirely new Superannuation Scheme for its manual employees. By the 12th December 1968, over 98% of the staff eligible to join the new Scheme had elected to do so. Under

this Scheme, employees with full service can obtain a pension equivalent to half the annual wage in the twelve months preceding retirement, together with a lump sum retirement benefit equivalent to one year's wages. The new Scheme like the old one, guarantees payment of the pension for five years following retirement, even if the employee should die during that period. It also retains the right of an employee, before he retires, to exercise a "joint option" which means that, by accepting a reduced pension, he can provide his wife (or other dependant) with a pension for life should she survive him. The Death Benefit under the new Scheme, which is payable if an employee dies whilst in the Board's service, is also considerably increased.

The contribution required of employees for these benefits is 5% of their wages: the Board contributes an equal amount.

The new scheme represents a considerable improvement on the 1943 scheme.

Amenities

The Board has always been conscious of the need to protect amenities and has repeatedly shown its concern to avoid injury to scenic landscapes. Unfortunately, there is limited flexibility in selecting the sites of generating stations and overhead lines and this causes special problems. Generating stations must have good access for fuel delivery and adequate cooling water facilities while the position of the lines is governed by where the electricity is generated and where it is required. The placing of high tension lines underground is not practicable as a general solution and indeed has not been adopted in any part of the world because of prohibitive expense and technical difficulties including the effect on reliability of supply. Following the introduction of the Local Government (Planning and Development) Act, 1963, discussions took place with the Department of Local Government in an endeavour to reconcile the requirements of this Act with the statutory duty of the Board to generate, transmit and distribute electricity safely, reliably and economically. The Board is pleased to report that special working arrangements have been agreed upon which enable it to co-operate fully with the Minister for Local Government and the local planning authorities in the attainment of the objectives of the Act.

The Board is taking every care in the planning and construction of the Turlough Hill Pumped Storage Scheme to ensure as far as possible that the amenities of the area are preserved. The services of an eminent landscape architect have been retained to advise the Board on the landscaping of the project. The Board gratefully acknowledges the co-operation and assistance it is receiving from the Forestry Division of the Department of Lands, which will undertake the tree planting necessary to give effect to the landscaping arrangements, and from the County Wicklow Planning Authority. Work on the landscaping including the planting of grasses on the verges of new roads has already commenced. It is being carried out by the latest method of hydraulic seeding. The new road to the upper reservoir, rising to a height of 2,250 feet above sea level will, on completion of the works, afford magnificent views of the surrounding countryside.

National Productivity Year

National Productivity Year (MOVE) was officially inaugurated by the Taoiseach on the 19th November 1968 and at the request of the Minister the Board has appointed a special Committee to consider ways in which it could participate in the national campaign.

A number of proposals has been under consideration by the Committee and, following discussions with officials of the Irish National Productivity Committee, it was arranged that the Board's local management would co-operate fully with local and regional promotions. In this way it is hoped that the full range of the Board's advisory services will be utilised throughout the country. The Board also offered to make expert lecturers available on occasions for local management seminars.

Safety

The increasing use and the widespread nature of electricity supplies throughout the country, particularly in rural areas, brings with it an increase in risks of fatal and near-fatal accidents to the public if the simple basic rules for electrical safety are not practised. The Board continues its endeavour to educate the public in the field of electrical safety but, unfortunately, this is an area in which the average householder, farmer and handyman will continue trying to do it himself.

The Board again stresses the inherent dangers for unqualified people in attempting to carry out electrical extensions or repairs and draws the special attention of contractors to the dangers of using plant and equipment in the vicinity of overhead wires.

While electricity is an excellent servant, the

Board feels it to be its duty in this Annual Report to call the attention again of all its consumers to the need for the continued practice of the normal and simple rules to ensure safety in the use of electricity.

Mr. J. C. Tonge

It is with deep regret that the Board records the death of Mr. J. C. Tonge which took place on the 1st March, 1969, following a brief illness. He had been a member of the Board since 1960. His kindly nature and great personal charm will always be remembered and his sound practical advice, acquired from long experience and deep interest in a wide range of industrial and business activities, will be sadly missed by his colleagues.

Staff

At 31st March, 1969, the numerical strength of the Board's regular staff was 8,155. In addition, there was a temporary staff of 2,595.

The Board desires to express its warm appreciation of the important contribution made by the staff at all levels to the work throughout the year and it thanks all concerned for the efficient way in which they carried out their duties. To all who have retired it extends good wishes for their health and happiness.

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

(Signed) *J. G. Gargan,* SECRETARY
11th July, 1969

CAPITAL

The value of the capital assets brought into commission was £10,113,786 of which £2,302,296 related to rural electrification. The total investment in assets in productive use at 31st March, 1969, was:

	£
Generation	74,198,378
Transmission	22,887,758
Distribution (includes rural £42,004,564)	84,150,493
Premises, equipment, transport, etc.	5,354,664
	£186,591,293

In addition, expenditure of £21,666,258 had been incurred on new capital works still under construction at the end of the year. Accordingly the fixed capital investment is just over £208,000,000.

BORROWING POWERS

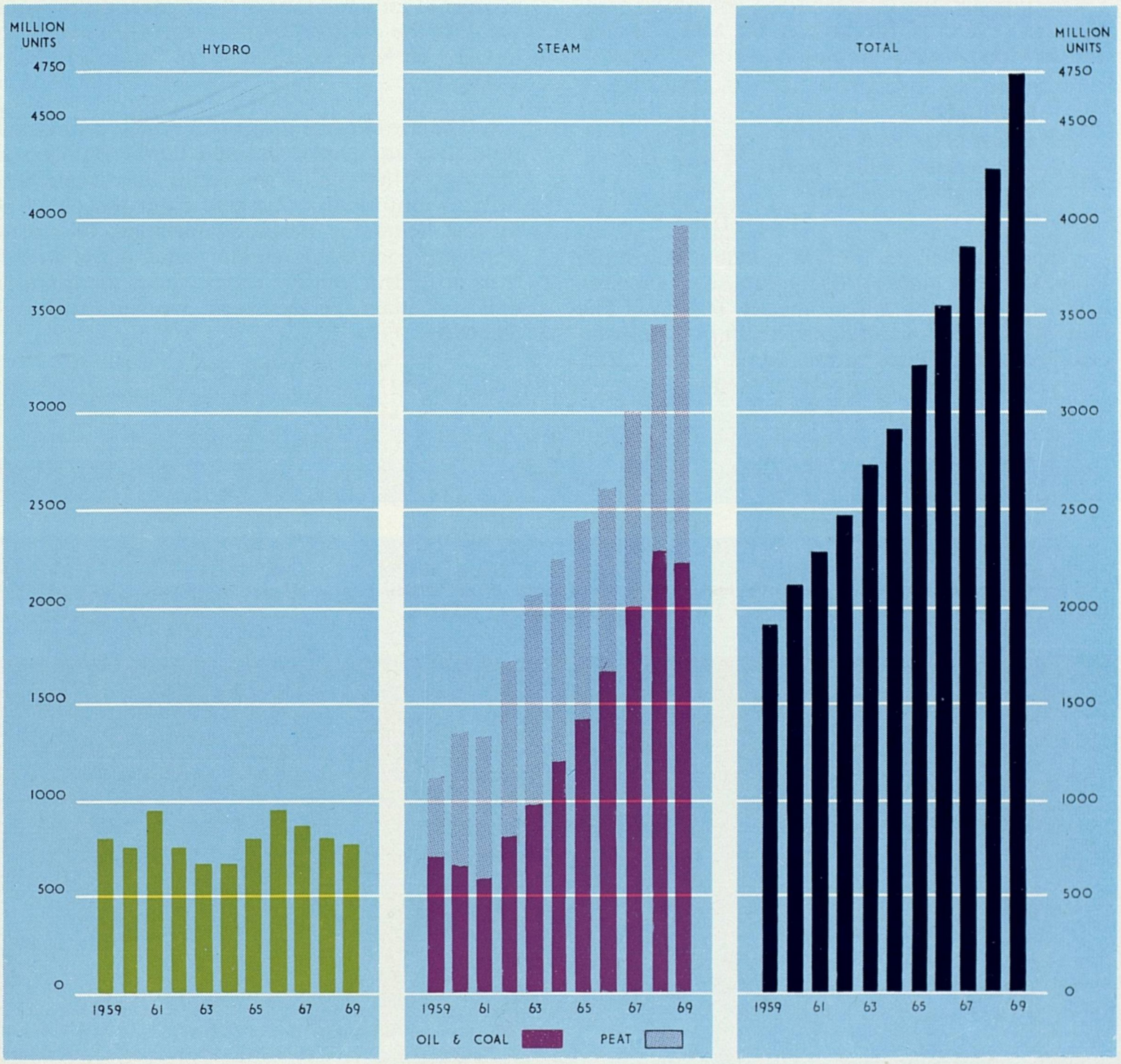
The capital requirements for the year were provided from internal resources, by temporary advances from the Trustees of the Superannuation Funds, by short-term financing and from the proceeds of an issue in March, 1968, of £7 million E.S.B. $7\frac{1}{4}\%$ stock.

The Electricity (Supply) (Amendment) Act, 1965, authorises a capital expenditure not exceeding £225 million for general purposes, excluding rural electrification. At the 31st March, 1969, the Board had approved expenditure totalling £215,048,262 of which £144,461,729 represented electricity assets in commission, the balance of £70,461,533 represented either work in progress or work approved.

The legislative limit to expenditure on rural electrification is £50 million inclusive of the capital subsidy for rural electrification provided by the State. At the 31st March, 1969, the amount approved was £43,312,655 of which £42,004,564 represented assets in commission and £1,308,091 work in progress or approved.

ELECTRICITY PRODUCTION

The diagram below illustrates the output of the generating stations each year since 1959



INCREASE IN UNITS GENERATED

The units generated (and purchased) showed an increase of 503 million (11·8%) over the preceding year. The annual load factor on the basis of units generated was 51·7% compared with 52·9% last year.

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

GENERATION

The total installed capacity of the Board's generating stations following the commissioning, in April, 1968, of the second 60 MW oil-fired unit at Great Island amounted to:

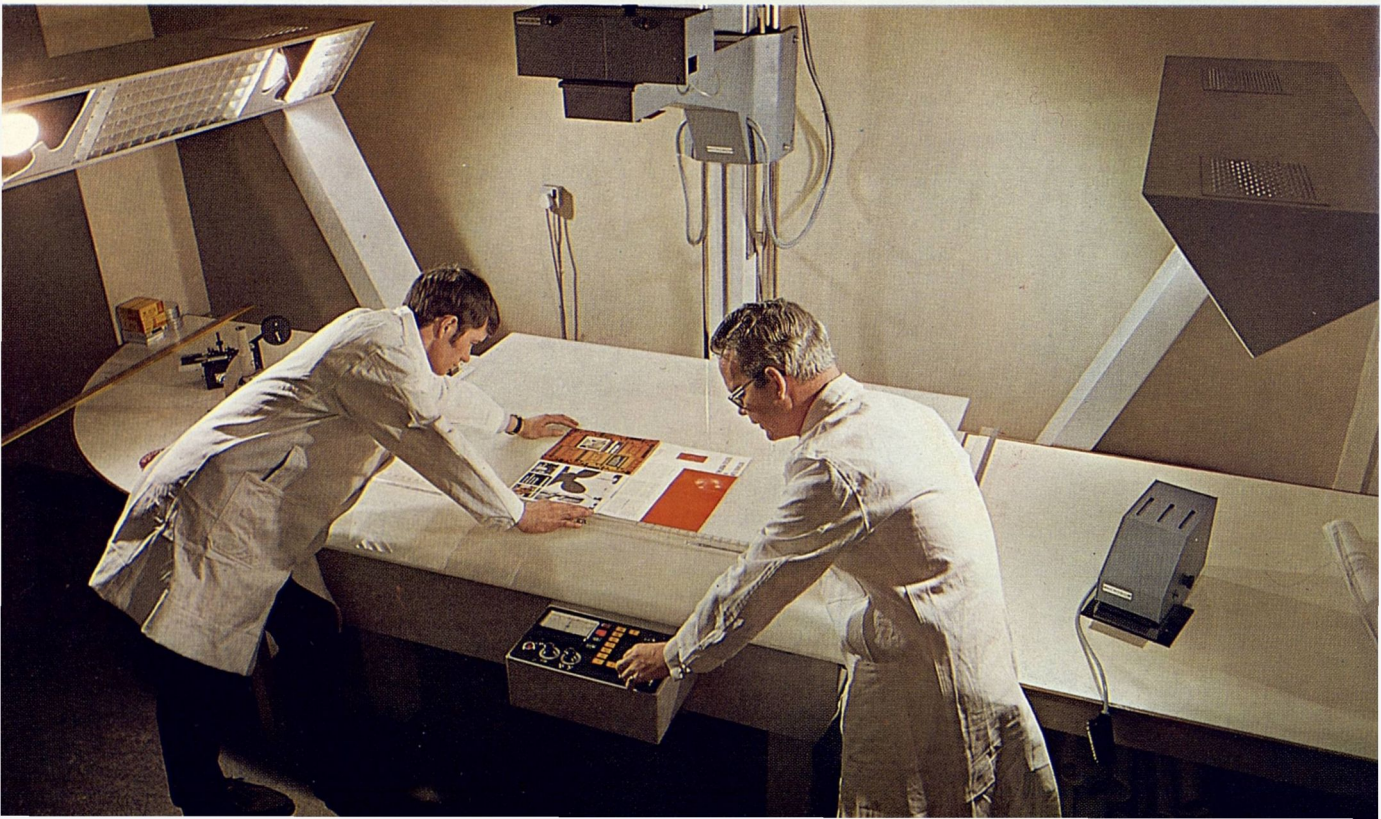
	MW
hydro plant	**219**
steam plant (sod peat)	**117·5**
steam plant (milled peat)	**290**
steam plant (coal/oil)	**663**
	1,289·5

This total includes 90 MW (name plate rating) of old stand-by plant at Pigeon House which gives a firm capacity of approximately 60 MW. The four 5 MW stations designed to burn hand-won peat are also included in this total.

