

Forty fifth Annual Report
For year ended 31st March 1972

ELECTRICITY SUPPLY BOARD IRELAND

ELECTRICITY SUPPLY BOARD - Lr. Fitzwilliam Street - Dublin 2 - IRELAND

Board Members

T. MURRAY, B.A., Chairman

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

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

B. O CEARBHAILL, B.A., LL.B.

J. A. RYAN, M.A.

Chief Executive

J. J. KELLY, M.E., F.I.E.I., F.I.Mech.E.

Directors

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

Personnel **P. J. MORIARTY,** F.C.I.S.

Commercial **M. J. SHIEL,** B.E., B.Sc., M.I.E.E.

Generation-Transmission **S. TINNEY,** B.E., B.Sc., M.I.E.E.

Secretary

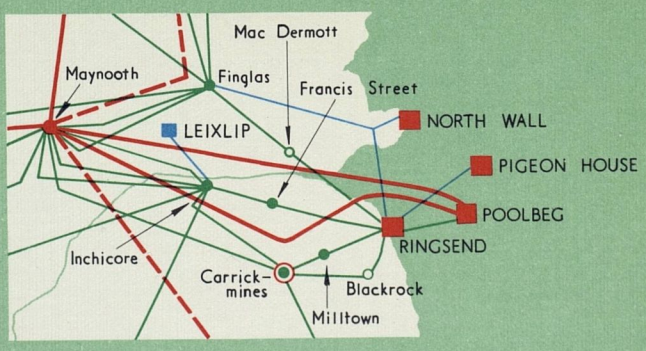
J. G. GARGAN, B.L., F.C.C.A .

GWEEDORE
CLADY
Letterkenny
CATHALEEN'S FALL
CLIFF
Sligo
BELLACORICK
ARIGNA
Carrick-on-Shannon
Shankill
To E.B.N.I
Louth
Dundalk
Castlebar
LANESBOROUGH
Navan
Drybridge
Platin
Mullingar
Finglas
Maynooth
Athlone
SHANNON-BRIDGE
RHODE
Inchicore
SCREEB
ALLENWOOD
FERBANE
Newbridge
Derryfrench
Tynagh
Galway
PORTARLINGTON
Carrick-mines
GOLDEN FALLS
POLLAPHUCA
Portlaoise
Carlow
TURLOUGH HILL
Ennis
MILTOWN MALBAY
Arklow
Ahane
Shelton Abbey
ARDNACRUSHA
Killonan
Thurles
Kilkenny
Limerick
TARBERT
Rathkeale
Wexford
Charleville
Cahir
Waterford
GREAT ISLAND
Tralee
Butlerstown
Fermoy
Mallow
Dungarvan
CAHIRCIVEEN
Macroom
Kilbarry
Knockraha
CARRIGADROHID
INNISCARRA
MARINA
Haulbowline
Whitegate
Trabeg
Ringaskiddy
Raffeen
Dunmanway
Bandon
See inset 1 below for details
See inset 2 below for details

INSET 1



INSET 2



General outline of the

GENERATION and TRANSMISSION SYSTEMS

31st March 1972

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
NORTH/SOUTH INTERCONNECTION No. 2

Significant Facts

REVENUE	1971–72	1970–71
Electricity	£51,967,000	£44,082,000
Appliance Sales	£2,552,000	£2,124,000
Installations	£1,539,000	£1,390,000
Net Revenue	£34,000	—£2,593,000
ASSETS	£286,291,000	£258,358,000
SALES		
(in millions of units)	5,272	4,862
GENERATION CAPACITY (MW)	1,678	1,438
PEAK DEMAND (MW)	1,290	1,203
LOAD FACTOR	55.3%	55.1%
NO. OF CONSUMERS	818,516	805,736
NO. OF EMPLOYEES	11,800	12,138

(Cash figures are rounded off to the nearest thousand)

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To the Minister for Transport and Power

The Board presents the Annual Report and Accounts for the year ended 31st March, 1972 in accordance with the Electricity (Supply) Acts, 1927-70.

Significant events during the year 1971/72 included:

- A down-turn in growth rate for the first time in a number of years
- Reports by the E.S.B. Investigating Committee set up by the Government (under the Chairmanship of Mr. J. Fletcher) and by the National Prices Commission
- Marked progress in the industrial relations field. This included a major agreement for re-structuring of the administrative/accounting and associated staff, including the negotiation of a three-year peace clause
- A European Unit of Account Issue in Luxembourg
- A successful Issue on the home market of £12 million
- Purchase of the first 250 MW turbo-generator units.

The year was a difficult one for the Board. For the first time in eight years, the growth rate fell to a level of 7.6%. This figure contrasts with an average annual growth rate of 10.4% during the seven years to 31st March, 1971. This reduction in growth rate coincided with a continuing increase in the costs of supplying electricity – an increase which affected all the major cost elements, viz. fuel, pay-roll and capital charges. The financial outcome for the year reflects these adverse trends.

Two exceptional and non-recurring gains enabled the Board to avoid closing the year with a deficit in the region of £1.1 million. These items were as follows:

1. A proportion of the Board's capital requirements is obtained in loans repayable in foreign currencies. Under an arrangement with the Central Bank, part of this indebtedness has been re-negotiated to a corresponding indebtedness to the Bank repayable in Irish pounds over the years 1972 to 1987. This resulted in a deferment in the year under review of £510,000 in loan sinking fund charges.
2. Non-recurring rebates received for turf and oil – £327,000.

The increase in loss carried forward is £249,200. The deficit brought forward from 1970/71 was £1,069,053, and the accumulated deficit brought forward to 1972/73 is £1,318,253.

The character of the electricity supply industry makes the maintenance of an adequate contingency reserve essential to assist in maintaining stability in rates of charge, and in maintaining a sound financial position, as required by the Electricity (Supply) Acts. The Board's contingency reserve which it had carried throughout the years was exhausted in the financial year 1970/71.

A major problem which now concerns the E.S.B. is that of paying its way. The Board is obliged, under existing Statutes, to pay its way fully, including providing for repayment of capital and interest and for depreciation. Under current constraints it has been prevented from so doing.

In November, 1971 the Board sought the Minister's agreement to an increase in rates of charge, to be effective from 1st January, 1972. This was referred by the Minister to the National Prices Commission who, in turn, deferred a decision until the Report of the Investigating Committee had been received. Meantime, deficits continued to accumulate and the Board found it necessary to make a revised application for an increase of 15%, to be effective from 1st August, 1972. A further factor was the expectation that the rate of growth will continue at the reduced level experienced last year.

As an interim measure the Minister, acting on the advice of the Prices Commission, has informed the Board that it could increase its rates of charge by 9% from 1st June, 1972. The Board is still compelled, therefore, to operate in a continuing deficit situation, at a time when growth rate is diminishing and costs are rising.

The Report of the E.S.B. Investigating Committee (the Fletcher Committee) is a significant document at this stage of the Boards' development. The Committee, whose findings are, overall, complimentary to the Board's performance and planning, notes that in real money terms the price of electricity has been reduced by 35% over the past decade. In certain areas, however, – for instance, in the matter of staffing – the Report points out that levels appear to be higher than those obtaining generally in Europe. The Board was aware of this fact (which, as the Report pointed out, had developed for social/traditional reasons) and the Committee acknowledges that corrective action was already well in hand. In other areas, the Board is studying the recommendations and, on matters within its competence, it will act as quickly as possible.

Many of the recommendations involve matters of national policy and require Government re-direction, or even new legislation. This applies in particular to that part of the Report which deals with the Board's financial obligations under the 1927 Act. The proposed change from a "break even" concept to a "return on net assets" basis would require an amending Act. The Board's view is that such a change would neither reduce the price of electricity nor provide an adequate index of performance.

Substantial progress was made in industrial relations, despite two unofficial strikes. An outstanding development was the negotiation of a three year agreement for administrative/ accounting and associated staff, incorporating a peace clause which provides that strikes and other forms of industrial action will not be resorted to by this category of staff during the term of the agreement. This represents a refreshing break-through in industrial relations. A comprehensive agreement for other staffs has been agreed in principle and the detailed negotiation is now in progress.