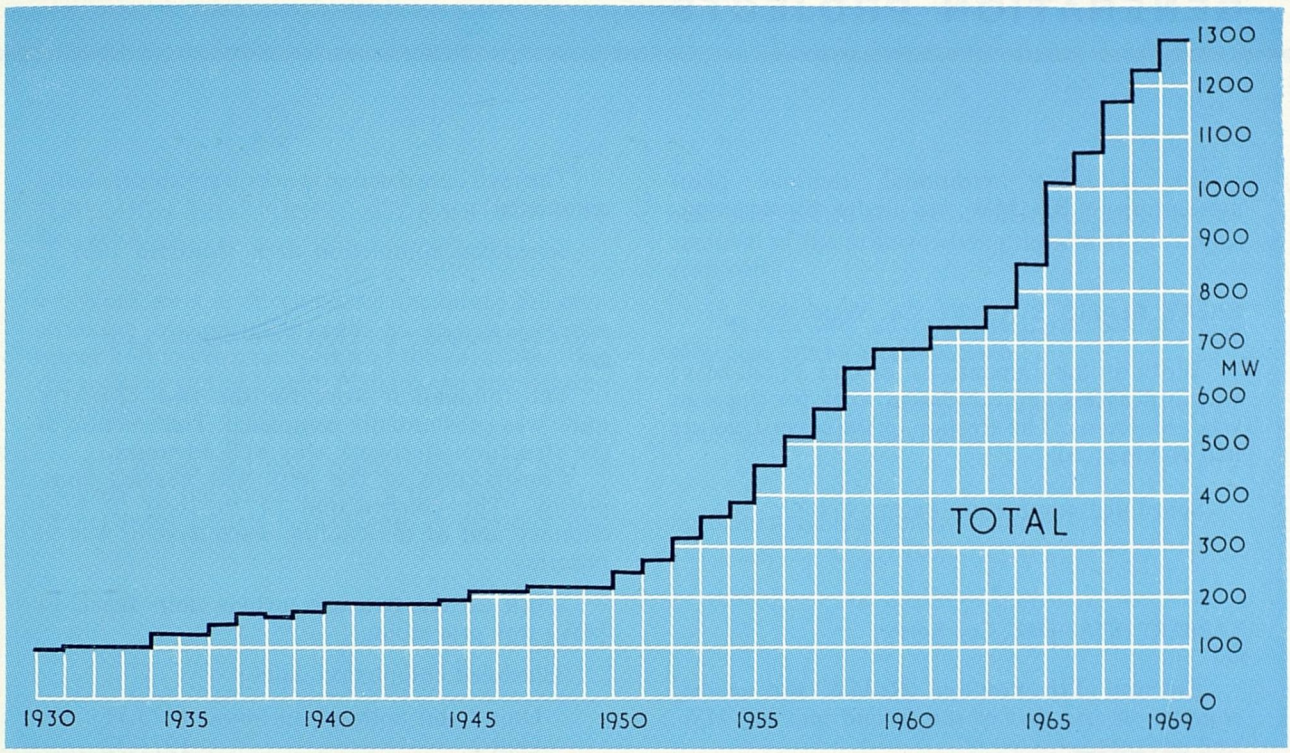
Thermal efficiency in generating stations showed an overall improvement of 0·4% over the previous year. In the oil-fired stations, the introduction of modern 60 MW units led to an improvement of 3·9%.

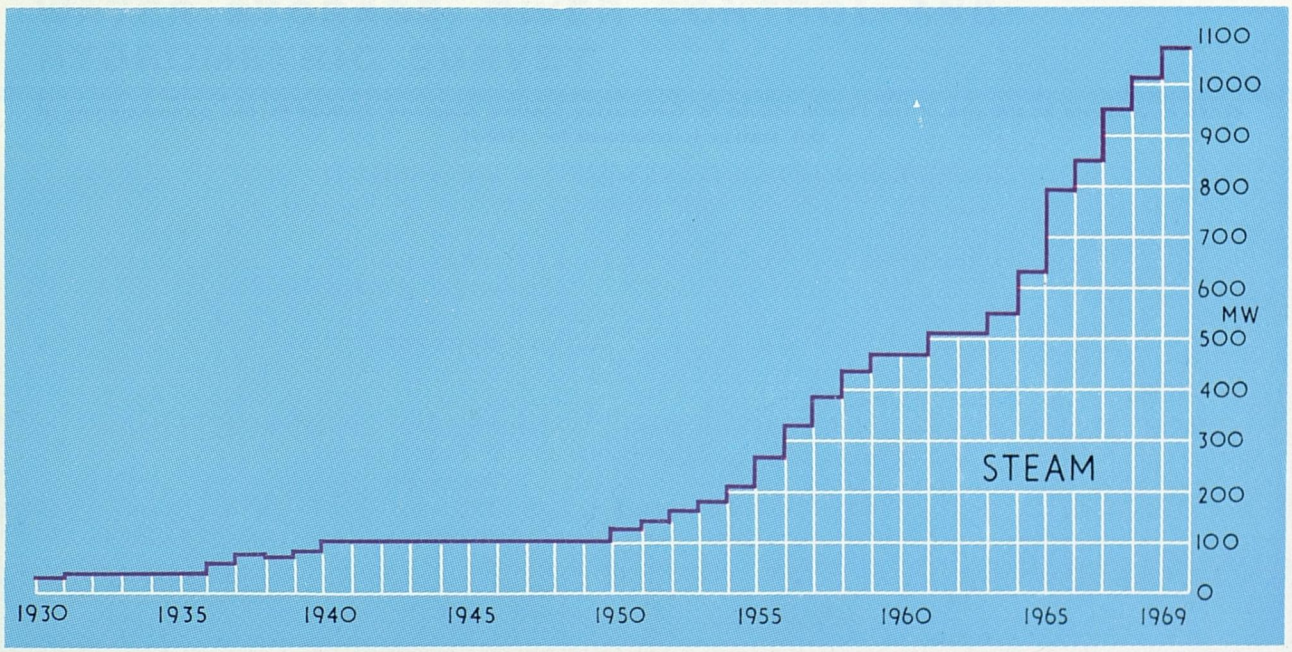
As the size of generating plant grows, control and protective equipment become more complex. In the case of the smaller generating units boiler and turbine controls are operated from the boiler or turbine floors; on the latest machines all operations are controlled remotely and automatically from a central control room where the essential data on plant performance are indicated and recorded.

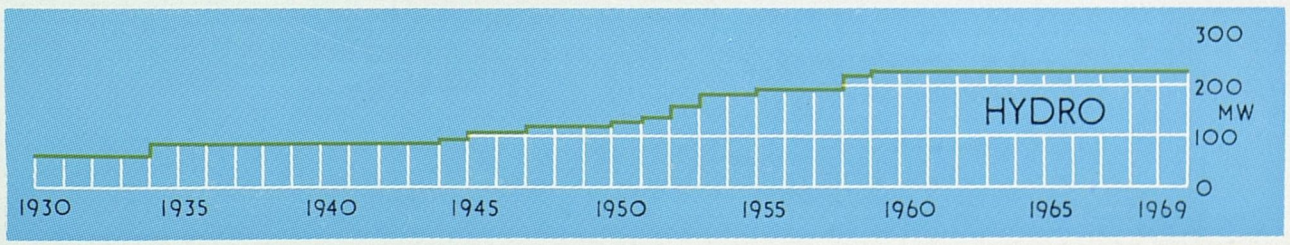
The micro-filming installation recently installed in the Board's Head Office is the largest of its kind at present in this country.



GENERATION CAPACITY
1930—1969







GENERATION PROJECTS

The following additional thermal plant amounting to 508 MW was under construction:

GREAT ISLAND STATION, Co. Wexford
Oil

Work on the foundations for unit 3 (120 MW) was in progress and the design work for this unit was proceeding. The erection of the superstructure had commenced.

Scheduled completion date: 1971-72.

TARBERT STATION, Co. Kerry
Oil

Erection of the first unit (60 MW) was nearing completion and that of the second unit (60 MW) well advanced.

The civil construction works were substantially completed.

Scheduled completion date: Autumn 1969.

PIGEON HOUSE 'B' STATION, Dublin City
Oil

The foundation work for the two 120 MW units was substantially completed. The erection of the structural steelwork was well advanced.

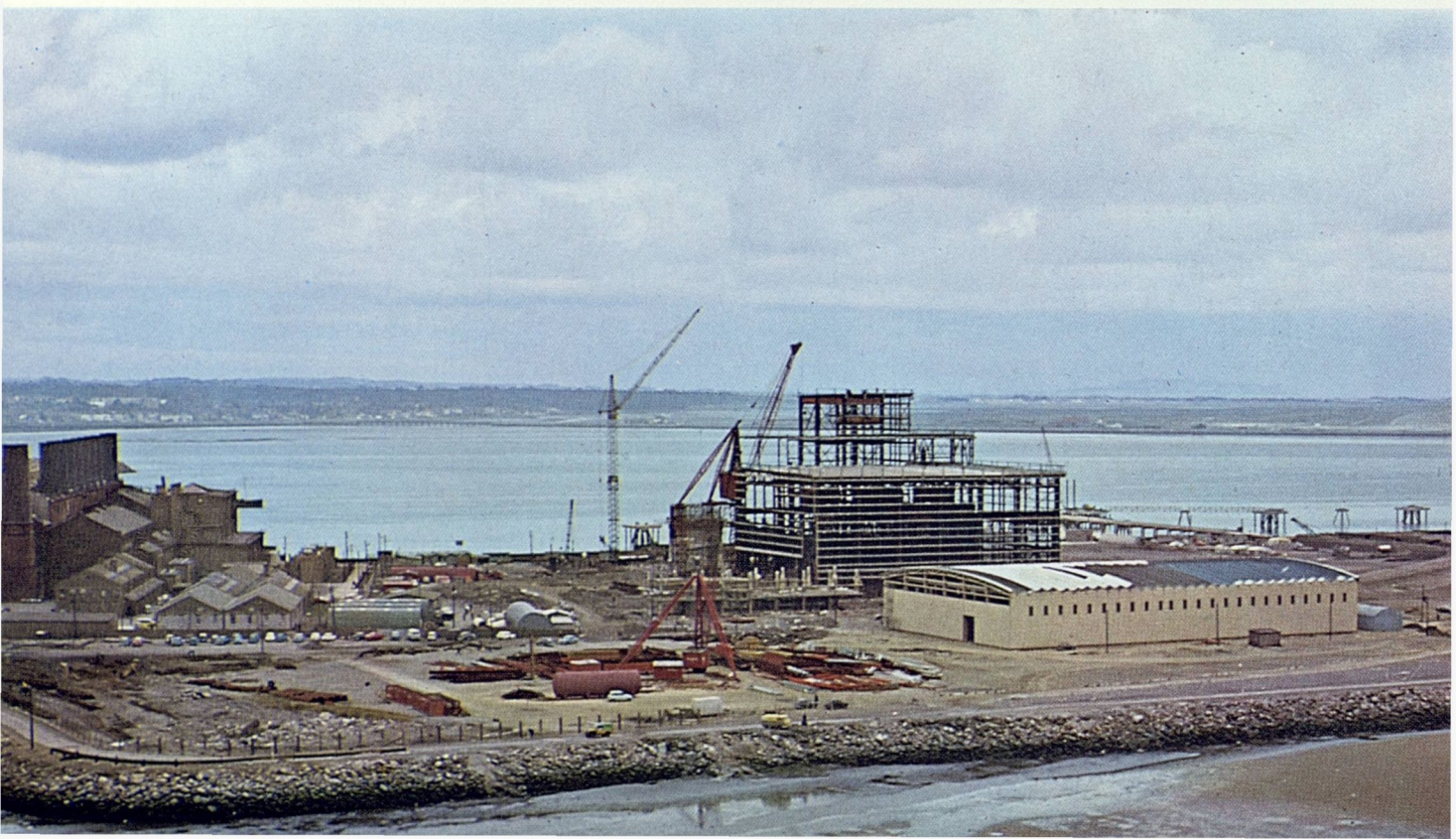
Construction of the jetty was nearing completion. The construction of the 680 ft. high chimney and of the cooling water system was in progress.

Work on the two gas turbine units (each 14 MW) was proceeding.

Scheduled completion dates:

Unit 1 and both gas turbines	1970-71
Unit 2	1971-72

Work in progress at the site of the Pigeon House 'B' Generating Station, Ringsend, Dublin. Partial commissioning of this station is scheduled for 1970-71.



TURLOUGH HILL PUMPED STORAGE STATION
Co. Wicklow

Work on site development including the construction of approach roads to the sites of the upper and lower reservoirs and the excavation for the spillway out of Lough Nahanagan was nearing completion.

A contract had been placed and work was in progress on the construction of the outlet control tunnel from Lough Nahanagan. A contract had also been placed and work had commenced on the removal of the peat overlying the site of the upper reservoir.

Tenders for the main civil, mechanical, and electrical works were received.

Four 73 MW reversible pump-turbine/motor-generator sets are envisaged.

Scheduled completion date: 1973-74.

WATER STORAGE, RIVER CONTROL AND HYDROMETRIC SURVEY

The inflows at the hydro stations varied between 87% and 114% of the long term average flows.

The important hydrometric figures for the hydro stations are given in Appendix 8.

The total average inflows for the calendar year 1968 were:

	M^3/Sec
River Shannon at Killaloe	198·5
River Liffey at Pollaphuca	8·5
River Liffey at Leixlip	13·6
River Erne at Ballyshannon	92·4
River Lee at Inniscarra	26·2
River Clady at Gweedore	4·1

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

MAIN TRANSMISSION SYSTEM

The 220 kV switching station at Maynooth, which had been in partial operation, was fully commissioned and work on an extension to cater for the interconnection with Northern Ireland and developments in the Dublin area had commenced.

The 220 kV switching station under construction at Killonan near Limerick, was progressing satisfactorily and should be ready for commissioning shortly. An indoor 220 kV switching station of new design was being built at the Pigeon House 'B' generating station in Dublin. It is the first indoor station of this voltage to be constructed in Ireland. Design work was in progress on further 220 kV switching stations to be built at Louth near Dundalk; at Great Island, Co. Wexford, and at Turlough Hill, Co. Wicklow.

The indoor 110 kV station at Tarbert, Co. Kerry, was completed and will be commissioned shortly, whilst the 110 kV station at Francis Street, Dublin, was fully commissioned. Further indoor 110 kV stations at Milltown in Dublin, and Trabeg, Cork, were completed and commissioned as were outdoor switching stations at Sligo, Ennis and Thurles. Design and construction work was in progress on further extensive additions to the 110 kV system.



A construction crew at work on one of the masts which will carry the North-South interconnecting power lines.

The remote control of switching stations has assumed increasing importance as an aid to improved and more economical standards of supply. Many such schemes were completed during the year including an extensive installation for the control of Francis Street and Milltown 110 kV stations from the Bedford Row control centre in Dublin. In addition, equipment was installed for the remote control of ten 38 kV Dublin City stations to be carried out from the same centre. In the Cork area, equipment was installed for the remote control of Whitegate, Rafeen and Trabeg 110 kV stations from Kilbarry 110 kV station.

The expansion of the network has brought to light a number of problems concerned with the overall protective relaying. A detailed study of this matter and related aspects arising from the future development of the system was in progress.

Research and development work undertaken included a detailed computer programme connected with 220 kV stations bus-bars, a study of the effects of non-transposition of 220 kV lines and field measurements on the 110 kV system at Ringsend. These measurements, which were concerned with the occurrence of ferroresonance phenomena, were complemented by a network analyser study. The effect of the proposed earthing of the 110 kV system neutral was the subject of a further study and field tests.

14 km of 110 kV cable were laid from Ringsend to Carrickmines and the laying of a 220 kV cable from the Pigeon House 'B' generating station to Inchicore was started. This cable will be connected at Inchicore to an overhead 220 kV line on which work was about to commence.

The erection of a 220 kV line from Maynooth to Louth was well in hands. This is the first of two lines required for the interconnection of the Board's system with that of Northern Ireland. It will be followed by a second line, via Finglas, on which work was about to commence. Survey of a 220 kV line from Great Island generating station to Knockraha, Cork, switching station was under way.

A total of 90 kms of 110 kV overhead line was erected and 20 kms retired from service. The work included the diversion of existing 110 kV lines into new stations at Tarbert, Ennis, Thurles and Sligo. Construction work was well advanced on a new line from Tarbert to Limerick and on the rearrangement of 110 kV lines into the new station at Killonan, Limerick.

DISTRIBUTION SYSTEM

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

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

Two hundred and five 10 kV transformer stations were completed; four 10 kV transformer stations were retired from service.

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

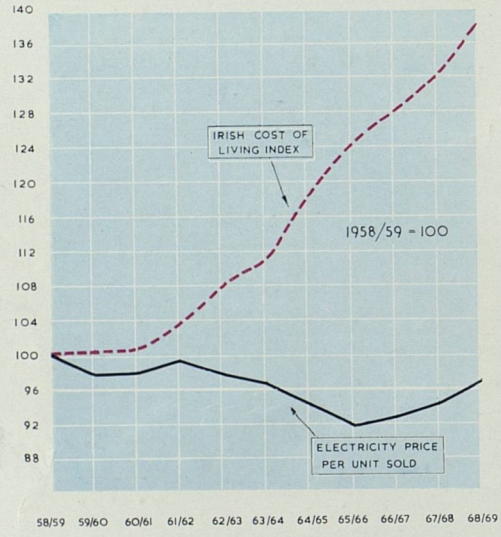
38 kV overhead lines	net increase 70·9 kms.
38 kV underground cables	net increase 16·9 kms.
10 kV overhead lines	net increase 54·3 kms.
10 kV underground cables	net increase 91·5 kms.
low tension overhead mains	net increase 76·4 kms.
low tension overhead mains	reconstructed or strengthened ·77 kms.
low tension underground mains	net increase 38·0 kms.

A housing development in Dublin with an underground electricity supply, which eliminates the need for poles and power lines.



The high growth rate in demand for electricity is indicative of the rapid industrial development now taking place and of the greater utilisation of electrical appliances by domestic consumers. In the case of domestic appliances the Board's promotional and advertising campaigns have been aimed particularly and successfully at developing the cooking, water-heating and off-peak central heating loads. The well-known Warm Home Plan and the more recently introduced Electricaire system have been especially successful and, in addition to providing an efficient and economical method of central heating have contributed substantially in achieving a better load factor with consequent more economic utilisation of generating and transmission plant. An outstanding feature of the year's operations has been the growth in the use of refrigerators. To-day one in five domestic consumers owns a refrigerator.

The growth rate, 10% per annum over the past five years indicates that electricity in Ireland is accepted as good value for money. The pattern is one of a successful and valued service. Over the past decade, as the diagram below shows, electricity costs in this country have not risen in proportion with the increase in the general price index.



Marketing in the Seventies

Significant as were the "sixties" in the Board's history, the "seventies" may be expected to present even greater challenge and opportunity. The Board will be operating in several highly competitive growth markets so that marketing techniques and strategies must be developed which are both innovatory and progressive. The Board has been among the pioneers of market research in this country and in recent years has undertaken studies in this field to provide vital information for new load development and the formulation of new market strategies.

As an instance, it has been among the first in Europe to develop an intensive programme of load research using recording equipment and computer techniques. This programme has enabled it to build up consumer demand data which are essential to cost analysis and new tariff design systems. Already in this regard it has been found possible to offer valuable night-use concessions to industrial users.

In addition to contributing to cost analysis and new tariff design the Board's load research is a vital factor in the forecasting of demand for new plant. As electricity cannot be stored and as the capital cost of plant is so high, it is essential to forecast as exactly as possible, well in advance, what the demand will be at a particular date and time. Too high a provision for demand would result in premature tying up of large blocks of capital, while if the provision were too low the Board would not be in a position to meet the demand at a particular time.

Towards the end of this year consumption which up to then had been showing an average increase of about 10% over last year, took an even higher upward swing.

The growth in consumption per head of the population since 1959 is shown hereunder:

Year	Millions Total units sold	Average Consumption per head of population
1959	1,549·4	550
1960	1,692·2	604
1961	1,863·6	666
1962	2,005·1	712
1963	2,238·5	790
1964	2,375·9	833
1965	2,682·6	935
1966	2,953·3	1,024
1967	3,238·1	1,120
1968	3,570·1	1,233
1969	4,012·3	1,383



At the National Finals of the Schools Breadbaking Competition held in the Abbey Theatre, Dublin, Mr. P. J. Lalor, Parliamentary Secretary to the Minister for Transport and Power, presents first prize to Miss Margaret Shanley, Killashee, Co. Longford. With him are Mr. Cathal Faughnan, Electrical Industries of Ireland Ltd., G.E.C. and Mr. Thomas Murray, Chairman, E.S.B.



At the R.D.S. Spring Show exhibit, the Board continued its policy of providing to rural dwellers, a comprehensive advisory service on the application of electricity.

Appliances

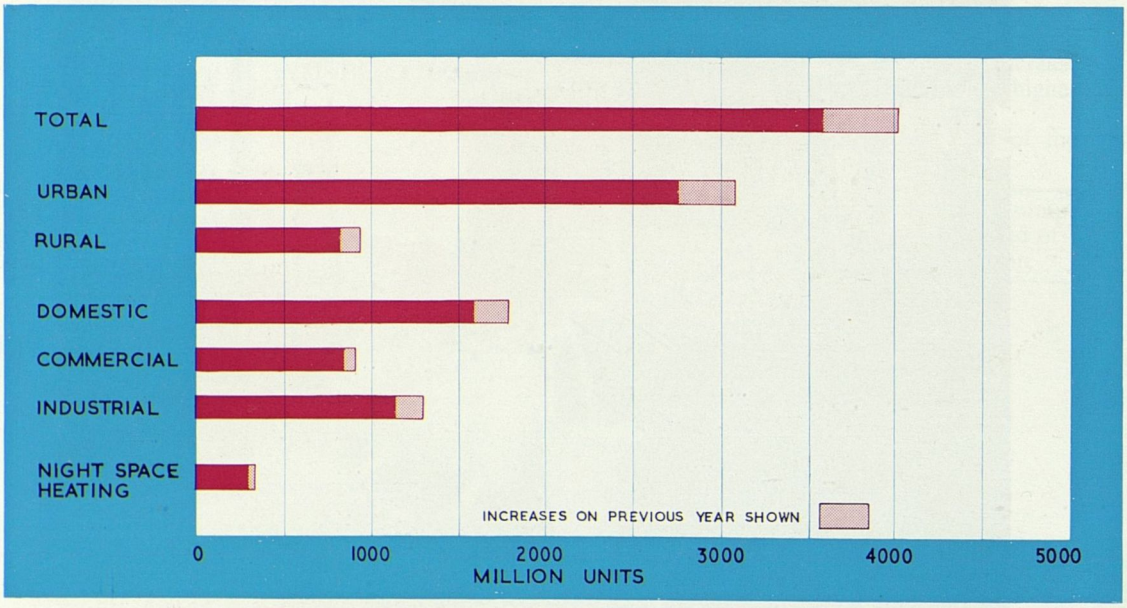
Sales of appliances on the Merchandise Trading Account amounted to £2,025,765 excluding turnover tax, compared with £1,763,702 last year. The gross profit was £382,580 representing a rate of 18·89%. The Merchandise Trading Account, having been charged with overhead expenses and interest on working capital, showed a net profit of £29,514.

Contracts

The value of installation contracts completed amounted to £825,570 compared with £716,924 for last year. The gross profit amounted to £146,297 representing a rate of 17·72%. The Installations Trading Account, having been charged with overhead expenses and interest on working capital, showed a net profit of £36,026.

ANALYSIS OF UNITS SOLD

The following diagram illustrates the analysis of units sold



RURAL ELECTRIFICATION

During the year 8,725 new rural consumers were connected and the total number of consumers as a percentage of the premises in the 792 rural areas in the country rose to 89%. The recanvass of rural areas under the revised post-development scheme was continued and by the end of the year 541 areas had been recanvassed. Work has been completed in 475 of these areas and was in progress in 46 others. Work was continued on the strengthening of networks supplying groups where the growth of load was found to be taxing the existing capacity.

The total value of materials used was £1,155,000 of which £1,005,000 or 87% was obtained from native suppliers. There were no significant changes in prices of materials. Capital expenditure was £2,338,799. The total invested in the scheme at 31st March, 1969 amounted to £42,963,916 of which £13,998,826 was provided by way of subsidy. The loss for the year on rural electrification was £2,167,229.

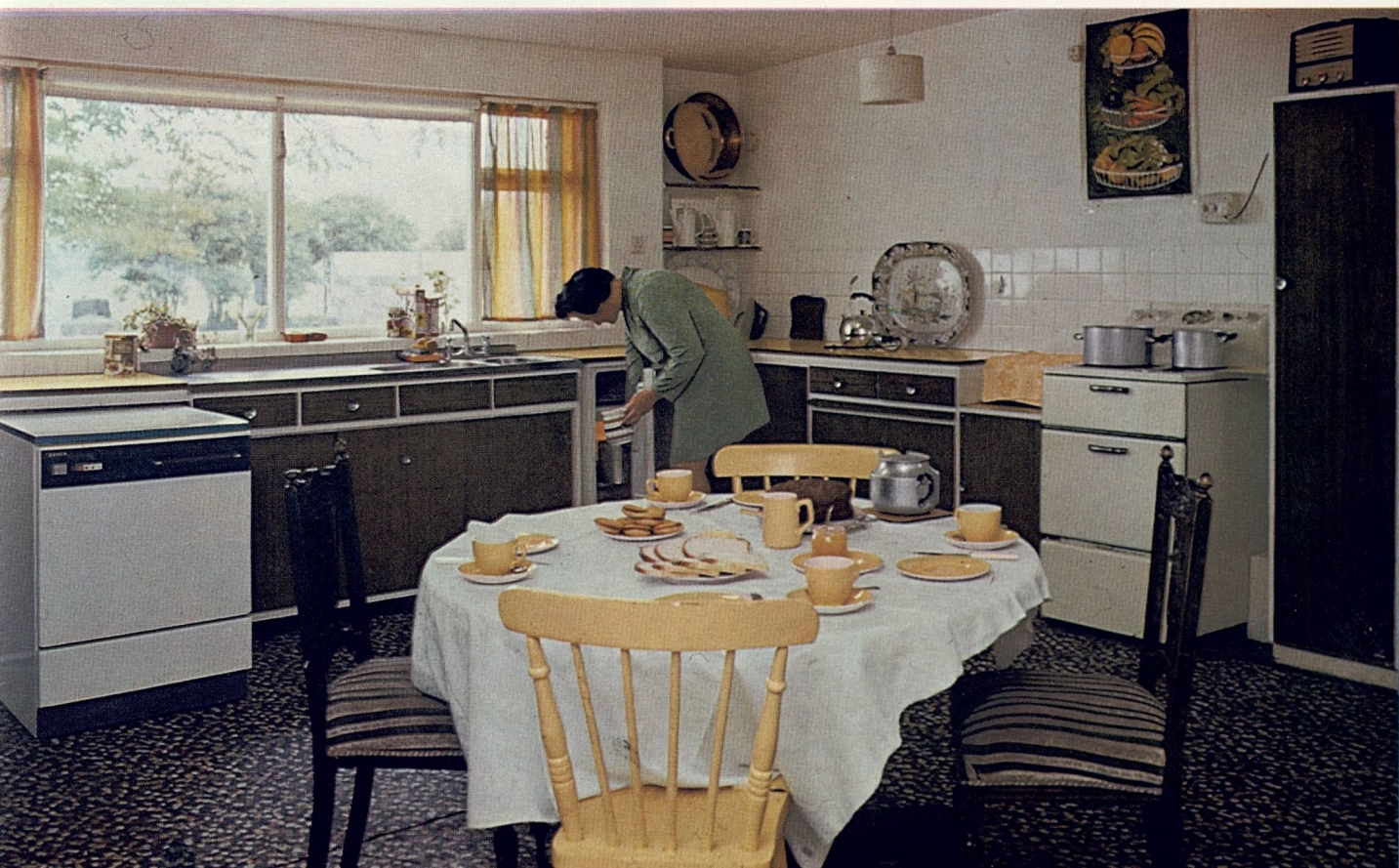
920 million units representing an increase of 12·6% over the previous year were sold to rural consumers. This is equivalent to an average consumption of 2,715 units per consumer compared with 2,487 in 1967-68. The average consumption per farm and domestic consumer increased from 1,524 to 1,666 units. Rural revenue was £9,716,772 representing an average price per unit of 2·53d.