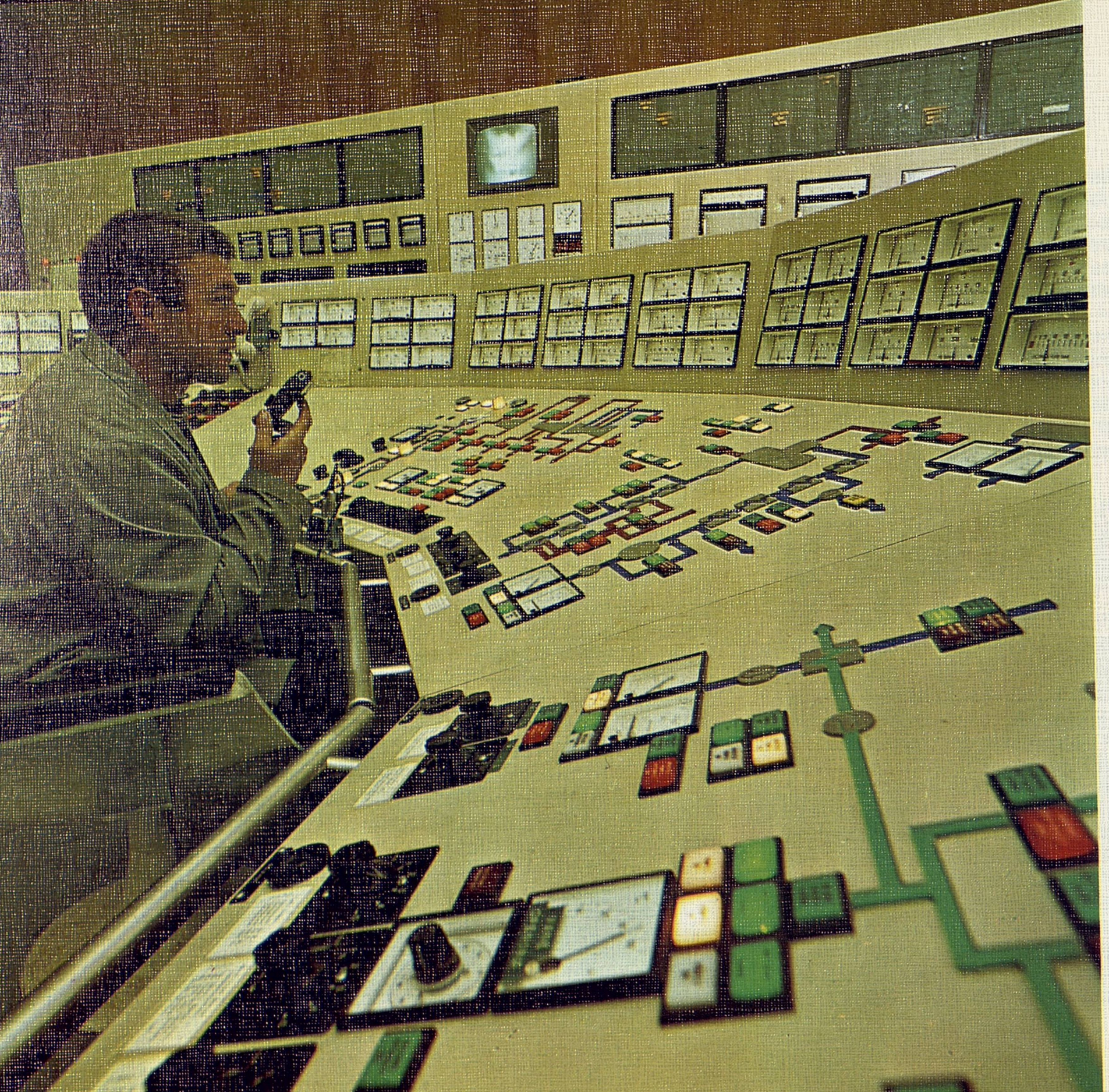
The growth in total installed capacity enabled the Board to order its first 250 MW generating units. Because of their better operating efficiencies, these will assist the Board in its constant battle against inflationary pressures.

The Board is concerned to ensure effective diversity of fuel sources, because of the ever-growing dependence on oil. Proposals for nuclear development are well-advanced, but these will be held pending the receipt of further information on the availability of natural gas or oil, on shore or in territorial waters.

The Board had two very successful Stock Issues during the year. These were a 15 million European Unit of Account Issue in May, 1971 and a £12 million Issue on the home market in March, 1972. The Unit of Account Issue was the first public offering on the Board's behalf on the international market and was very well received. The Managing Underwriters were: Kredietbank S.A. Luxembourgeoise; Credit Commercial de France; The Investment Bank of Ireland Limited; Westdeutsche Landesbank Girozentrale; and White, Weld and Co. Limited. A further loan of $15 million for Tarbert 4 Extension was negotiated with the International Bank for Reconstruction and Development (World Bank).

Rural Electrification has been scheduled for completion by 1975. The bulk of new connections now being made are in the least economic areas where heavy capital costs are involved. Under existing legislation consumers in these areas are frequently required to contribute substantially to the cost. This often leads to misconceptions regarding the Board's role – an example of the conflict of social and commercial obligations. If the present arrangement were to be changed, new legislation would be required as the Board is not empowered to pass on to consumers generally the extra cost of bringing supply to individual isolated dwellings.

Despite temporary set-backs, the Board looks to the future with optimism. The standard and quality of electricity supply is being constantly improved. The cost of electricity in Ireland has been kept amongst the lowest in Europe. Satisfactory progress is being made in industrial relations. The structure of the Board is sound. The only item which could undermine it would be a continuing series of deficits, through delays in necessary price adjustments.



The control centre at the Poolbeg Generating Station.

Electricity Production

A determining factor in all the E.S.B.'s activities is the constantly increasing demand for electricity which in recent times has been averaging 10% per annum. Production was up again this year from 5,921 million units to 6,234 million units, an increase of 5.3%. *(See footnote)*

The constant annual increase in generation results in a growing dependence on imported fuel oil and a relatively smaller use of native fuel. This year the proportion of generation from fuel oil increased to 62.1% of all generation. Generation from native sources provided 37.9% of total output compared with 45.7% in 1970/71 and 49.7% in 1969/70. While output from the peat stations almost reached that of last year, output from the hydro stations, due to lack of rain, was only about two thirds of normal. (The accompanying diagram illustrates the comparative sources of electricity supplied to the system).

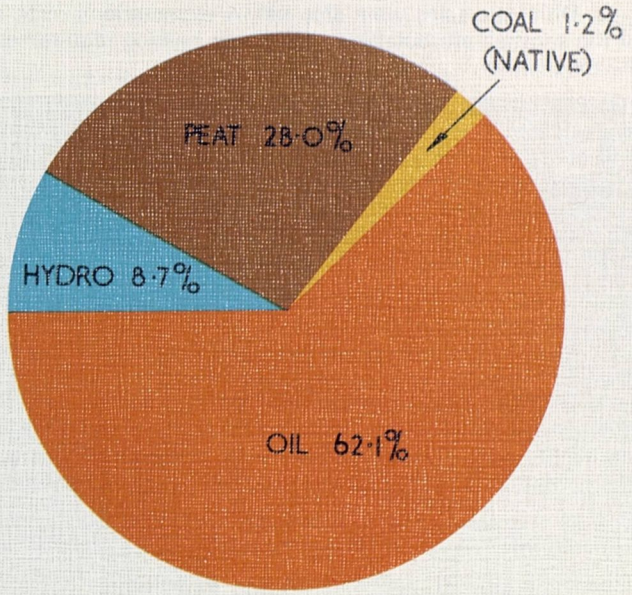
Any increase in generation from native sources would have to come from natural gas or oil, if sufficiently large deposits are discovered.

The total installed capacity of the Board's generating stations is now as follows:

hydro plant	**219**	**MW**
steam plant (sod peat)	**117.5**	**MW**
steam plant (milled peat)	**290**	**MW**
steam plant (coal/oil)	**1,023**	**MW**
gas turbine plant (oil)	**28**	**MW**
	1,677.5	**MW**

This total includes 90 MW (name plate rating) of old stand-by plant at Pigeon House which gives a firm capacity of 60MW, and the four 5 MW stations designed to burn hand-won peat.

Footnote: The quoted increase of 5.3% is based on a comparison of a 53-week accounting year in 1971 with a 52-week year in 1972. If the comparison is made on the basis of the first 52 weeks in 1971, the increase is 7.6%.



Electricity Sales

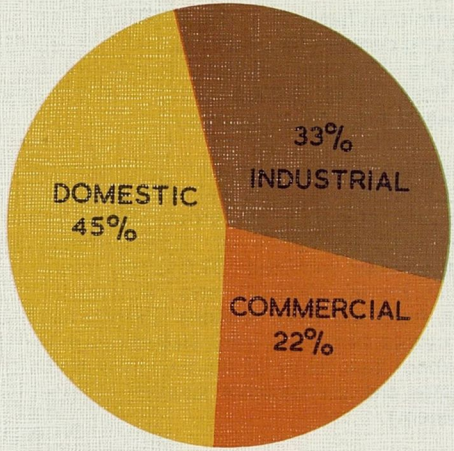
Despite the general setback in the economy during the year, electricity sales continued to show an increase, though not to the extent which could have occurred under more normal conditions. Total electricity sales in 1971/72 were 5,272 million units, an increase of 8% over the previous year. This compared with an increase of 10% in 1970/71. The sector increases were domestic 7.9%, industrial 11.4%, and commercial 5.1%. Growth in commercial unit sales was lower than expected and was undoubtedly affected by the fall-off in tourist trade during the year. Domestic sales were also below expectations, with much of the shortfall attributable to the lower heating requirements of the mild winter.

The Board's marketing activities during the year were directed towards the development of uses of electricity which improve the utilisation of plant. Of particular importance in this field are off-peak applications of electricity for heating and other purposes. As a result of these efforts the annual load factor (the ratio of average demand to peak demand) continues to improve and is now 55.3%.

Electric water heating systems in the urban domestic sector have grown from an ownership level of 28% of consumers in 1966 to 38% in 1971. The Electricaire central heating system is a popular choice for central heating in new homes and this year over 1,300 new installations were connected, an increase of 54% on the number connected last year. Public lighting sales have also developed well during the year with a significant increase in the sale of all-night street lighting controlled by photocell.

During the year a series of seminars was held for students in agricultural colleges on the applications of electricity on the farm.

Increasing use of electricity on the farm makes a significant contribution towards the raising of standards of living and the improvement of overall agricultural productivity.



Trading

Appliance Trading

The Board's sales of electrical appliances amounted to £2,439,653 compared with £2,030,846 last year. The gross profit amounted to £488,464, a rate of 20.02%. The Appliance Trading Account having been charged with overhead expenses and interest on working capital showed a net profit of £12,629 compared with a loss of £117,538 in 1970/71.