Youth was the main theme of the Board's sponsorship during the year. With the co-operation of the Irish Countrywomen's Association, courses on "Youth and Responsibility" and "The Rural Homemaker" were held for young women at An Grianan. The Board also sponsored, in conjunction with the Irish Farmers Journal, a Macra na Tuaithe competition titled "Know Your Area".

The Board became an Associate Member of Macra na Feirme thus becoming more closely involved with the educational work of that organisation.

The growth rate in the rural electricity consumption reflects the continued improvement in the standard of living in the rural community. In the home and farmyard modern labour saving devices are very much in evidence. In addition to the

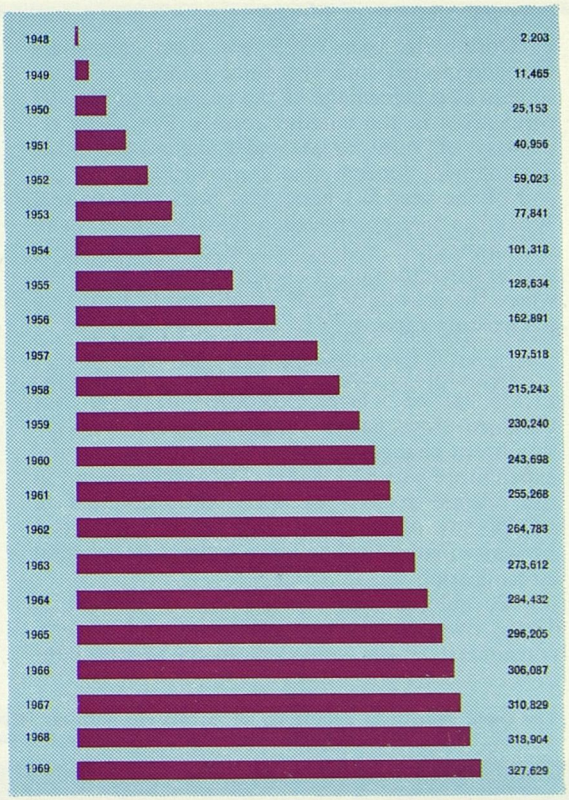
The rapid growth in popularity of farmhouse holidays is being aided by the availability of electricity and electrical appliances which help to provide the standards required in such development.



increased load in the dairying industry, expansion in the horticultural industry and the increase in the number of farms participating in the Farmhouse Holiday Scheme have all contributed towards the continued demand for electricity.

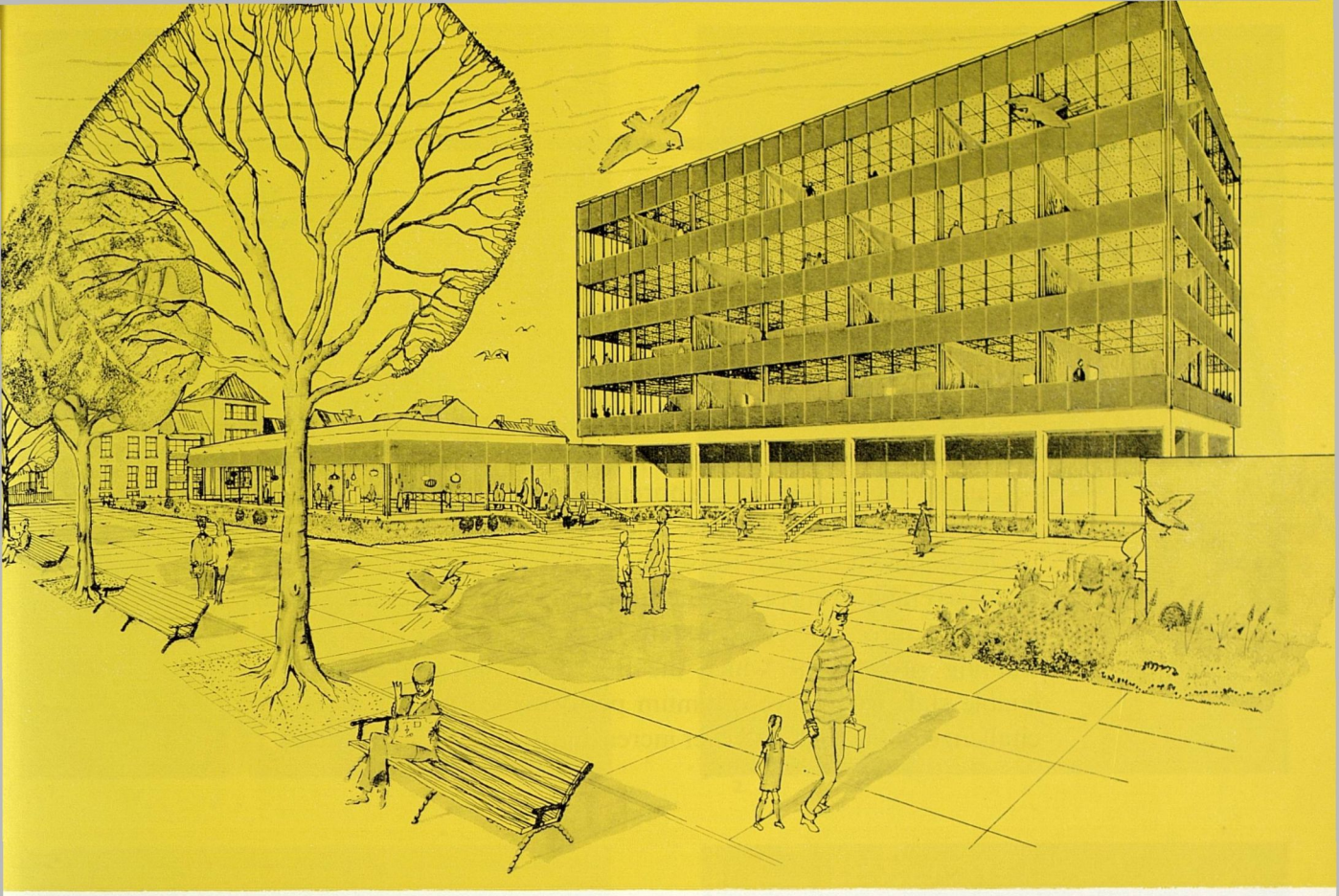
The Board's promotional activities included the the presentation of exhibits at the Royal Dublin Society Spring Show, the Cork and Limerick shows and participation at the principal shows in each county. During those shows the county final of the Senior Wholemeal Breadbaking Competition was held. The final of this competition took place during the All Ireland Ploughing Championships at Rathcoole, Co. Cork. The final of the Schools Wholemeal Breadbaking Competition was held in the Abbey Theatre, Dublin. These competitions were highly successful in promoting the use of electricity as well as popularising traditional methods of baking.

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 rural Ireland.



Electricity is playing a significant part in the development of horticulture in this country.





PREMISES

The general growth in Board activities throughout the country requires the provision of many new offices, stores and service centres and the continual extension and improvement of existing ones.

New service centres were provided at Athy, Portarlington and Shannon and projects at thirty other locations were under construction or at the advanced planning stage. Work began on a new District headquarters at Tralee and on the planning of a new headquarters at Waterford. A major extension to Portlaoise headquarters had reached the final stages. Planning to meet the expanding needs of the Dublin area for new operational centres and District headquarters was in progress.

Work commenced on additional staff houses in New Ross for personnel at Great Island generating station and was nearing completion on the 34 houses being provided at Tarbert and Listowel for staff at Tarbert generating station. Work continued on the new headquarters building at Fitzwilliam Street, Dublin, which is scheduled for completion and occupation during 1969.

SUPERANNUATION SCHEMES AND TRIBUNALS

The number of contributing members in the General Employees' Superannuation Scheme at the end of the year was 2,504 and in the Manual Workers' Superannuation Scheme 3,622.

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 eighteen cases.

illustration above

A perspective of the proposed new District Office at the Mall, Waterford. Architects: Harvey Jacob & Associates.

Some aspects of the Board's specialised training programmes are shown in the accompanying photographs. Such courses cater for engineers, technicians, apprentices, clerical and accounting staff, jointers, demonstrators, linesmen and others.

Development courses for senior staff, training for engineers in overseas engineering plants and supply undertakings and two-year training courses for clerical staffs, also form part of the general training programme which the Board considers necessary to enable staff to achieve optimum performance and to meet the challenge of the high and ever increasing demand for electricity.



At Left:

Members of the staff, undergoing the two-year training course, examine a critical path analysis diagram.

At Right:

(1) Students at work in the new Cable Jointing School.

(2) Miss Eithne Mills, Instructor, explains some of the techniques of modern deep-freeze utilisation to trainee demonstrators.

(3) At the Linesmen's School, Portlaoise, pole and line erection techniques are demonstrated.

(4) At University College, Dublin, engineers engage on a post-graduate project on E.S.B. Scholarships.



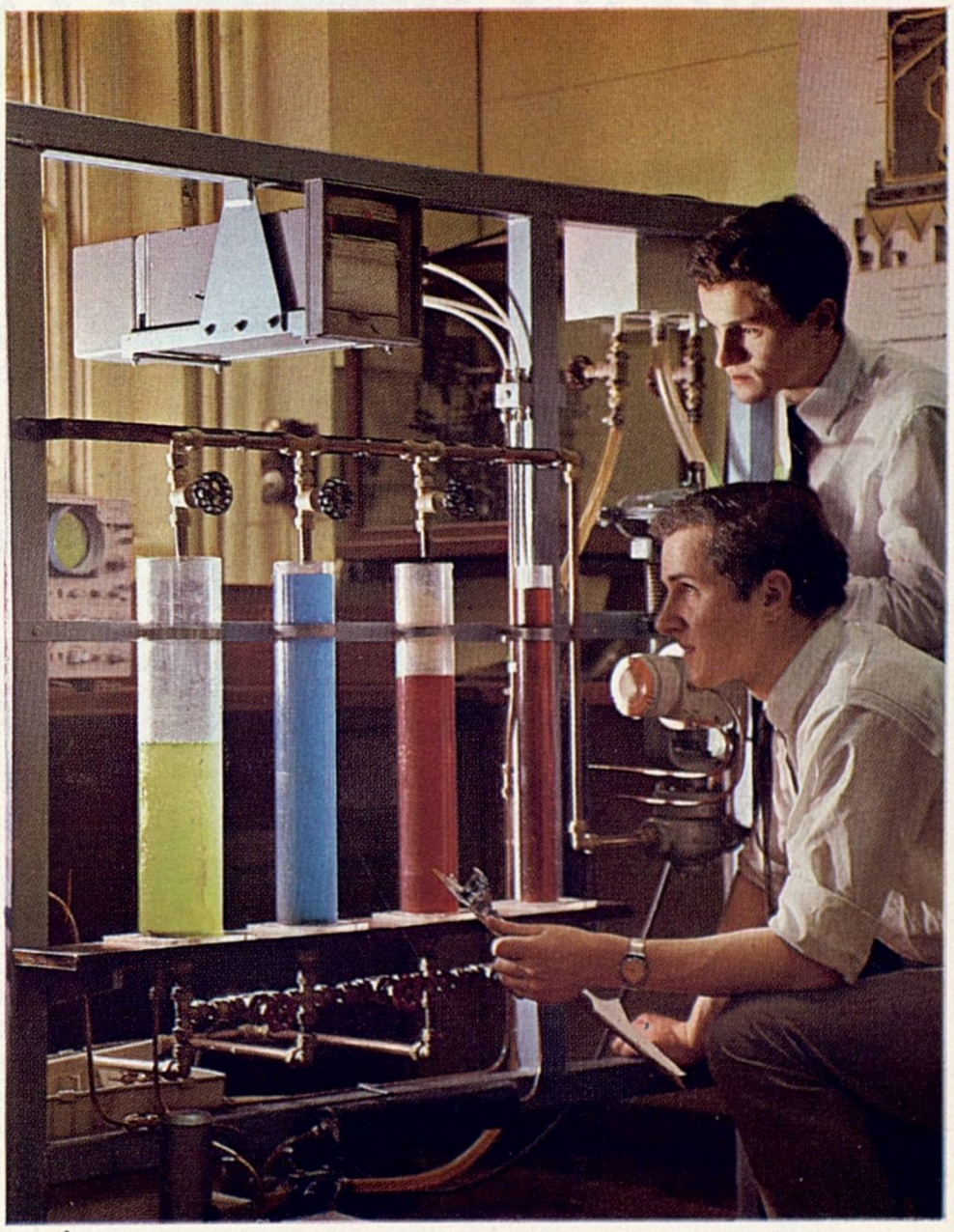
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3



4

ACCOUNTS 1968—1969

No.

1 Electricity Production Account

2 Electricity (Non-Rural) Revenue Account

3 Electricity (Rural) Revenue Account

4 Profit and Loss Account

5 Preservation and Operation of Fisheries

6 Installations Trading Account

7 Merchandise Trading Account

8 Net Revenue Account

9 Statement of Repayable Capital and Redemption

10 Statement of Capital Reserves

11 Statement of Capital Investment in Fixed Assets

12 Balance Sheet

Electricity Production Account for the Year ended 31st March, 1969

	Fuel	Operating Expenses	Maintenance and Repair	Supervision and Local Administration	Works Cost	Per Unit Sent Out 1968/69	Per Unit Sent Out 1967/68	Depreciation and Renewals	Interest and Capital Repayments Allocation	Total	Per Unit Sent Out	1967/68 Total	1967/68 Per Unit Sent Out
GENERATION	£	£	£	£	£	Pence	Pence	£	£	£	Pence	£	Pence
Coal/Oil													
Marina	717,798	155,076	123,989	24,053	**1,020,916**	·644	·481	178,000	263,112	**1,462,028**	·922	**1,502,024**	·680
Ringsend	1,801,705	278,235	249,308	48,776	**2,378,024**	·549	·419	381,000	663,487	**3,422,511**	·790	**3,397,695**	·598
Arigna	195,919	49,504	34,764	8,524	**288,711**	1·149	·967	30,000	48,998	**367,709**	1·464	**369,169**	1·222
Great Island	996,647	105,658	54,234	23,624	**1,180,163**	·481	*	198,000	370,275	**1,748,438**	·712	**224,599**	*
					4,867,814	·565	·453			**7,000,686**	·812	**5,493,487**	·642
Sod Peat (Machine)													
Portarlington	601,878	99,921	73,447	15,166	**790,412**	1·271	1·318	53,000	68,371	**911,783**	1·466	**781,927**	1·560
Allenwood	710,283	115,876	91,687	17,230	**935,076**	1·254	1·287	78,000	100,551	**1,113,627**	1·493	**929,640**	1·590
Lanesborough	334,712	48,083	25,683	6,885	**415,363**	1·004	1·545	32,000	53,352	**500,715**	1·210	**219,190**	2·505
					2,140,851	1·202	1·320			**2,526,125**	1·418	**1,930,757**	1·646
Milled Peat													
Ferbane	1,271,564	155,466	94,018	25,335	**1,546,383**	·969	1·040	180,000	299,137	**2,025,520**	1·269	**1,404,560**	1·564
Rhode	949,399	118,483	89,983	22,418	**1,180,283**	1·008	·966	147,000	238,194	**1,565,477**	1·337	**1,248,480**	1·386
Bellacorick	525,437	95,550	54,679	14,636	**690,302**	1·005	1·127	83,000	135,513	**908,815**	1·324	**615,714**	1·722
Shannonbridge	521,024	73,670	41,122	13,378	**649,194**	·799	·808	91,000	146,152	**886,346**	1·091	**736,203**	1·172
Lanesborough	441,192	61,450	35,505	11,069	**549,216**	·815	·821	91,000	145,215	**785,431**	1·165	**590,019**	1·342
					4,615,378	·934	·954			**6,171,589**	1·249	**4,594,976**	1·425
Sod-Peat (Hand-won)													
Four 5 MW Stations	184,281	81,281	31,907	7,916	**305,385**	1·860	2·455	44,000	74,610	**423,995**	2·583	**345,622**	3·703
Peak Station													
North Wall	54,373	86,304	53,579	15,362	**209,618**	—	—	93,000	122,726	**425,346**	—	**531,430**	—
Stand-by													
Pigeon House	7,872	75,350	83,968	16,763	**183,953**	—	—	54,000	72,850	**310,803**	—	**369,481**	—
TOTAL—FUEL STATIONS	9,314,084	1,599,907	1,137,873	271,135	**12,322,999**	·791	·686	1,733,000	2,802,545	**16,858,544**	1·082	**13,265,753**	·981
Hydro													
Shannon		81,957	114,395	27,199	**223,551**	·151	·128	49,000	230,732	**503,283**	·339	**475,323**	·311
Erne		39,676	61,525	19,895	**121,096**	·110	·097	83,000	338,684	**542,780**	·494	**534,115**	·446
Liffey		28,064	33,806	9,442	**71,312**	·409	·287	24,000	76,171	**171,483**	·985	**157,969**	·785
Lee		22,418	21,773	6,900	**51,091**	·137	·165	52,000	244,890	**347,981**	·935	**337,223**	1·178
Clady		7,791	5,734	1,219	**14,744**	·305	·189	10,000	59,722	**84,466**	1·748	**81,708**	1.134
TOTAL—HYDRO STATIONS	—	179,906	237,233	64,655	**481,794**	·152	·131	218,000	950,199	**1,649,993**	·520	**1,586,338**	·483
TOTAL—ALL STATIONS	9,314,084	1,779,813	1,375,106	335,790	**12,804,793**	·683	·578	1,951,000	3,752,744	**18,508,537**	·987	**14,852,091**	·884
TRANSMISSION	—	112,876	363,303	144,479	**620,658**	—	—	675,000	1,119,509	**2,415,167**	—	**2,036,524**	—
	9,314,084	1,892,689	1,738,409	480,269	**13,425,451**	—	—	2,626,000	4,872,253				

Electricity purchased in bulk		**8,047**	—	**9,525**	—
General Administration:	£			
Generation	846,870			
Transmission	306,280	**1,153,150**	—	**1,103,603**	—
Total Cost		**22,084,901**	1·177	**18,001,743**	1·071
Transferred to Revenue Accounts:	£			
Non-Rural	**16,049,946**			**13,204,886**	
Rural	**6,034,955**			**4,796,857**	
		22,084,901		**18,001,743**	

*Recently Commissioned

Electricity (Non-Rural) Revenue Account for the Year ended 31st March, 1969

No. 2

	£	£	1967/68 £
Electricity Production Account		16,049,946	*13,204,886*
Distribution Charges:			
Operation and maintenance	2,020,483		
Reserve for depreciation and renewals	1,133,226		
Interest and capital repayments	1,930,229		
Supervision and local administration	1,195,163		
		6,279,101	*5,515,618*
General Administration:			
Salaries and wages	1,271,720		
Travelling expenses	81,692		
Stationery	40,059		
Telephones and postage	22,499		
Lighting and heating	18,258		
Rents and rates	40,266		
Insurance	121,754		
Professional fees	28,626		
Publicity	196,111		
Maintenance of office buildings and equipment	74,149		
Staff training	271,151		
Pensions	72,384		
General assets—interest and capital repayments	271,526		
General assets—depreciation	77,000		
Bad debts	21,997		
Sundry expenses	45,778		
	2,654,970		
Less apportionments charged to:			
Production Account	1,153,150		
Rural Revenue Account	517,966		
Capital Works and other accounts	288,351		
		695,503	*743,269*
Turnover Tax		250,745	*284,833*
Balance transferred to Profit and Loss Account		1,464,755	*1,636,277*
		£24,740,050	*£21,384,883*

	£	1967/68 £
Electricity Charges	24,540,644	*21,189,762*
Meter and Other Charges	199,406	*195,121*
	£24,740,050	*£21,384,883*

Electricity (Rural) Revenue Account for the Year ended 31st March, 1969

No. 3

	£	£	*1967/68* £
Electricity Production Account		6,034,955	*4,796,857*
Distribution Charges:			
Operation and maintenance	1,351,564		
Reserve for depreciation and renewals	1,380,774		
Interest and capital repayments	1,678,993		
Supervision and local administration	857,454		
		5,268,785	*4,776,010*
General Administration		517,966	*551,661*
Turnover Tax		62,295	*70,763*
		£11,884,001	*£10,195,291*

	£	1967/68 £
Electricity Charges	9,664,789	*8,466,231*
Meter and Other Charges	51,983	*46,713*
Balance transferred to Profit and Loss Account	2,167,229	*1,682,347*
	£11,884,001	*£10,195,291*

Profit and Loss Account for the Year ended 31st March, 1969

No. 4

	£	£	1967/68 £
Interest payable to the Minister for Finance	2,591,854		
Interest on E.S.B. Stocks (*less* temporary investment earnings) and on funded loan	3,228,169		
Stock management and transfer charges	36,449		
Other interest	1,515,336		
		7,371,808	6,560,932
Reserves:			
Repayment of capital advances from the Minister for Finance	871,733		
Repayment of funded loan	12,830		
Sinking fund provision for redemption of E.S.B. Stocks	1,422,730		
		2,307,293	2,167,722
		£9,679,101	£8,728,654
Balance transferred from Rural Revenue Account		2,167,229	1,682,347
Balance transferred to Net Revenue Account		—	248,875
		£2,167,229	£1,931,222

	£	1967/68 £
Interest and Capital Repayments allocated to:		
Production Account	4,872,253	4,330,695
Non-Rural Revenue Account	1,930,229	1,718,733
Rural Revenue Account	1,678,993	1,596,589
Administration	271,526	249,088
Fisheries Account	6,125	6,126
Installations Account	24,800	20,400
Merchandise Sales Account	17,500	18,400
Capital Works	877,675	788,623
	£9,679,101	£8,728,654
Balance transferred from Non-Rural Revenue Account	1,464,755	1,636,277
Miscellaneous revenue	114,890	89,134
Interest receivable	218,592	205,811
Balance transferred to Net Revenue Account	368,992	—
	£2,167,229	£1,931,222

Preservation and Operation of Fisheries for the Year ended 31st March, 1969

No. 5

	£	1967/68 £
Preservation, operation and other direct costs	73,090	54,476
Balance carried down	—	377
	£73,090	£54,853
Balance brought down	17,742	—
Salaries and sundry expenses	7,961	7,226
Fishery rates	4,984	3,979
Reserve for depreciation and renewals	3,000	3,000
General administrative expenses and interest	4,544	4,609
	£38,231	£18,814
Balance brought down	38,231	18,437
Capital repayments	1,681	1,617
	£39,912	£20,054

	£	1967/68 £
Sales of fish, letting of fishing rights and miscellaneous income	55,348	54,853
Balance carried down	17,742	—
	£73,090	£54,853
Balance brought down	—	377
Balance carried down	38,231	18,437
	£38,231	£18,814
Balance transferred to Net Revenue Account	39,912	20,054
	£39,912	£20,054

Installations Trading Account for the Year ended 31st March, 1969

No. 6

			1967/68				1967/68
		£	£		£	£
Cost value of work for which credit had not been taken at 31st March, 1968 ..		284,469	238,868	Credit taken for contracts completed and charged	825,570	716,924
Cost of installation work carried out during the year		794,738	620,392	Cost value of work for which credit has not yet been taken	399,934	284,469
Gross profit carried down		146,297	142,133			
		£1,225,504	£1,001,393		£1,225,504	£1,001,393
	£					
Salaries, wages and commission	52,747			Gross profit brought down	146,297	142,133
Travelling expenses	6,546					
Sundry expenses	9,857					
General administrative expenses and interest, as apportioned	41,121					
		110,271	98,495			
Balance transferred to Net Revenue Account		36,026	43,638			
		£146,297	£142,133		£146,297	£142,133

No. 7

Merchandise Trading Account for the Year ended 31st March, 1969

			1967/68				1967/68
		£	£		£	£	£
Cost of goods sold		1,564,819	1,380,812	Sales	2,072,700		
Direct costs in connection with sales		78,366	67,911	*Less* Turnover Tax	46,935		
Gross profit carried down		382,580	314,979			2,025,765	1,763,702
		£2,025,765	£1,763,702			£2,025,765	£1,763,702
	£						
Salaries, wages and commission	175,157			Gross profit brought down		382,580	314,979
Travelling expenses	21,019			Balance transferred to Net Revenue Account		—	5,586
Publicity	31,643						
Rents, rates and maintenance of property	22,734						
Sundry expenses	22,743						
General administrative expenses and interest, as apportioned	79,770						
		353,066	320,565				
Balance transferred to Net Revenue Account		29,514	—				
		£382,580	£320,565			£382,580	£320,565

Net Revenue Account for the Year ended 31st March, 1969

	£		£	£
Profit and Loss Account deficit	368,992	Installations trading surplus	36,026	
Fisheries deficit	39,912	Merchandise trading surplus	29,514	
				65,540
		Balance carried down		343,364
	£408,904			£408,904
Balance brought down	343,364	Balance brought forward from last year's account		76,359
Transfer to reserve for renewals, of credits (per contra) as additional provision for the renewal of plant	590,624	Credits arising consequent on the retirement of assets and the sale of scrapped material		590,624
Public Liability Reserve: Recoupment to reserve of amount utilised in year	2,198	Transfer from Contingencies Reserve		300,000
Balance carried forward	30,797			
	£966,983			£966,983

Statement of Repayable Capital and Redemption thereof to the 31st March, 1969

	Total Receipts to 31st March 1969	Redeemed			Balance Outstanding 31st March 1969
		Total to 31st March 1968	Redeemed during Year	Total to 31st March 1969	
	£	£	£	£	£
Minister for Finance:					
Advances under the Electricity (Supply) Acts and the Shannon Fisheries Act, 1935	**68,450,236**	10,836,022	871,733	11,707,755	**56,742,481**
Electricity Supply Board Stocks:					
5% redeemable 1966–1975	**10,000,000**	2,952,045	264,142	3,216,187	**6,783,813**
6% redeemable 1968–1978	**5,000,000**	803,668	159,754	963,422	**4,036,578**
6% redeemable 1982–1987	**12,000,000**	1,108,701	406,211	1,514,912	**10,485,088**
6% redeemable 1984–1989	**16,500,000**	1,455,071	514,695	1,969,766	**14,530,234**
7% redeemable 1986–1991	**13,000,000**	312,480	239,655	552,135	**12,447,865**
7¼% redeemable 1988–1993	**7,000,000**	—	—	—	**7,000,000**
Funded Loans and Loan Stocks:					
Local Authority Undertakings	**756,021**	756,021	—	756,021	—
New Ireland Assurance Co. Ltd.	**500,000**	62,910	12,830	75,740	**424,260**
	£133,206,257	£18,286,918	£2,469,020	£20,755,938	**£112,450,319**

No. 10

Statement of Capital Reserves at 31st March, 1969

	£	£	*1967/68* £
Non-repayable contributions from Minister for Finance under Electricity (Supply) Acts towards capital cost of supplying rural areas	13,998,826		
Other non-repayable contributions for capital works	2,750,139		
		16,748,965	*15,147,367*
Repaid Capital, less intangible assets written off		**18,760,810**	*16,291,790*
Provision for depreciation, renewal and retirement of physical assets, together with proceeds of sale of assets, less physical assets retired		**66,352,865**	*60,196,284*
Total Capital Reserves		**£101,862,640**	*£91,635,441*

No. 11

Statement of Capital Investment in Fixed Assets at 31st March, 1969

	Total at 31st March, 1968, less retirements	Expenditure less retirements during year.	Total at 31st March, 1969, less retirements
	£	£	£
Generation	73,716,218	482,160	**74,198,378**
Transmission	20,699,044	2,188,714	**22,887,758**
Distribution	78,212,815	5,937,678	**84,150,493**
General	4,910,816	332,196	**5,243,012**
Fisheries	111,652	—	111,652
	177,650,545	£8,940,748	**186,591,293**
Capital Works in Progress, including payments on account to contractors and others	12,105,689		**21,666,258**
Total Capital Investment in Fixed Assets	£189,756,234		**£208,257,551**

Balance Sheet as at 31st March, 1969

Liabilities and Reserves		£	31/3/68 £
Repayable Capital as per Statement No. 9		112,450,319	*114,286,658*
Capital Reserves as per Statement No. 10		101,862,640	*91,635,441*
		214,312,959	*205,922,099*
Loans under the Electricity Supply Board (Superannuation) Act, 1942		848,422	*89,163*
Short-Term Loans		6,000,000	*1,429,490*
	£		
Sundry Creditors and Provisions	10,464,648		
Hire Purchase Debts block discounted with Finance House (contra amount included in Sundry Debtors)	2,979,605		
		13,444,253	*7,395,749*
Electricity Supply Board Stock Sinking Funds (including interest due but unpaid)		1,362,872	*1,262,872*
Reserves:	£		
Contingencies reserve	1,450,000		
Plant, Self-Insurance — Special risks	500,000		
Others	75,000		
		2,025,000	*2,325,000*
Net Revenue Account—Surplus		30,797	*76,359*
		£238,024,303	*£218,500,732*

Note:
At 31st March, 1969, contractual capital commitments amounted to approximately £15,000,000.