The abolition of hire purchase restrictions at the end of October, 1971 provided the opportunity for a substantial increase in turnover. Sales for the second half of the year, £1,583,680, were 42.5% up on the corresponding period in 1970/71.

Considerable savings were made in many areas during the year and these, together with the improved contribution from the larger turnover, resulted in the achievement of a profitable outcome.

If the economic climate permits the increased level of growth to be maintained, the Board looks forward to an improving surplus in the current year.

Installations Trading

The value of installations contracts completed amounted to £1,538,582 compared with £1,390,137 in the previous year. The gross profit was £237,158 representing a rate of 15.41%. The Installations Trading Account, having been charged with overhead expenses and interest on working capital, showed a net profit of £21,565.

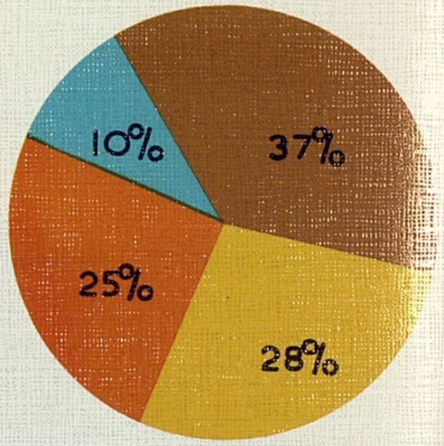
Interior of new E.S.B. shop in Douglas Shopping Centre, Cork.





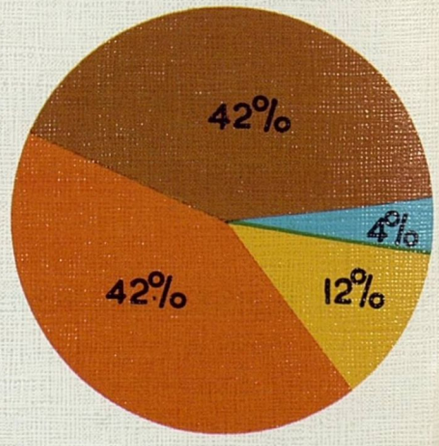
In Washington, Mr. J. J. Kelly, Chief Executive, E.S.B. (second from right) signs an agreement in connection with a World Bank Loan to help finance the extension to the Tarbert Generating Station. Also in the picture are (from left) Mr. Maurice Horgan, Alternate Executive Director of World Bank for Ireland; Mr. Sean F. Murray, Assistant Secretary of the Department of Finance, Ireland; Mr. J. Burke Knapp, Vice President of World Bank; and Mr. L. J. Barry, Director (Finance), Electricity Supply Board.

EXPENDITURE



Capital Charges incl. Depreciation
Payroll
Fuel
Materials, Transport and Services

CAPITAL INVESTMENT IN FIXED ASSETS



Distribution
Generation
Transmission
General and Fisheries

Finance

Revenue and Expenditure

Revenue from the sales of electricity and miscellaneous revenue totalled £52,206,616, an increase of £7,981,659 over the previous year. Expenditure incurred was £52,110,191, an increase of £5,426,852 over the figure for 1970/71.

Having charged the expense of the stock issues, there is a debit balance of £186,481 which increases the debit balance carried forward to 1972/73 to £1,255,534.

The summarised Revenue and Expenditure figures are as follows:

	Year Ended 31st March, 1972	Preceding Year
	£	£
Fuel	12,946,688	11,489,732
Payroll and other direct costs	19,810,586	17,495,339
Capital Charges including Depreciation	19,352,917	17,698,268
	52,110,191	46,683,339
Revenue (including miscellaneous revenue)	52,206,616	44,224,957
	96,425 (Surplus)	2,458,382 (Deficit)

Taking credit for profits from installations and appliance sales and deducting the net cost for preservation and operating of fisheries and the expenses of stock issues, the result for the year was a deficit of £249,200 as shown in the Net Revenue Account (No. 7).

Capital Borrowing

The capital expenditure in the year was financed by

(a) internal resources, arising mainly from provisions for depreciation and capital contributions,
(b) the issue of redeemable public stocks in the home market,
(c) a Unit of Account Issue in Luxembourg,
(d) loans from the World Bank and short term credits for the construction of major plant, and
(e) borrowings brought forward from the previous year.

The Electricity (Supply) (Amendment) Act, 1971 authorises a capital expenditure not exceeding £450 million for general purposes, including rural electrification. At the 31st March, 1972, the Board had approved expenditure totalling £336,680,785 of which £255,653,589 represented electricity assets in commission, the balance of £81,027,196 representing either work in progress or work approved.

Capital Expenditure

The growth in demand for electricity continues to call for a high level of capital investment in new assets. The value of such assets brought into commission this year was £39,590,068 of which £3,301,055 related to rural electrification. Total investment in assets in productive use at 31st March, 1972 was:

	£
Generation	107,588,836
Transmission	31,800,134
Distribution (includes Rural £50,274,974)	107,211,397
Premises and general assets	9,053,222
	255,653,589

In addition, expenditure of £30,637,805 was incurred on capital works still under construction at the end of the year. Accordingly, the fixed capital investment is £286,291,394. The asset construction programme to meet the planned 10% growth rate requires a heavy investment each year.

Major Construction Works

Several major building projects were under way during the year which are considered sufficient to provide for immediate needs. Additional generating plant will, however, be necessary and choice of the type of plant to be built is part of the Board's continuous planning activity.

The main object of the planning is to use available fuels, either conventional or nuclear, to the best advantage having regard to cost, origin, reliability of supply, environmental effects, and development of associated plant. The Board is keeping its options open by having sufficient trained staff, by preparing alternative plans and by a close analysis of all fuel sources matched to future requirements.

The following generating projects were completed or under construction:

Great Island Station, Co. Wexford (Oil Fired) 1 – 120 MW Set

Erection of the boiler and turbine units was completed in March, 1972, ready for commissioning somewhat behind schedule, due to late delivery of major items of plant.

Tarbert Station, Co. Kerry (Oil Fired) 2 – 250 MW Sets

The contracts for the supply and erection of the structural steelwork had been placed and fabrication had commenced. The contract for site development was ready for issue and the tenders for the main civil engineering contract were under examination.

Studies of the cooling water system were carried out in the hydraulic laboratory.

The turbine units and some of the main auxiliary plant had been ordered.

Scheduled completion dates 1975 and 1976.

Poolbeg Station, Dublin City (Oil Fired) (Formerly named Pigeon House 'B' Station) 2 – 120 MW Sets

The first set was commissioned in August, 1971 and the second set in December, 1971. Construction work was completed apart from minor details.

Shannonbridge Station, Co. Offaly (Milled Peat Fired) 1 – 40 MW Set

The contracts for the boiler and turbine units were placed in 1970 and work continued on this station.

Scheduled completion date 1975/1976.

Turlough Hill Pumped Storage Scheme, Co. Wicklow. 4 – 73 MW Sets

Tunnelling and power station cavern excavation were completed and construction of the power station structures was in progress. Lining of the pressure shaft between the power station and the upper reservoir was approaching completion. The power station tail-race tunnel and gate structures were concreted and outlet control structures at the lower reservoir were completed.

Installation of the fixed elements of three of the four pump-turbine units had commenced.

Excavation of the upper reservoir and construction of its embankments were completed and work continued on the reservoir drainage system and asphaltic lining.

The main structure of the administration building was built and work on the 220 KV switchyard was well advanced.

Work progressed satisfactorily on the mechanical and electrical plant contracts and erection was well advanced.

The Turlough Hill project is one of the largest civil engineering works ever undertaken in this country. It involves specialised work of a difficult nature and in spite of the many problems encountered on the site, the work has been carried out to programme. Scheduled completion date is 1973/74. The final cost of the project is estimated at £19.5 million.

Shannon Navigation

Work on the improvement of navigation conditions between Lanesboro and Tarmonbarry was nearing completion.

Research and Maintenance

Studies of the utilisation of existing water power resources and possible future developments continued, including the use of hydraulic model experiments.

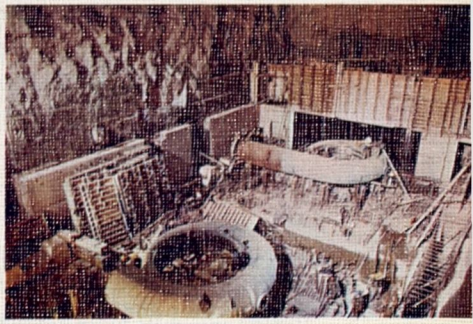
In addition to the normal work of maintenance of the Board's installations, the periodic special inspection and report on the state of dams and embankments was made to confirm the satisfactory condition of the structures. A delegation of the U.K. branch of ICOLD (the international body which co-ordinates practice in the construction and maintenance of large dams) visited the Boards hydro stations.



Above: work in progress on site at Turlough Hill.

Below: grading the embankment of the upper reservoir and a general view of the cavern which will house the generating units.





Distribution

Investigations have been carried out into the future methods of supplying electricity to Dublin and its environs. Rapidly growing areas, such as Tallaght, present special problems regarding load projection and siting of transformer stations and lines, but close co-operation with the Local Authority planners has been established and this will result in more logical planning and development of our networks. During the year a new method was introduced, using a computer programme, to produce five-year plans for the development of the 10kV networks in other cities and major towns. It is proposed to update these plans annually according to the best available estimates of anticipated demand. The plans will enable the best use to be made of manpower and financial resources. This planning process will be reviewed continually with a view to improving its accuracy as far as possible.