Signed: T. Murray, *Chairman*

J. G. Gargan, *Secretary*

Assets	£	31/3/68 £
Fixed Assets as per Statement No. 11	208,257,551	*189,756,234*
Electricity Supply Board Stocks (nominal £3,137,421) at cost, held by the Munster and Leinster Bank Nominees Ltd., as depositaries of the Board	2,958,010	*2,246,069*
Sinking Fund Investments (nominal £1,365,695, market value £1,063,619) at cost	1,357,369	*1,257,369*
Stocks (at average cost), **Tools and Working Equipment** (at depreciated cost) on hand and in transit	6,715,773	*6,583,406*
Cost Value of Installation and Other Repayable Work in Progress	602,743	*411,674*
Sundry Debtors, advances for goods not yet delivered, accrued but unbilled revenue and hire purchase debt, less provision for bad and doubtful debts.	12,831,619	*11,762,099*
Temporary Cash Investment	5,000,000	*6,000,000*
Cash in Hand and with Banks	301,238	*483,881*
	£238,024,303	*£218,500,732*

Signed: L. J. Barry, *Chief Financial Officer*

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, 1969, and of the state of the Board's affairs as at that date.

KENNEDY, CROWLEY & CO.
CHARTERED ACCOUNTANTS.

HAINAULT HOUSE,
69–71 ST. STEPHEN'S GREEN,
DUBLIN 2.
7TH JULY, 1969

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

7 Particulars of generating plant

8 Performance of generating plant

9 Typical daily generation load curves

10 Transmission and distribution systems in commission

11 Progress of the rural electrification scheme

Inside back Cover

Weekly generation

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

Appendix 1

Areas and Towns supplied	Approximate population	No. of consumers at 31st March		Motive power Units sold year ended 31st March	
	thousands	1969	1968	1969 thousands	1968 thousands
ATHLONE	**189·4**	**44,622**	**43,817**	**40,224**	**36,900**
Town	51·0	12,252	12,079	28,622	26,718
Rural	138·4	32,370	31,738	11,602	10,182
CORK	**317·1**	**85,580**	**83,577**	**190,371**	**175,451**
Town	178·4	50,841	49,968	166,731	154,617
Rural	138·7	34,739	33,609	23,640	20,834
DUBLIN CITY	**488·2**	**136,036**	**135,480**	**217,422**	**204,477**
Town	488·2	136,036	135,480	217,422	204,477
DUBLIN NO. 2*	**384·2**	**108,781**	**102,299**	**224,576**	**197,748**
Town	300·3	88,791	83,243	191,771	167,431
Rural	83·9	19,990	19,056	32,805	30,317
DUNDALK	**222·8**	**59,131**	**57,858**	**142,767**	**132,733**
Town	78·3	21,997	21,375	108,497	100,243
Rural	144·5	37,134	36,483	34,270	32,490
GALWAY	**168·4**	**42,239**	**40,933**	**50,776**	**48,162**
Town	49·5	13,231	12,663	42,386	41,046
Rural	118·9	29,008	28,270	8,390	7,116
LIMERICK	**282·8**	**70,782**	**69,552**	**205,413**	**153,847**
Town	103·3	29,028	28,315	168,193	126,851
Rural	179·5	41,754	41,237	37,220	26,996
PORTLAOISE	**210·7**	**52,012**	**50,423**	**95,100**	**82,185**
Town	78·7	20,726	20,067	78,089	66,473
Rural	132·0	31,286	30,356	17,011	15,712
SLIGO	**251·1**	**69,762**	**67,970**	**28,459**	**24,898**
Town	46·7	13,292	13,027	12,485	11,265
Rural	204·4	56,470	54,943	15,974	13,633
TRALEE	**151·5**	**37,245**	**36,408**	**27,484**	**22,866**
Town	29·9	8,227	7,976	10,632	8,477
Rural	121·6	29,018	28,432	16,852	14,389
WATERFORD	**217·8**	**59,023**	**57,113**	**177,217**	**149,389**
Town	100·1	28,345	27,494	152,692	127,470
Rural	117·7	30,678	29,619	24,525	21,919
GROSS TOTALS	**2,884·0**	**765,213**	**745,430**	**1,399,809**	**1,228,656**
TOWN	1,504·4	422,766	411,687	1,177,520	1,035,068
RURAL	1,379·6	342,447	333,743	222,289	193,588

* District divided into Dublin South and Dublin North-West from April 1969.

Appendix 2

GROWTH OF ELECTRICITY SALES AND NUMBER OF CONSUMERS

The following table shows, quinquennially from 1930 to 1955 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	60·9	43·2	478	2·66	48,606
1935	206·1	157·0	1,258	1·92	103,037
1940	407·0	318·6	1,946	1·47	172,545
1945	406·3	319·0	2,458	1·85	228,008
1950	784·8	626·2	4,774	1·83	310,639
1955	1,461·7	1,192·2	9,522	1·92	461,901
1956	1,573·1	1,306·6	10,465	1·92	509,546
1957	1,647·7	1,352·6	11,555	2·05	547,910
1958	1,774·8	1,424·6	12,903	2·17	570,345
1959	1,898·2	1,549·4	13,784	2·14	590,921
1960	2,096·0	1,692·2	14,724	2·09	610,946
1961	2,262·3	1,863·6	16,263	2·09	628,241
1962	2,453·0	2,005·1	17,731	2·12	642,753
1963	2,714·9	2,238·5	19,445	2·08	659,932
1964	2,900·8	2,375·9	20,383	2·06	678,054
1965	3,240·2	2,682·6	22,488	2·01	697,491
1966	3,546·2	2,953·3	24,077	1·96	716,113
1967	3,851·0	3,238·1	26,690	1·98	726,561
1968	4,246·4	3,570·1	29,898	2·01	745,430
1969	4,749·0	4,012·3	34,457	2·06	765,213

ANALYSIS OF UNITS SOLD

Appendix 3

Class of Supply	Year ended 31st March, 1969 (millions)	Year ended 31st March, 1968 (millions)	Increase (millions)	Percentage increase
DOMESTIC				
General supply	1,638·3	1,459·0	179·3	12·3
Night space heating	152·7	122·2	30·5	25·0
	1,791·0	1,581·2	209·8	13·3
COMMERCIAL				
Lighting	156·2	142·5	13·7	9·7
Heating, cooking and water heating	274·2	255·5	18·7	7·3
Motive power	161·2	144·3	16·9	11·7
Night space heating	178·7	163·3	15·4	9·4
Public lighting	44·0	41·1	2·9	7·2
Miscellaneous	103·7	94·9	8·8	9·3
	918·0	841·6	76·4	9·1
INDUSTRIAL				
Maximum demand	1,123·4	976·7	146·7	15·0
Lighting	15·4	14·1	1·3	9·3
Heating, cooking and water heating	40·6	39·8	0·8	1·7
Motive power	114·6	107·3	7·3	6·8
Night space heating	9·3	9·4	−0·1	−1·7
	1,303·3	1,147·3	156·0	13·6
TOTAL	4,012·3	3,570·1	442·2	12·4

DISTRIBUTION AT HIGH TENSION OF UNITS GENERATED FOR YEAR 1968/69

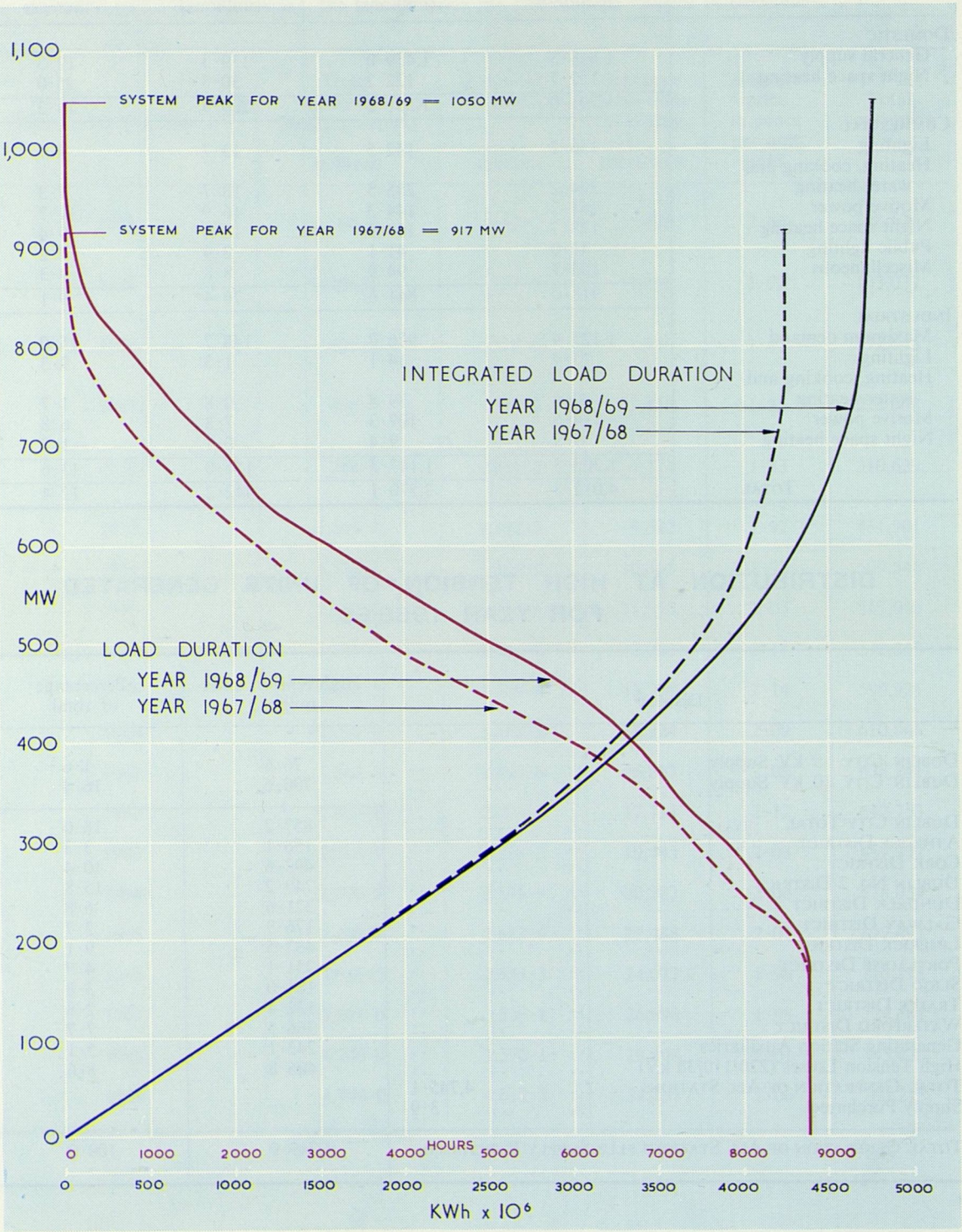
Appendix 4

District		High tension units millions	Percentage of total
DUBLIN CITY 5 kV Supply		76·6	1·6
DUBLIN CITY 10 kV Supply		780·6	16·4
DUBLIN CITY TOTAL		857·2	18·0
ATHLONE DISTRICT		156·1	3·3
CORK DISTRICT		493·6	10·4
DUBLIN NO. 2 DISTRICT		749·2	15·8
DUNDALK DISTRICT		321·6	6·8
GALWAY DISTRICT		176·9	3·7
LIMERICK DISTRICT		433·5	9·1
PORTLAOISE DISTRICT		231·1	4·9
SLIGO DISTRICT		181·0	3·8
TRALEE DISTRICT		132·4	2·8
WATERFORD DISTRICT		366·5	7·7
Generating Station Auxiliaries		243·1	5·1
High Tension Losses (220/110/38 kV)		406·8	8·6
TOTAL GENERATION OF ALL STATIONS	4,745·1		
Supply Purchased	3·9		
TOTAL GENERATION OF ALL STATIONS PLUS SUPPLY PURCHASED		4,749·0	100·0