During 1967 URD – a specialised underground residential distribution system – was introduced for supply to new housing developments. The system, based on USA practice, and using underground transformers, enabled 10kV supply to be brought to urban housing developments at reasonable cost. At that time the conventional low tension underground system was much more expensive, due principally to the use of indoor substations and expensive installation and jointing costs associated with standard lead covered paper insulated copper cables.

In the period since 1967 the cost of conventional low tension underground systems has been substantially reduced due to various developments, including the availability of a new 400KVA unit type transformer station of extremely compact design, the introduction of plastic insulated solid aluminium low voltage cables and service mini–pillars. A recent cost/benefit analysis, which took cognisance of some operational problems associated with URD, dependance on the purchase of specialised equipment from outside sources, and the need for conventional three phase low voltage distribution in existing built-up areas, has led to a decision to phase out the extension of existing URD schemes and to standardise on the unit substation with low tension aluminium cables as the method of supply to housing developments.

During the year, Roinn na Gaeltachta and the local co-operative societies on Cape Clear and Tory Islands went ahead with their local electricity supply undertakings and the E.S.B., as contractors, erected the networks and advised on the building of the engine houses and installation of the diesel generators.

Rural Electrification

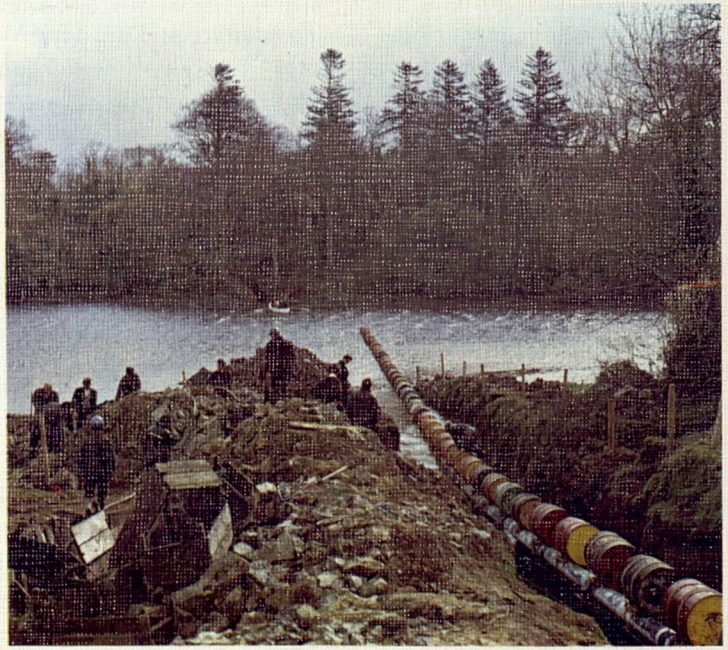
In the middle of the year under review the work programme for rural electrification was altered consequent on the new legislation

referred to in the last report. Government subsidy totalling £10 million is being made available in conjunction with a plan to cover all 792 areas once again in the period up to March, 1975. For a limited period only in each area, applications for subsidised supply are being invited by canvass or advertisements, after which periods the areas are closed to supply on subsidised terms. This approach is necessary to complete the programme by early 1975.

In the first half-year of the operation of the new plan 68 areas were the subject of advertisements or canvass and were closed. A high proportion of applicants are now accepting terms quoted.

The total number of new rural consumers connected in the year was 11,058. Capital expenditure was £3,720,251 bringing the total invested in the rural electrification scheme to £51,716,026 of which £18,739,826 was by way of Government subsidy.

Cable laying at the Garavogue River to provide underground supply to a factory.



One of the new compact unit type transformer stations sited in a residential area.



Premises

The continuing expansion of the Board's activities gives rise to additional cost in the provision of premises.

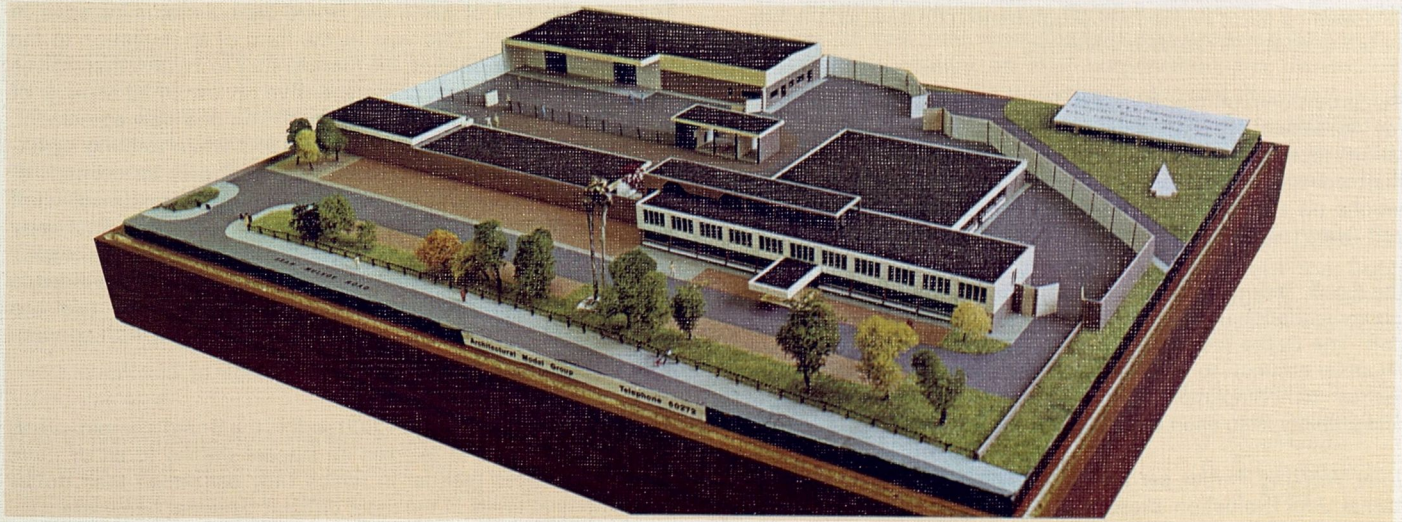
During the year a new Portlaoise District Headquarters, to provide additional accommodation, was constructed on the site of the old premises. Work on the new Headquarters for Waterford District was well advanced and it will be ready in September. Planning had reached the final stages for new District Headquarters for Galway and Dublin South Districts and a large Operation Centre in Sligo. Operations Centres were completed at Ballymun and Parnell Road, Dublin, for Dublin North West and Dublin City Districts respectively.

A model of the new District Headquarters planned for Galway.

New Consumer Service Centres were opened at Killarney, Achill, Newcastlewest and Carrigaline and shop units were leased in Shopping Centres at Stillorgan, Dublin and Douglas, Cork.

The need to provide houses for key staff required to live near generating stations is a continuing one and a further twenty were completed. Thirty more were at the planning stage.

Work is in progress on thirty-six other projects and sixty are at various planning stages.



Personnel Relations

For the first time in many years total manpower was reduced slightly. Recruitment of new employees was curtailed. Future emphasis will be on more efficient manpower utilisation through training and development of individual skills to avail fully of the potential of existing employees.

The new Manpower Planning Unit of Personnel is concerned with projecting future requirements of staff to ensure an adequate supply of the required skills and to provide stable employment for all staff without the upsets of terminations or redundancy associated with an unplanned manpower situation.

New training and development programmes and new techniques are being added as research advances.

The provisions of the National Employer/Labour Conference Pay Agreement were applied to all staff by agreement with their various representative organisations. A major productivity agreement covering Engineering staff was concluded and negotiations on a similar agreement for Clerical and Administrative staff were satisfactorily concluded shortly after the year end.

The E.S.B. Industrial Council dealt with 68 claims and all of its recommendations were accepted by both the Board and the staff. The Board feels that the Council has proved to be a very valuable adjunct to the ordinary negotiation machinery and wishes to compliment the Council on achieving general acceptability in so short a time.

Joint Working Parties set up to investigate the introduction of formal Job Evaluation presented reports which recommended pilot studies in locations which would volunteer. These studies have commenced.

During the year there were two serious power crises arising from unofficial strikes. One was about the recognition of a new Union to cater for Electricians and the other concerned the grading of shift workers. Both of these events are now history and they may well prove to have finally brought home to everyone the need to develop a new approach to the total question of industrial relations in so vital an industry.

Towards the end of 1971 the Board took a major initiative in industrial relations. This was in the form of an invitation to the Trade Unions representing the manual staff to involve themselves and their members in a comprehensive review of all aspects of employment preparatory to the negotiation of a new agreement, to come into effect on the 1st April, 1973 when existing agreements run out. This initiative is far reaching in its concept of the conduct of industrial relations, the participation of staff and the matching of benefits with concessions. The early reaction of Trade Unions has been constructive and helpful. The Board is hopeful that an atmosphere of trust and confidence has been created from which a code of industrial relations conduct will emerge to solve problems peacefully with concern for the public welfare.

At the year end there were 11,800 staff in the Board's employment. The Board wishes to express its sincere thanks to all of them for the dedicated manner in which they performed their duties particularly at times in the most difficult personal circumstances.

Fisheries and Environment

The Board continued its commitment to the improvement of fisheries affected by hydro-electric development and expenditure under this heading, together with water pollution control on an increasing scale, amounted to £144,286.

The financial results for the year are shown in Account No. 4.

Carrigadrohid rearing station, which was in partial production during the year, was officially opened by the Parliamentary Secretary to the Minister for Agriculture and Fisheries in February. It has proved highly successful.

A detailed report of the Board's activities on Fisheries and Conservation is being published separately.

A major problem in planning is the effect which new construction work may have on the environment. The difficulty is one of finding a balance between cost and efficiency and the preservation of clean air and natural amenities. If one wants electricity one has to build generating stations and associated transmission and distribution systems and no country in the world has yet overcome the problem of having to build overhead lines. In this regard the Board welcomes the advice and co-operation of conservation experts and, indeed, has itself sought this help, for instance in the case of Turlough Hill, where the services of an internationally prominent landscape consultant were employed to assist in preserving the natural appearance of the site area.

The air pollution survey of the Dublin area, started two years ago, continued, and considerable progress was made in processing data on smoke and SO_2 collected by the Board's twenty four monitoring stations. Co-operation and exchange of information on this subject has been maintained with Department of Local Government, the Institute for Industrial Research and Standards and the Meteorological Service. A joint project with the latter has been undertaken in the instrumentation of the transmitting mast at R.T.E., Donnybrook to study atmospheric inversions in Dublin.

The Board's overall objective is not only to preserve amenities but, wherever possible, to improve on them for public enjoyment, as for instance in the opening up of the Turlough Hill area by construction of a new scenic road.

The Board's Fisheries Office began a programme of discussion during the year with various groups and interested bodies in all parts of the country on joint conservation and development work. Arrangements for the creation of a wild life refuge on the Blessington Lakes were nearing completion. Considerable work has also been done on pollution detection and control on rivers and lakes under the Board's control and this work will be intensified in the coming years.

The biological survey of the Liffey estuary and Dublin Bay which is being carried out in conjunction with the Dublin Port and Docks Board and Dublin Corporation is continuing and interim results are expected shortly although the survey will necessarily continue for some time.

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

(Signed) *J. G. Gargan,* Secretary
18th July, 1972

Accounts for year ended 31st March, 1972

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Electricity Production Account

No. 1

Generation	Fuel £	Operation £	Maintenance £	Supervision and Local Administration £	Works Cost 1971/72 £	Works Cost 1970/71* £	Depreciation and Renewals £	Total Cost 1971/72 £	Total Cost 1970/71* £
Coal/Oil									
Marina	862,834	247,847	128,031	36,416	**1,275,128**	997,065	179,000	**1,454,128**	1,176,065
Ringsend	2,300,299	448,030	307,446	70,869	**3,126,644**	2,506,074	393,000	**3,519,644**	2,897,074
Arigna	409,602	93,811	45,799	11,320	**560,532**	453,295	30,000	**590,532**	483,295
Great Island	841,555	195,014	165,616	35,257	**1,237,442**	998,287	200,000	**1,437,442**	1,198,287
Tarbert	1,104,014	153,778	98,635	34,764	**1,391,191**	1,167,736	247,000	**1,638,191**	1,420,736
Poolbeg	668,751	110,320	51,945	37,865	**868,881****	—	257,000	**1,125,881****	—
Sod Peat (Machine)									
Portarlington	636,786	170,584	155,636	21,336	**984,342**	986,603	49,000	**1,033,342**	1,035,603
Allenwood	780,463	191,601	169,860	24,564	**1,166,488**	1,170,164	74,000	**1,240,488**	1,244,164
Lanesborough	437,421	115,100	33,433	9,934	**595,888**	540,135	32,000	**627,888**	572,135
Milled Peat									
Ferbane	1,447,390	265,540	234,498	42,734	**1,990,162**	1,974,014	178,000	**2,168,162**	2,151,014
Rhode	1,269,642	202,098	159,278	39,139	**1,670,157**	1,660,194	145,000	**1,815,157**	1,804,194
Bellacorick	538,989	160,102	134,595	24,080	**857,766**	901,834	80,000	**937,766**	981,834
Shannonbridge	569,911	137,563	67,645	22,349	**797,468**	735,311	90,000	**887,468**	825,311
Lanesborough	608,740	127,432	45,291	19,869	**801,332**	680,257	90,000	**891,332**	770,257
Sod Peat (Hand-won)									
Four 5 MW Stations	225,428	126,453	56,172	6,857	**414,910**	344,203	42,000	**456,910**	386,203
Peak Station									
North Wall	211,590	127,570	64,907	18,124	**422,191**	393,330	93,000	**515,191**	486,330
Stand-by									
Pigeon House	33,273	128,703	63,363	19,091	**244,430**	289,290	54,000	**298,430**	349,290
Total – Fuel Stations	12,946,688	3,001,546	1,982,150	474,568	**18,404,952**	15,797,792	2,233,000	**20,637,952**	17,781,792
Hydro									
Shannon	—	110,608	187,838	33,806	**332,252**	285,768	49,000	**381,252**	334,768
Erne	—	58,049	92,080	28,616	**178,745**	156,530	80,000	**258,745**	236,530
Liffey	—	44,539	51,467	16,419	**112,425**	100,334	22,000	**134,425**	122,334
Lee	—	35,431	33,973	11,665	**81,069**	69,910	52,000	**133,069**	121,910
Clady	—	14,356	11,736	1,138	**27,230**	22,678	10,000	**37,230**	32,678
Total – Hydro Stations	—	262,983	377,094	91,644	**731,721**	635,220	213,000	**944,721**	848,220
Total – All Stations	12,946,688	3,264,529	2,359,244	566,212	**19,136,673**	16,433,012	2,446,000	**21,582,673**	18,630,012
Transmission	—	148,150	349,689	226,978	**724,817**	712,530	911,000	**1,635,817**	1,529,530
	12,946,688	3,412,679	2,708,933	793,190	**19,861,490**	17,145,542	3,357,000		

Electricity purchased in bulk		**22,764**	9,028
Interest and Debt Amortisation:	£		
Generation	5,382,070		
Transmission	1,823,358		
		7,205,428	6,562,319
Central Transport and Stores (as apportioned)		**49,176**	—
	£		
General Administration (as apportioned):			
Generation	1,610,431		
Transmission	474,743		
		2,085,174	1,837,741
Total Cost Transferred to Electricity Revenue Account		**£32,581,032**	£28,568,630

*Includes Central Transport and Stores (as apportioned)
**Recently commissioned.

No. 2

Electricity Revenue Account

	£	£	1970/71 £
Electricity Production Account		32,581,032	28,568,630
Distribution Charges:			
Operation and maintenance	5,184,330		
Depreciation and renewals	3,160,000		
Interest and debt amortisation	5,170,947		
Supervision and local administration (including Central Transport and Stores as apportioned)	3,964,886		
		17,480,163	15,835,238
General Administration:			
Payroll	2,185,425		
Travelling expenses	130,350		
Board members' remuneration (including full time Chairman)	10,190		
Stationery	71,535		
Telephones and postage	42,850		
Light and heat	36,952		
Rents and rates	101,726		
Insurance	208,754		
Legal and other professional fees	63,866		
Audit fee	11,000		
Publicity	232,626		
Maintenance of office buildings and equipment	302,727		
	£		
Staff training	671,677		
To local administration	369,858		
	301,819		
Pensions	157,494		
General assets – interest and debt amortisation	525,527		
General assets – depreciation	123,000		
Bad debts	55,420		
Sundry expenses	91,738		
	4,652,999		
Less apportionments charged to:			
Production Account	2,085,174		
Capital Works and other accounts	383,036		
		2,184,789	1,942,332
Turnover Tax		53,192	476,927
		£52,299,176	£46,823,127

	£	1970/71 £
Electricity Revenue	51,967,000	44,081,978
Balance transferred to Profit and Loss Account	332,176	2,741,149
	£52,299,176	£46,823,127

Profit and Loss Account

No. 3

	£	£	1970/71 £
Interest payable to the Minister for Finance	2,469,768		
Interest on E.S.B. Stocks and on other loans (less temporary investment earnings)	6,726,111		
Stock management and transfer charges	32,872		
Other interest	1,937,176		
		11,165,927	9,921,512
Amortisation of Debt:			
Repayment of capital advances from the Minister for Finance	992,441		
Sinking fund provisions for redemption of E.S.B. Stocks and other loans	2,984,695		
		3,977,136	3,705,308
		£15,143,063	£13,626,820
Balance transferred from Electricity Revenue Account		332,176	2,741,149
Balance transferred to Net Revenue Account		96,425	—
		£428,601	£2,741,149

	£	1970/71 £
Interest and Debt Amortisation allocated to :		
Production Account	7,205,428	6,562,319
Electricity Revenue Account	5,170,947	4,799,613
Administration	525,527	463,124
Fisheries Account	6,456	6,124
Interest allocated to:		
Installations Account	64,100	58,400
Appliance Sales Account	32,700	44,800
Capital Works	2,137,905	1,692,440
	£15,143,063	£13,626,820
Miscellaneous revenue	239,616	142,979
Interest receivable	188,985	139,788
Balance transferred to Net Revenue Account	—	2,458,382
	£428,601	£2,741,149

Preservation and Operation of Fisheries

No. 4

	£	1970/71 £
Preservation, operation and other direct costs	107,571	98,775
	£107,571	£98,775
Balance brought down	60,198	33,334
Payroll and sundry expenses	19,889	11,223
Fishery rates	6,270	5,238
Depreciation and renewals	4,000	3,000
General administrative expenses and interest	4,613	4,403
	£94,970	£57,198
Balance brought down	94,970	57,198
Debt amortisation	1,943	1,821
	£96,913	£59,019

	£	1970/71 £
Sales of fish, letting of fishing rights and miscellaneous income	47,373	65,441
Balance carried down	60,198	33,334
	£107,571	£98,775
Balance carried down	94,970	57,198
	£94,970	£57,198
Net cost transferred to Net Revenue Account	96,913	59,019
	£96,913	£59,019