Appendix 5

GENERATION LOAD DURATION AND INTEGRATED LOAD DURATION CURVES

Year ended 31st March, 1969



GENERATION STATISTICS FOR THE YEAR 1968/69

Appendix 6

Station	Year 1968/69			Year 1967/68
	Generated million units	Station use million units	Sent out million units	Sent out million units
Ardnacrusha	358·9	2·9	356·0	366·7
Cliff	76·0	0·6	75·4	84·0
Cathaleen's Fall	189·9	1·8	188·1	203·2
Carrigadrohid	24·5	0·4	24·1	18·2
Inniscarra	65·9	0·7	65·2	50·5
Pollaphuca	21·4	0·9	20·5	22·8
Golden Falls	8·4	0·1	8·3	9·0
Leixlip	13·1	0·1	13·0	16·5
Clady	11·7	0·1	11·6	17·3
Ferbane	412·5	29·5	383·0	215·5
Rhode	301·0	20·0	281·0	216·2
Bellacorick	176·5	11·7	164·8	85·8
Shannonbridge	207·3	12·3	195·0	150·8
Lanesborough	276·0	14·9	261·1	126·5
Portarlington	159·2	9·9	149·3	120·3
Allenwood	190·0	11·0	179·0	140·3
Cahirciveen	8·6	0·9	7·7	5·1
Miltown-Malbay	5·2	0·7	4·5	2·5
Screeb	3·5	0·4	3·1	1·7
Gweedore	25·9	1·8	24·1	13·1
Pigeon House	1·8	2·8	—1·0	23·4
North Wall	22·0	3·1	18·9	89·9
Ringsend	1,099·9	60·4	1,039·5	1,364·0
Marina	400·7	20·2	380·5	529·8
Arigna	64·4	4·1	60·3	72·5
Great Island	620·8	31·8	589·0	88·6
Purchased	3·9	—	3·9	4·8
Totals	4,749·0	243·1	4,505·9	4,039·0
Maximum daily generation, million units			19·2	16·8
Maximum load generated in kW			1,050,000	917,000

PARTICULARS OF GENERATING PLANT

Hydro Stations

Station	River	Catchment area sq. kms.	Average available head metres	Average annual generation million units	Generating sets No.	Generating sets Capacity each kW	Type of turbine
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

Pumped Storage Station

Station	Location	Mean gross head metres	Annual Operating Time	Average annual generation million units	Generating Sets No.	Generating Sets Capacity each kW	Type of Units
TURLOUGH HILL (under construction)	Upper reservoir Turlough Hill, lower reservoir Lough Nahanagan Co. Wicklow.	287	1,300 hours approx.	325	4	73,000 **292,000**	Reversible Pump-Turbines

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 3	30,000 60,000 **270,000**	600 1,150	850 950	Estuarine	4 3	200 550	P.F. and Oil-fired Oil-fired	Coal or Oil Oil
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

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
Arigna	Co. Roscommon	1	**15,000**	400	800	Lake	1	165	P.F.	Coal
Lanesborough	Co. Longford	1 1	20,000 40,000 **60,000**	400 900	800 950	River	1 1	220 380	Mech. Stoker P.F.	Sod Peat 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	Co. Wexford	2	60,000 **120,000**	1,150	950	Estuarine	2	520	Oil-fired	Oil
Great Island (under construction)		1	120,000 **240,000**	1,800	995/995		1	835		
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	1,800	995/995	Estuarine	2	835	Oil-fired	Oil
		2	14,000 **268,000**	Gas turbine sets						

PERFORMANCE OF GENERATING PLANT

Year ended 31st March, 1969

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
		millimetres	m³/sec	m³/sec	%	metres	m³	kW	millions	%	pence
ARDNACRUSHA	Shannon	1,080	203·2	179·1	93·5	28·2	15·7	85,000	356·0	48·3	0·339
POLLAPHUCA	Liffey	829	9·2	6·9	100	48·3	10·1	30,000	20·5	8·2	0·985
GOLDEN FALLS		829	9·2	7·4	100	16·6	27·9	4,000	8·3	24·0	
LEIXLIP		836	14·5	11·1	95·8	17·7	26·4	4,000	13·0	37·5	
CLIFF	Erne	1,042	91·9	86·2	100	12·1	35·8	20,000	75·4	43·5	0·494
CATHALEEN'S FALL				90·4	100	29·8	15·0	45,000	188·1	48·3	
CARRIGADROHID	Lee	1,356	22·3	21·6	98·0	14·6	28·5	8,000	24·1	35·0	0·935
INNISCARRA		1,328	28·8	27·6	97·2	32·7	13·2	19,000	65·2	39·7	
CLADY	Clady	1,475	3·4	2·8	95·8	—	7·5	4,000	11·6	33·5	1·748

The percentage utilisation of the total discharge is exclusive of river compensation water, and of the draw-off from the Rivers Liffey and Lee for water supply to local authorities as listed herewith:—

Dublin Corporation draw-off from Pollaphuca Reservoir which averaged 19·9 million gals. per day (1·05 m³/sec)
Dublin Co. Council draw-off from Leixlip Reservoir which averaged 5·1 million gallons per day (0·27 m³/sec)
Cork Co. Council draw-off from Inniscarra Reservoir which averaged 0·34 million gallons per day (0·018 m³/sec).

Shannon and Erne rainfall represent average of catchment area.

** Based on discharge through sets*

PERFORMANCE OF GENERATING PLANT

Year ended 31st March, 1969

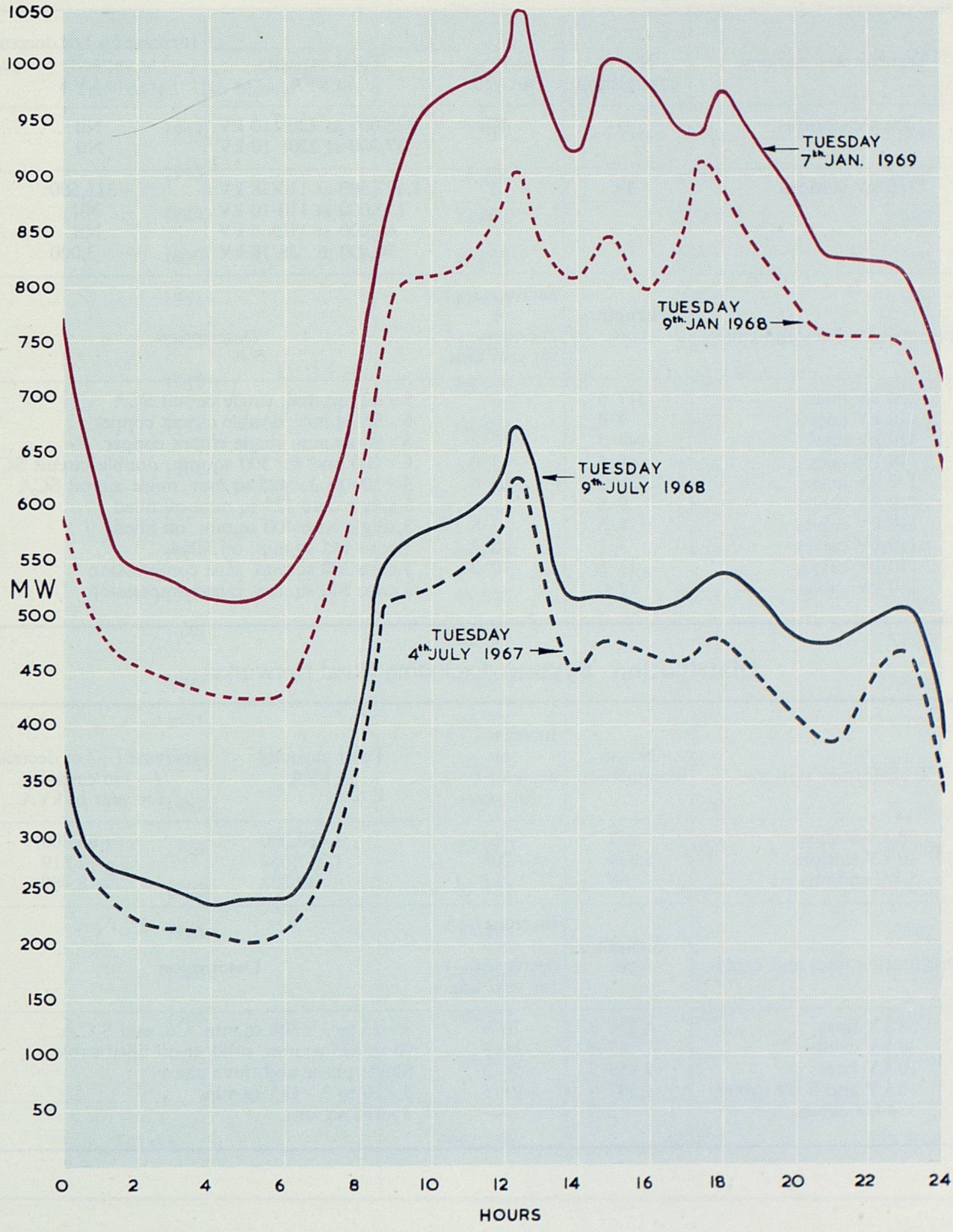
Steam Stations

Station	Location	Installed capacity kW	Units sent out millions	Plant load factor %	Fuel type	Total fuel used tons thousands	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	—	—	Coal Oil	0·5 0·9	—	—	—
North Wall (Peak Station)	Dublin City	48,000	18·9	5·2	Oil	8·2	—	—	—
Portarlington	Co. Laoise	37,500	149·3	48·6	Sod Peat	174·0	601,878	0·967	1·466
Allenwood	Co. Kildare	40,000	179·0	54·4	Sod Peat	204·6	710,283	0·952	1·493
Marina	Cork City	120,000	380·5	38·2	Oil	103·6	717,798	0·453	0·922
Ringsend	Dublin City	270,000	1,039·5	46·6	Oil	285·5	1,801,705	0·416	0·790
Ferbane	Co. Offaly	90,000	383·0	52·5	Milled Peat Oil	673·8 4·8	1,271,564	0·797	1·269
Four 5 MW Stations	West Coast	20,000	39·4	24·7	Sod Peat	59·0	184,281	1·122	2·583
Lanesborough	Co. Longford	20,000 40,000	99·3 161·8	59·4 49·3	Sod Peat Milled Peat Oil	95·8 236·8 3·1	334,712 441,192	0·809 0·654	1·210 1·165
Arigna	Co. Roscommon	15,000	60·3	49·2	Coal Oil	37·6 0·3	195,919	0·780	1·464
Rhode	Co. Offaly	80,000	281·0	43·1	Milled Peat Oil	516·9 1·8	949,399	0·811	1·337
Bellacorick	Co. Mayo	40,000	164·8	50·5	Milled Peat Oil	287·7 1·4	525,437	0·765	1·324
Shannonbridge	Co. Offaly	40,000	195·0	59·3	Milled Peat Oil	291·1 1·0	521,024	0·641	1·091
Great Island	Co. Wexford	120,000	589·0	60·0	Oil	149·0	996,647	0·406	0·712

Milled and sod peat tons are for equivalent standard fuel of 55% and 30% moisture content respectively.

TYPICAL DAILY GENERATION LOAD CURVES

Appendix 9



Appendix 10

TRANSMISSION AND DISTRIBUTION SYSTEMS IN COMMISSION
At 31st March, 1969

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	3	Nil	378,000 at 220/110 kV 47,000 at 220/ 10 kV	Nil Nil
110 kV stations	39	5	1,577,500 at 110/38 kV 155,000 at 110/10 kV 60,000 at 110/ 6 kV 70,400 at 38/10 kV	+311,500 Nil Nil — 3,000

Transmission lines and cables	Length kms.	Increase (+) or decrease (−) for year kms.	Description
220 kV lines	277·5	—	3×425 sq.mm. single circuit SCA
110 kV lines	7·4	—	6×95 sq.mm. double circuit copper
110 kV lines	744·3	−17·2	3×95 sq.mm. single circuit copper
110 kV lines	85·4	+ 2·0	6×200 and 6×300 sq.mm. double circuit SCA
110 kV lines	2,225·2	+85·6	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	4·8	+3·8	3 single core 400 sq.mm. oil filled
110 kV cables	3·2	+0·2	3 core 185 sq.mm. oil filled
110 kV cables	13·6	+0·2	3 core 300 sq.mm. pipe compression
110 kV cables	12·0	—	3 core 500 sq.mm. pipe compression

Distribution System (Excluding Rural Networks)

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	257	+14	1,480,200	+95,700
10 kV stations	5,834	+208	1,217,658	+72,819
5 kV stations	68	−7	48,223	−8,480

Distribution lines and cables	Length kms.	Increase (+) or decrease (−) for year km.	Description
38 kV lines	4,236·8	+70·9	3×35 to 3×300 sq.mm. Cu. and S.C.A.
38 kV cables	187·5	+16·9	96 to 625 sq.mm. solid or oil filled cable.
10 kV lines	5,959·3	+54·3	Single phase and three phase.
10 kV and 5 kV cables	1,507·6	+91·5	3×10 to 3×185 sq.mm.
3·3 kV cables	3·7	—	3×185 sq.mm.

PROGRESS OF THE RURAL ELECTRIFICATION SCHEME

Appendix 11

Poles	Poles erected	kms. of line strung	Consumers connected
Year ended 31st March			
1947	1,300	63	Nil
1948	15,986	1,160	2,203
1949	32,002	2,783	9,262
1950	40,972	3,352	13,688
1951	42,423	3,591	15,803
1952	46,008	3,967	18,067
1953	48,059	4,345	18,818
1954	68,382	6,065	23,477
1955	91,391	7,998	27,316
1956	112,616	9,994	34,257
1957	91,794	8,277	34,627
1958	61,696	5,371	17,725
1959	50,113	4,345	14,997
1960	47,982	4,171	13,458
1961	43,757	3,738	11,570
1962	30,155	2,651	9,515
1963	22,062	1,962	8,829
1964	29,616	2,497	10,820
1965	27,737	2,414	11,773
1966	21,219	1,820	9,882
1967	11,034	915	4,742
1968	16,665	1,284	8,075
1969	14,187	1,144	8,725
TOTALS	967,156	83,907	327,629

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, 1969.

Development

The number of salmon in the River Shannon and its tributaries continued to increase. Since 1962, the first year in which the beneficial effects of the Board's development programme became apparent, the recorded run of salmon has averaged 46,500 per annum, an increase of 70% over the average run for the previous 12 years. The higher income derived from the increased salmon catches by the netsmen in the Shannon estuary makes an important contribution to the economy of the local community. The Board desires to record its appreciation of the co-operation it is receiving from the netsmen and anglers who, by furnishing returns of their catches of salmon specially marked to identify them as fish which had been reared in and released from the Board's hatchery at Parteen, are enabling the Board to evaluate the success of its rehabilitation policy.