No. 5

Installations Trading Account

	£	1970/71 £		£	1970/71 £
Cost value of work for which credit had not been taken at 31st March 1971	635,287	637,428	Credit taken for contracts completed and charged	1,538,582	1,390,137
Cost of installation work carried out during the year	1,093,380	1,162,464	Cost value of work for which credit has not yet been taken	427,243	635,287
Gross profit carried down	237,158	225,532			
	£1,965,825	£2,025,424		£1,965,825	£2,025,424

	£				
Payroll	88,170				
Travelling expenses	9,770				
Sundry expenses	16,214				
General administrative expenses and interest, as apportioned	101,439				
		215,593	183,827		
Balance (surplus) transferred to Net Revenue Account		21,565	41,705		
		£237,158	£225,532	£237,158	£225,532

No. 6

Appliance Sales Trading Account

	£	1970/71 £		£	£	1970/71 £
Cost of goods sold	1,845,056	1,603,467	Sales	2,552,411		
Direct costs in connection with sales	106,133	109,319	*Less* Turnover Tax	112,758		
Gross profit carried down	488,464	318,060			2,439,653	2,030,846
	£2,439,653	£2,030,846			£2,439,653	£2,030,846

	£				
Payroll	242,247				
Travelling expenses	25,968				
Publicity	28,147				
Rents, rates and maintenance of property	37,454				
Sundry expenses	37,589				
General administrative expenses and interest, as apportioned	104,430				
		475,835	435,598		
Balance (surplus) transferred to Net Revenue Account		12,629	—		
		£488,464	£435,598	£488,464	£435,598

Gross profit brought down	488,464	318,060
Balance (deficit) transferred to Net Revenue Account	—	117,538

Net Revenue Account

No. 7

	£		£	£
Fisheries cost (net)	96,913	Profit and Loss Account surplus		96,425
Balance carried down	33,706	Installations trading surplus	21,565	
		Appliance Sales trading surplus	12,629	
				34,194
	£130,619			£130,619
Balance brought forward from last year's account	1,069,053	Balance brought down		33,706
Transfer to reserve for renewals, of credits (per contra) as additional provision for the renewal of plant	852,569	Credits arising consequent on the retirement of assets and the sale of scrapped material		852,569
Stock Issue expenses	282,906	Balance carried forward (see note below)		1,318,253
	£2,204,528			£2,204,528

Note:

	£	£
DEFICIT for year before allowing for exceptional non-recurring items as follows:		1,086,200
(a) Fuel Rebate	327,000	
(b) Loan conversion arrangements resulting in deferment of Sinking Fund Provision	510,000	
		837,000
Increase in DEFICIT forward		£249,200

No. 8

Statement of Repayable Capital and Redemption

	Total Receipts* to 31st March 1972 £	Redeemed: Total to 31st March 1971 £	Redeemed: Redeemed during Year £	Redeemed: Total to 31st March 1972 £	Balance Outstanding 31st March 1972 £
Minister for Finance:					
Advances under the Electricity (Supply) Acts and the Shannon Fisheries Act, 1935 (Secured)	**68,450,236**	13,568,298	992,441	14,560,739	**53,889,497**
Electricity Supply Board Stocks:					
5% redeemable 1966–1975	**10,000,000**	3,514,572	155,252	3,669,824	**6,330,176**
6% redeemable 1968–1978	**5,000,000**	1,350,682	204,750	1,555,432	**3,444,568**
6% redeemable 1982–1987	**12,000,000**	2.395,894	191,000	2,586,894	**9,413,106**
6% redeemable 1984–1989	**16,500,000**	3,181,222	606,752	3,787,974	**12,712,026**
7% redeemable 1986–1991	**13,000,000**	1,154,034	360,982	1,515,016	**11,484,984**
7¼% redeemable 1988–1993	**7,000,000**	260,699	154,207	414,906	**6,585,094**
9½% redeemable 1985–1990	**9,250,000**	—	177,292	177,292	**9,072,708**
6% Premium, redeemable 1975 (repayable at 20% premium)	**3,250,000**	—	75,289	75,289	**3,174,711**
6% Premium, redeemable 1976 (repayable at 20% premium)	**2,800,000**	—	100,434	100,434	**2,699,566**
9% redeemable 1992–1995	**12,000,000**	—	—	—	**12,000,000**
Funded Loans:					
New Ireland Assurance Co. Ltd. – repayable by half-yearly instalments, 1962–1987	**500,000**	103,790	15,319	119,109	**380,891**
German Banks 6¾% – repayable by annual instalments, 1975–1984	**5,994,011**	—	5,994,011	5,994,011	—
German Banks 7¾% – repayable by annual instalments, 1975–1984	**8,991,356**	—	8,871,481	8,871,481	**119,875**
Central Bank of Ireland 7¼% – repayable by half-yearly instalments, 1972–1987	**14,865,000**	—	—	—	**14,865,000**
International Bank for Reconstruction and Development 6½% – repayable by half-yearly instalments, 1974–1994	**4,475,337****	—	—	—	**4,475,337**
International Bank for Reconstruction and Development 7¼% – repayable by half-yearly instalments, 1976–1987	**446,703*****	—	—	—	**446,703**
15,000,000 European Units of Account 8¼%–repayable by annual instalments, 1972–1986	**6,202,704**	—	—	—	**6,202,704**
	200,725,347	25,529,191	17,899,210	43,428,401	**157,296,946**
Loans and Loan Stock fully redeemed	**756,021**	756,021	—	756,021	—
	£201,481,368	£26,285,212	£17,899,210	£44,184,422	**£157,296,946**

*Adjusted to take account of currency changes prior to 31st March, 1972.
**Loan $14,500,000: drawdown scheduled over phased period.
***Loan $20,000,000: drawdown scheduled over phased period.

Statement of Capital Reserves

No. 9

	£	at 31st March, 1972 £	at 31st March, 1971 £
Non-repayable contributions from Minister for Finance under Electricity (Supply) Acts towards capital cost of supplying rural areas	18,739,826		
Other non-repayable contributions for capital works	3,321,517		
		22,061,343	20,714,609
Repaid Capital, less intangible assets, currency revaluation and loan discounts written off		**26,632,684**	24,071,634
Provision for depreciation, renewal and retirement of physical assets, together with proceeds of sale of assets, less physical assets retired		**88,463,476**	80,456,802
Total Capital Reserves		**£137,157,503**	£125,243,045

Investment in Capital Assets

No. 10

	Total at 31st March 1971, less retirements	Expenditure less retirements during year	Total at 31st March 1972, less retirements
	£	£	£
Generation	83,333,695	24,255,141	**107,588,836**
Transmission	28,120,842	3,679,292	**31,800,134**
Distribution	98,243,375	8,968,022	**107,211,397**
General	7,770,439	1,163,973	**8,934,412**
Fisheries	118,810	—	**118,810**
	217,587,161	£38,066,428	**255,653,589**
Capital Works in Progress, including payments on account to contractors and others	40,771,077		**30,637,805**
Total Investment in Capital Assets	£258,358,238		**£286,291,394**

No. 11

Balance Sheet

Liabilities and Reserves		31/3/71	
		£	£
Repayable Capital as per Statement No.8		157,296,946	138,820,849
Capital Reserves as per Statement No. 9		137,157,503	125,243,045
		294,454,449	264,063,894
Revenue Reserves:			
Plant, Self-Insurance – special risks		500,000	500,000
Others		75,000	75,000
		295,029,449	264,638,894
Net Revenue Account – (Deficit)		(1,318,253)	(1,069,053)
		293,711,196	263,569,841
Loans under the Electricity Supply Board (Superannuation) Act, 1942		—	123,461
Short-Term Loans		12,187,146	7,920,814
	£		
Sundry Creditors and Provisions	15,508,052		
Hire Purchase Debts block discounted with Finance House (contra amount included in Sundry Debtors)	1,934,684		
		17,442,736	17,437,785
Sinking Funds		3,548,309	2,787,588
		£326,889,387	£291,839,489

Note:

At 31st March 1972 contractual capital commitments amounted to approximately £21,000,000 (1971–£24,000,000)

Signed: T. MURRAY, *Chairman*
J. F. WILLIAMS, *for Secretary*

Assets		31/3/71
	£	£
Capital Assets as per Statement No. 10	286,291,394	258,358,238
Electricity Supply Board Stocks (nominal £903,456) at cost, held by the Allied Irish Banks Nominees Ltd., as depositaries of the Board	883,963	1,257,069
Sinking Fund Investments (nominal £3,676,022, market value £3,143,658) at cost	3,542,356	2,781,635
Stocks of material (at average cost), **Tools and Working Equipment** (at depreciated cost) on hand and in transit	10,808,743	10,170,550
Cost Value of Installation and Other Repayable Work in Progress	1,006,836	1,218,748
Sundry Debtors, advances for goods not yet delivered, accrued but unbilled revenue and hire purchase debts, less provision for bad and doubtful debts	16,544,221	14,932,301
Temporary Cash Investment	6,026,961	3,000,000
Cash in Hand and with Banks (Net)	1,784,913	120,948
	£326,889,387	£291,839,489

Signed: L. J. BARRY, *Director, Finance*

Auditors' Report

As Auditors appointed by the Minister for Transport and Power, with the consent of the Minister for Finance, we have examined the Balance Sheet, and Financial Statements numbered 1 to 10, which have been prepared in accordance with the Electricity Supply Acts.

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, and the Balance Sheet and Financial Statements 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 a basis consistent with the previous year. Additions have continued to be made to the Depreciation Reserve towards increased cost of renewal of physical assets, the original cost of which has already been fully provided.

In our opinion, the Balance Sheet and Financial Statements, when read in conjunction with the Notes appearing on Statements 7 and 8, and on the Balance Sheet, give, in the context of the Electricity Supply Acts, a true and fair view of the outcome of the Revenue Operations of the Board for the year ended 31st March, 1972, and of the state of the Board's affairs as at that date.

Harcourt House,
Harcourt Street,
Dublin 2.

14th July, 1972.

KENNEDY CROWLEY & CO.
Chartered Accountants

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Appendix 1

NUMBER OF CONSUMERS AND ELECTRICITY SALES

District	No. of Consumers at 31st March		Electricity Sales Units sold in year ended 31st March	
	1972	1971	1972 Millions	1971 Millions (Estimated)
Athlone	46,778	46,251	181.3	170.9
Cork	92,874	90,878	621.4	577.4
Dublin City	135,701	137,208	1,025.9	995.3
Dublin North West	74,415	70,421	639.2	559.9
Dublin South	50,693	50,272	419.3	385.6
Dundalk	63,398	61,957	420.8	375.8
Galway	45,608	44,647	219.4	204.4
Limerick	75,656	74,614	552.3	507.8
Portlaoise	55,048	54,301	316.6	286.2
Sligo	74,684	73,674	218.9	202.5
Tralee	39,387	39,120	164.8	154.0
Waterford	64,274	62,393	491.8	442.3
Totals	818,516	805,736	5,271.7	4,862.1

Appendix 2

GROWTH OF ELECTRICITY SALES AND NUMBER OF CONSUMERS

Year Ended 31st March	Units Generated (and Purchased) Millions	Units Sold to to Consumers Millions	Revenue from Electricity Sales Thousands	Average Price per Unit Sold New Pence	Total Consumers
			£		
1930	60.9	43.2	478	1.108	48,606
1935	206.1	157.0	1,258	0.800	103,037
1940	407.0	318.6	1,946	0.612	172,545
1945	406.3	319.0	2,458	0.771	228,008
1950	784.8	626.2	4,774	0.763	310,639
1955	1,461.7	1,192.2	9,522	0.800	461,901
1960	2,096.0	1,692.2	14,724	0.871	610,946
1961	2,262.3	1,863.6	16,263	0.871	628,241
1962	2,453.0	2,005.1	17,731	0.883	642,753
1963	2,714.9	2,238.5	19,445	0.867	659,932
1964	2,900.8	2,375.9	20,383	0.858	678,054
1965	3,240.2	2,682.6	22,488	0.838	697,491
1966	3,546.2	2,953.3	24,077	0.817	716,113
1967	3,851.0	3,238.1	26,690	0.825	726,561
1968	4,246.4	3,570.1	29,898	0.838	745,430
1969	4,749.0	4,012.3	34,457	0.858	765,213
1970	5,245.7	4,411.6	39,400	0.892	786,500
1971	5,921.0	4,862.1	44,082	0.907	805,736
1972	6,234.2	5,271.7	51,750*	0.982	818,516

The above table shows, quinquennially from 1930 to 1960 and for each year since, the number of units generated and sold, the revenue, the average price per unit and the number of consumers.

*The figure of £51·75m represents revenue from electricity sales to the Board's consumers. Additional revenue of £216,829 nett accrued from E.S.B./E.B.N.I., interchange making a grand total of £51,967,000.

Appendix 3

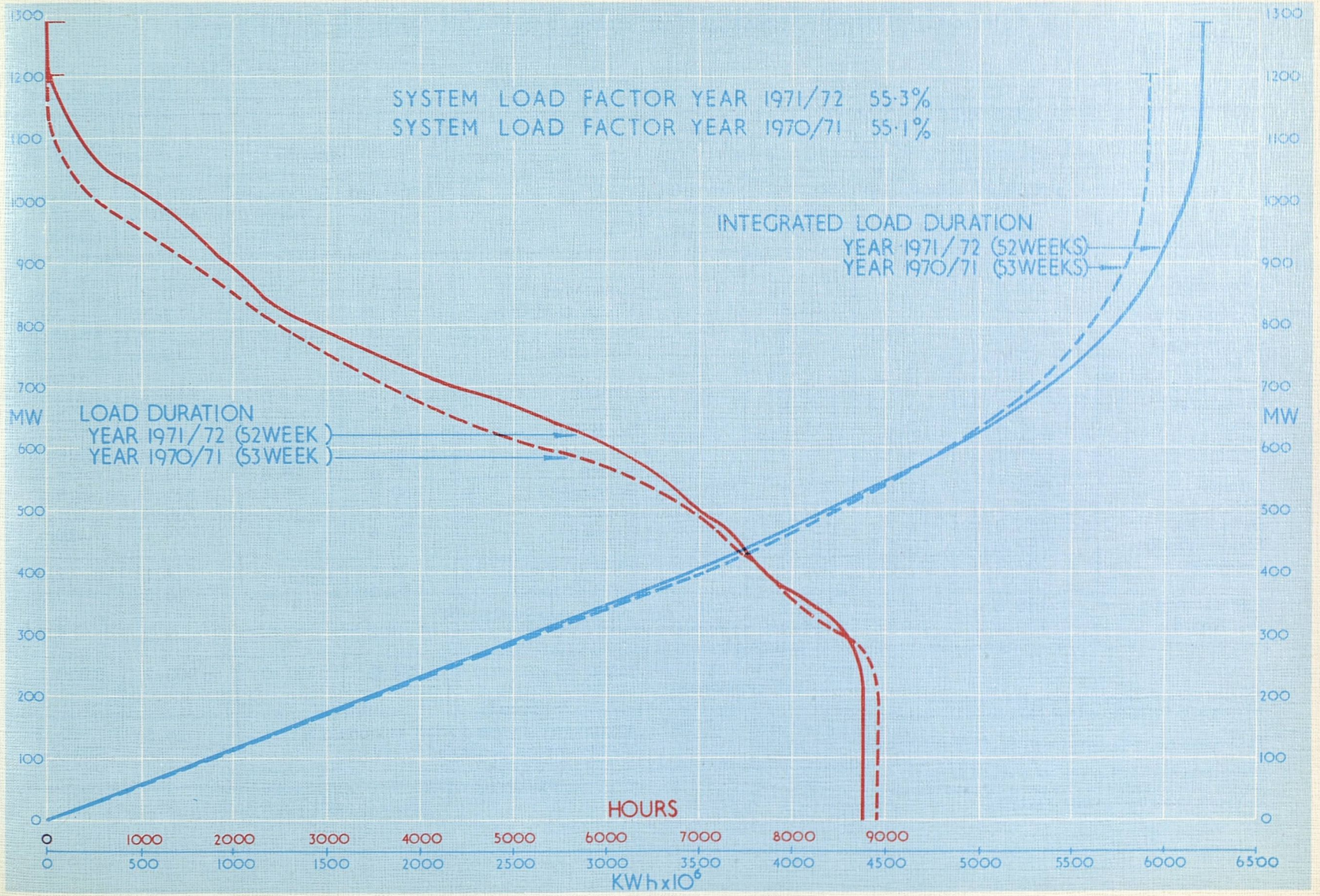
Analysis of Units Sold

Class of Supply	Year Ended 31st March 1972 Millions	Year Ended 31st March 1971 Estimate Millions	Increase Millions	Percentage Increase
DOMESTIC				
General Supply	2,097.0	1,953.5	143.5	7.3
Night Space Heating	277.3	253.2	24.1	9.5
	2,374.3	2,206.7	167.6	7.6
COMMERCIAL				
Lighting	204.0	184.3	19.7	10.7
Heating, Cooking and Waterheating	308.9	300.7	8.2	2.7
Motive Power	203.4	189.7	13.7	7.2
Night Space Heating	212.8	210.7	2.1	1.0
Public Lighting	57.6	51.9	5.7	11.0
Miscellaneous	167.9	145.2	22.7	15.6
	1,154.6	1,082.5	72.1	6.7
INDUSTRIAL				
Maximum Demand	1,560.8	1,389.2	171.6	12.4
Lighting	17.7	17.6	0.1	0.6
Heating, Cooking and Waterheating	39.9	41.2	—1.3	—3.2
Motive Power	114.2	114.9	—0.7	—0.6
Night Space Heating	10.2	10.0	0.2	2.0
	1,742.8	1,572.9	169.9	10.8
Total	5,271.7	4,862.1	409.6	8.4

SYSTEM LOAD DURATION AND INTEGRATED LOAD DURATION CURVES

YEAR 1971/72

Appendix 4.