The future of the salmon and the livelihood of those engaged in estuarine fishing is seriously threatened by two new factors apart from the present salmon disease, namely, the continued exploitation of immature salmon on their feeding grounds in international waters and the steady expansion of drift net fishing around the west coast of Ireland. These two problems require urgent regulation if the salmon fisheries are to develop to their full potential. The Board continues to invest in the development and conservation of the salmon stocks of the Shannon system, but if this stock is to be over exploited before it reaches its home rivers, the level of this investment will require to be reviewed.

The Board considers that the eel potential of the Shannon offers a most attractive development opportunity. Large quantities of elvers are now been trapped in estuarine tributaries and restocking of all lakes in the Shannon system is in progress. Protracted negotiations with certain long line fishermen in the midlands were successfully concluded and the Board is satisfied that the groundwork has now been laid for significant increases in sales and stocks of the valuable silver eel. The Board's eel catch was again a record and it is planned to construct a number of new eel weirs.

Exceptional results were obtained in the first year of coarse fish clearance from Pollaphuca Reservoir. Over 100,000 perch and quantities of large pike were removed with the active support of the local angling clubs. The first restocking of Pollaphuca with trout fingerling from the Board's rearing station will take place in the autumn of 1969 and it is hoped in this way to provide a valuable recreational amenity close to Dublin City.

Salmon Disease

Ulcerative dermal necrosis continued to affect the Rivers Shannon, Erne, Lee and Liffey fisheries. Only the River Clady has escaped so far. The number of diseased fish observed was less than in previous years and it is possible that the incidence of the disease was less severe than previously. The number of dead fish removed was small, but figures can be misleading in view of the fact that flood conditions which prevail in the autumn

prevent an accurate assessment of the full extent of the disease.

Despite the improved run of salmon in the River Erne, very few redds were reported on the spawning grounds in Northern Ireland and the disease may be much more severe there than the number of diseased salmon suggests.

Young salmon again showed no signs of disease and on the Shannon the valuable stock of brown trout, eels and coarse fish appeared to have escaped infection.

The research and co-ordinating committees set up by the Minister, on which the Board is represented, continued to study the problem. Although the causative organism has not yet been identified, the research has provided much valuable information, particularly in the field of fish culture treatments, and the Board notes the progress made with proposals for an increased national effort to restock diseased rivers. Trials at Parteen rearing station in conjunction with the Veterinary Research Laboratory and Fisheries Division, Department of Agriculture and Fisheries, showed that the impact of the disease can be limited in controlled conditions, by the use of chemical treatments.

Hatcheries and Rearing Stations

Fisheries Division acted as a central agency for the importation of salmon ova from disease free sources. The Board received the following allotment:

Canadian	50,000
Icelandic	360,000
Irish Sources	253,000

This supplemented the ova produced almost entirely from the Board's own hatchery salmon at Parteen and Carrigadrohid.

The ova were hatched at:

Hatchery	*Salmon Ova*
Shannon (Parteen)	1,696,000
Lee (Carrigadrohid)	322,000

Fry and smolts were distributed in the following rivers and tributaries: Mulcair and Newport, Brosna, Little Brosna, Suck, Maigue, Kilmastulla, Inny, Shannon and Lee.

It will be noted that it was again necessary to restock the Mulcair and its tributary, the Newport River. Disease seriously affected the spawning stocks in these rivers.

The Board is now restocking the River Shannon with 200,000 smolts annually in addition to ova. At the request of Fisheries Division, 5,000 were tagged as part of Ireland's contribution to the international tagging programme designed to evaluate the effects of the Greenland fishing.

River Lee

The hydro-electric development on this river seriously affected the stock of salmon. Over the last few years a number of experimental measures has been taken to improve the stock and to study the underlying reasons for the continued reduced run of salmon. Ulcerative dermal necrosis, which first appeared in the Lee in 1966, added a further complication to the problem and following a review of progress, it was decided to undertake further tests on smolt survival above the hydro dams. It is hoped that the data now becoming available will make possible firm long term plans for the permanent rehabilitation of this fishery.

Commercial Fishing

Salmon: Commercial fishing was again carried out on the Rivers Shannon, Erne and Clady. Sales of salmon continued at a high level in 1968 and realised £26,000.

On the River Erne weather conditions and the pattern of running of the generating stations resulted in abnormally high catches by netsmen in the estuary—15,286 compared with 5,710 the previous year. The number of fish reaching the Board's commercial fishing station was correspondingly reduced.

The Board's conservation policy has resulted in the continued improvement in the run of salmon on the River Clady and, although commercial netting has been restricted in the interest of the stock, the local employment position has been maintained.

Eels: The catch of silver eels on the River Shannon surpassed the previous record of 1967, but, because of lower prices, the revenue was unchanged at £26,000. Experimental work to improve techniques is being carried out.

Angling: Interest in salmon angling on the Shannon continued to grow. The exceptionally fine summer weather militated against angling on the Mulcair, despite heavy stocks of fish. Castleconnell, where water levels are not subject to summer drought, again gave excellent results. The first organised group of continental anglers fished in the Board's waters in the Limerick area and their visit was highly successful. It is hoped, in co-operation with local interests, to encourage further similar visits.

Counting of Salmon

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

	1968	1967
River Shannon		
Thomond Weir, Limerick	17,352	19,547
Ardnacrusha Fish Pass	6,238	5,663
Parteen Fish Pass	611	1,507
River Lee		
Inniscarra Fish Pass	81	92
Carrigadrohid Fish Pass	7	28
River Erne		
Cathaleen's Fall Fish Pass	8,690	6,036
River Clady		
Gweedore Weir	750	721
River Liffey		
Leixlip Weir	559	1,118

Financial

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

Revenue at £55,348 was only marginally up on the previous year but expenditure on preservation and development of fisheries amounted to £95,260, an increase of £20,353.

The Board gratefully acknowledges the assistance received from the officers of Fisheries Division, from the Ministry of Agriculture for Northern Ireland, the Inland Fisheries Trust Incorporated, and from the Boards of Conservators and local angling clubs.

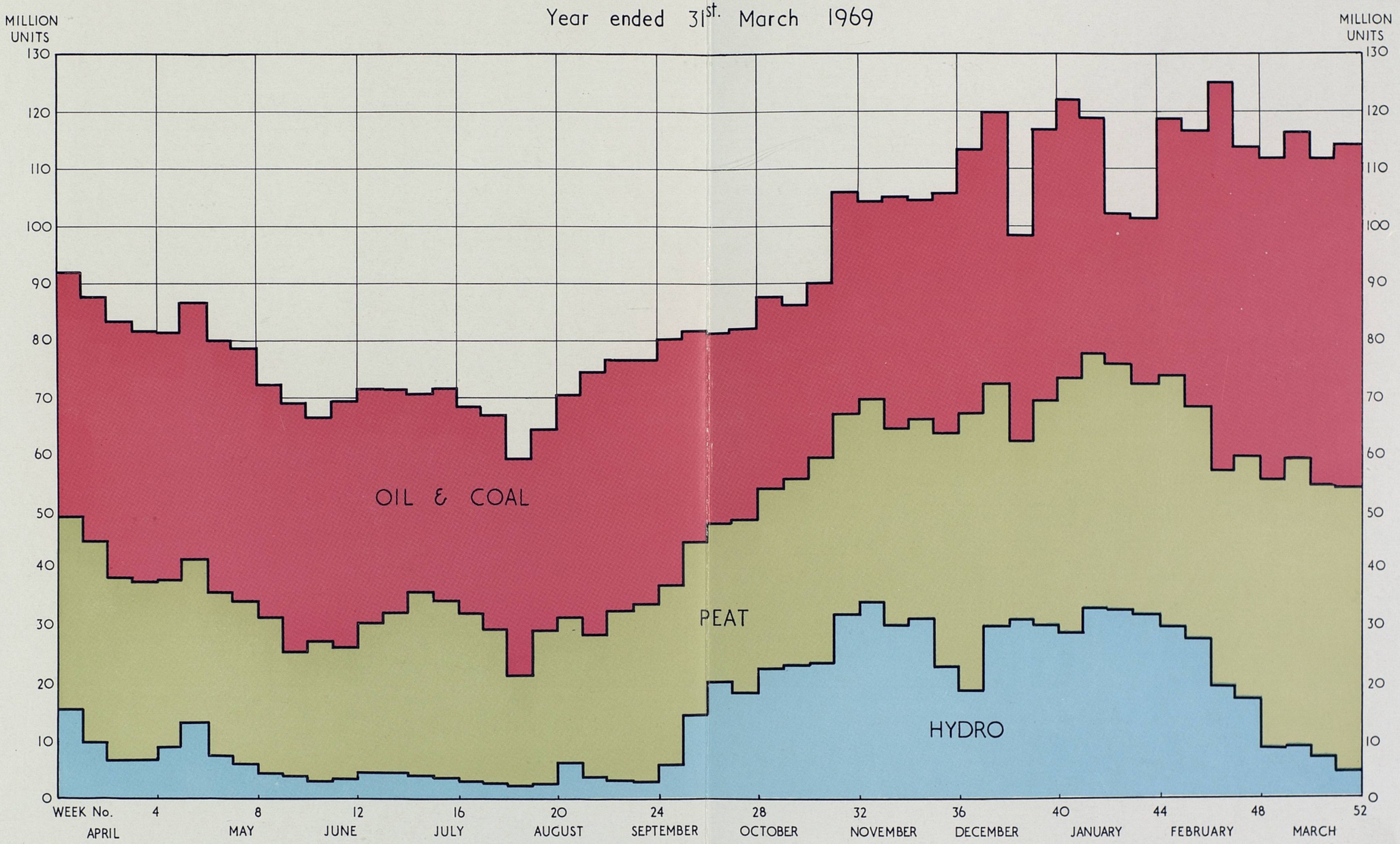
(Signed) *T. Murray,* CHAIRMAN
C. Gordon Lambert
T. MacMahon
Breandán Ó Cearbhaill
J. A. Ryan

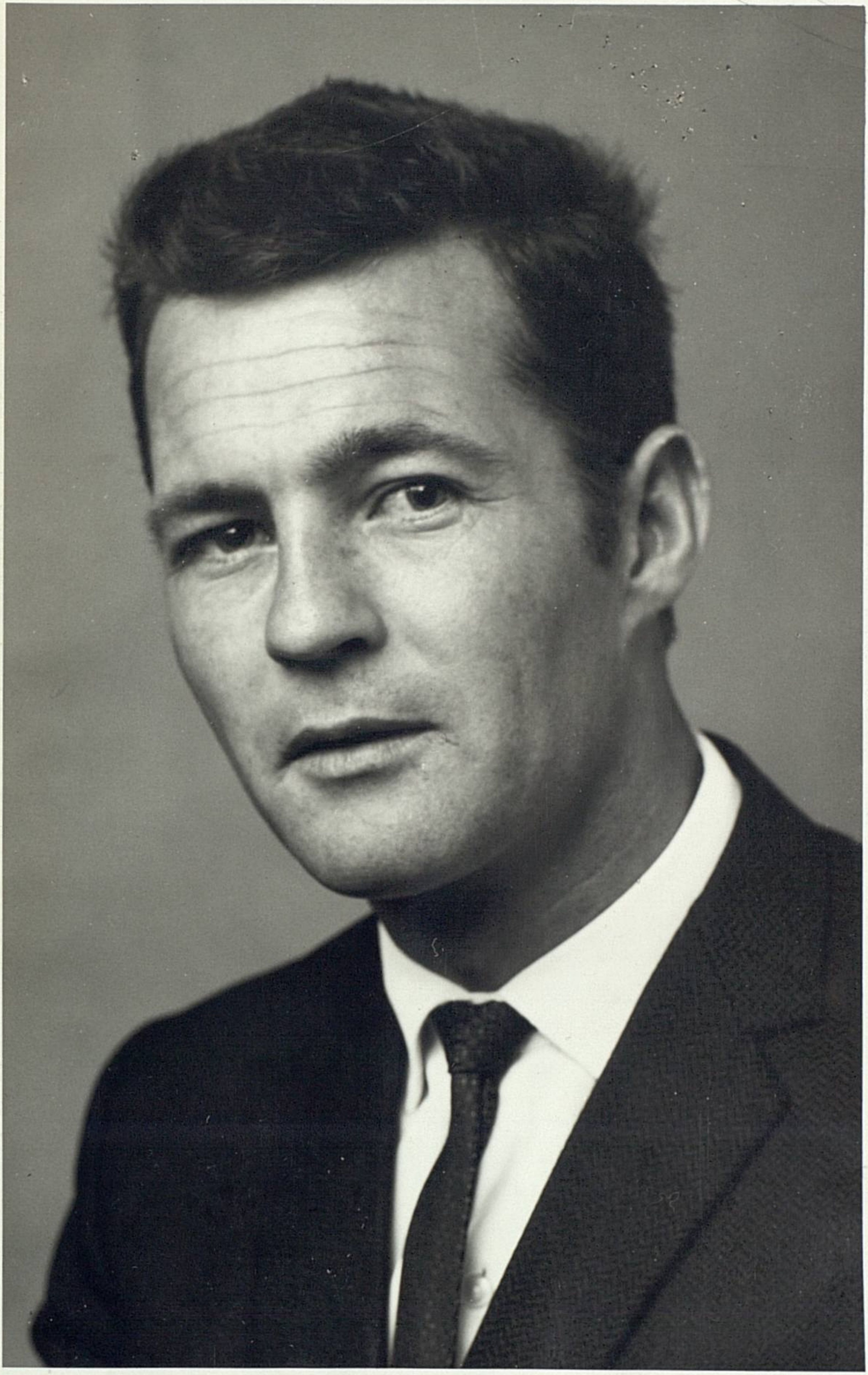
(Signed) *J. G. Gargan,* SECRETARY
11th July, 1969

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WEEKLY GENERATION

Year ended 31st. March 1969





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