Appendix 5

Generation Statistics for the Year Ended 1971/72

Station	Year 1971/72 Generated million units	Station use million units	Sent out million units	Year 1970/71 Sent out million units
Ardnacrusha	217.6	2.5	215.1	316.5
Cliff	53.9	0.5	53.4	75.3
Cathaleen's Fall	131.4	1.5	129.9	184.5
Carrigadrohid	18.7	0.3	18.4	18.3
Inniscarra	52.6	0.7	51.9	48.8
Pollaphuca	21.3	0.9	20.4	18.6
Golden Falls	8.0	0.2	7.8	7.4
Leixlip	11.4	0.1	11.3	12.1
Clady	10.6	0.1	10.5	16.0
Ferbane	398.1	31.3	366.8	397.0
Rhode	362.7	25.3	337.4	374.6
Bellacorick	165.9	11.7	154.2	186.9
Shannonbridge	197.6	13.3	184.3	183.1
Lanesboro	322.2	20.0	302.2	271.9
Portarlington	136.9	8.7	128.2	148.7
Allenwood	170.4	10.0	160.4	195.0

Station	Year 1971 Generated million units	Station use million units	Sent out million units	Year 1970/71 Sent out million units
Cahirciveen	12.0	1.2	10.8	7.8
Milltown-Malbay	3.7	0.6	3.1	2.0
Screeb	3.3	0.4	2.9	2.3
Gweedore	20.7	1.7	19.0	16.3
Poolbeg	541.8	22.5	519.3	—
Pigeon House	9.8	4.5	5.3	21.3
North Wall	103.4	7.6	95.8	101.9
Ringsend	1,520.2	77.5	1,442.7	1,178.3
Marina	399.6	20.8	378.8	424.5
Great Island	550.9	29.4	521.5	519.2
Tarbert	768.5	32.2	736.3	801.1
Arigna	79.6	5.5	74.1	76.7
E.S.B. Import	4.1	—	4.1	12.8
E.S.B. Export	65.9	—	65.9	13.2
Purchased	3.2	—	3.2	4.4
Totals	6,234.2	331.0	5,903.2	5,610.1
Maximum daily generation, million units			24.8	23.2
Maximum load generated in kW			1,290,000	1,203,000

The total electricity production was 6,234 million units, an increase of 442 million units (7.6%) over the previous year.

Production from native sources provided 37.9% of total demand.

Note: Last year's electricity production was for 53 weeks, but this year's production for 52 weeks is compared with the production for the first 52 weeks of last year.

Particulars and Performance of Generating Plant

Hydro Stations

Station	River	Average annual generation million units	Plant Particulars		Plant Performance in year ended 31/3/'72		
			Generating Sets		Units sent out millions	Plant load factor %	Works cost per unit sent out new pence
			No.	Capacity (MW)			
Ardnacrusha	Shannon	331	4	85	215.1	29.3	0.154
Pollaphuca	Liffey	48	2	30	39.5	8.1	0.285
Golden Falls			1	4		22.9	
Leixlip			1	4		32.6	
Cliff	Erne	269	2	20	183.3	30.9	0.098
Cathleen's Fall			2	45		33.4	
Carrigadrohid	Lee	85	1	8	70.3	26.8	0.115
Inniscarra			2	19		31.7	
Clady	Clady	14	1	4	10.5	30.3	0.259

Pumped Storage Station

Station	Location	Plant Particulars	
		Generating Sets	
		No.	Total Capacity (MW)
Turlough Hill (Under Construction)	Co. Wicklow	4	292

Appendix 6 CONT.

Particulars and Performance of Generating Plant

Steam Stations

Station	Location	Plant Particulars					Plant Performance in year ended 31/3/'72			
		Generating Sets		Boilers			Units sent out millions	Plant load factor %	Fuel cost per unit sent out new pence	Works cost per unit sent out new pence
		No.	Total Capacity MW	No.	Total Capacity Tonne/hour	Fuel Type				
Arigna	Co. Ros-common	1	15	1	75	Coal	74.1	60.7	0.553	0.756
Lanesborough	Co. Longford	2	60	1 1	100 173	Sod Peat Milled Peat	106.0 196.2	63.7 60.4	0.413 0.310	0.562 0.408
Rhode	Co. Offaly	3	80	3	364	Milled Peat	337.4	51.9	0.376	0.495
Bellacorick	Co. Mayo	2	40	2	191	Milled Peat	154.2	47.5	0.350	0.556
Shannonbridge Shannonbridge (under construction)	Co. Offaly	1 1	40 40 — 80	1 1	173 173	Milled Peat Milled Peat	184.3	56.6	0.309	0.433
Great Island Great Island (Under Construction)	Co. Wexford	2 1	120 120 — 240	2 1	473 380	Oil Oil	521.5	52.6	0.161	0.237
Tarbert Tarbert (under construction)	Co. Kerry	2 2	120 500 — 620	2 2	473 1600	Oil Oil	736.3	73.3	0.150	0.189
Poolbeg	Dublin City	2	240	2	760	Oil	—	—	—	—
		2	28	Gas Turbine Sets						

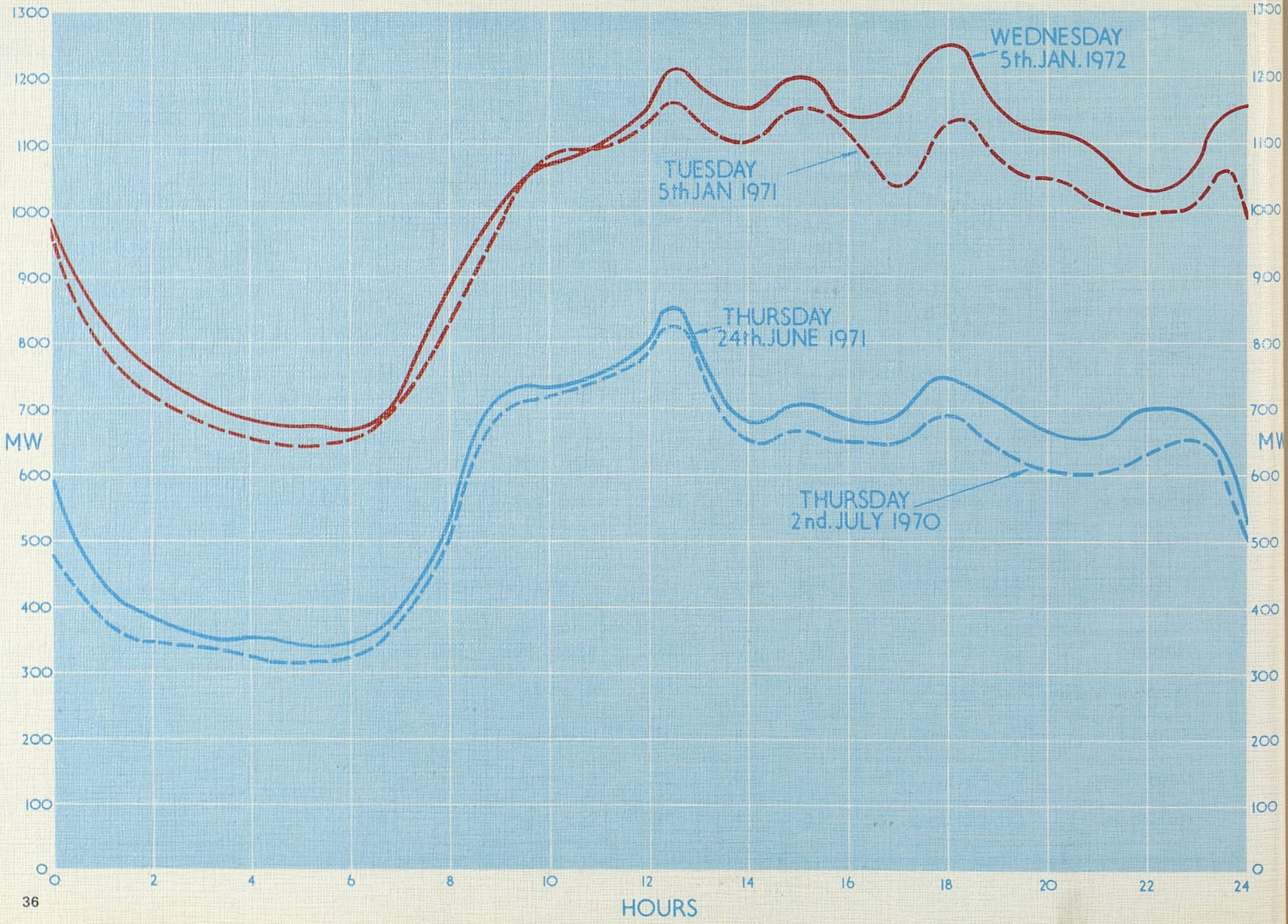
Particulars and Performance of Generating Plant

Steam Stations

Station	Location	Plant Particulars					Plant Performance in year ended 31/3/'72			
		Generating Sets		Boilers			Units sent out millions	Plant load factor %	Fuel cost per unit sent out new pence	Works cost per unit sent out new pence
		No.	Total Capacity MW	No.	Total Capacity Tonne/hour	Fuel Type				
Pigeon House (Stand-by Station)	Dublin City	5	90	8	364	Oil	5.3	—	—	—
North Wall (Peak Station)	Dublin City	3	48	3	225	Oil	95.8	24.7	—	—
Portarlington	Co. Laoise	3	37.5	3	205	Sod Peat	128.2	41.8	0.497	0.768
Allenwood	Co. Kildare	2	40	4	273	Sod Peat	160.4	48.8	0.487	0.727
Marina	Cork City	3	120	4	522	Oil	378.8	38.1	0.228	0.337
Ringsend	Dublin City	6	270	4 3	364 750	Coal or Oil Oil	1442.7	64.5	0.159	0.217
Ferbane	Co. Offaly	4	90	4	430	Milled Peat	366.8	50.6	0.395	0.543
Miltown-Malbay	Co. Clare	1	5	1	28	Sod Peat	35.8	22.7	0.630	1.159
Screeb	Co. Galway	1	5	1	28	Sod Peat				
Cahirciveen	Co. Kerry	1	5	1	28	Sod Peat				
Gweedore	Co. Donegal	1	5	1	28	Sod Peat				

Appendix 7

SYSTEM DAILY LOAD CURVES YEAR 1971/72



Transmission System at 31st March, 1972

Transmission Stations

Transformer/Switching Stations	No. in commission	Increase for year	Total capacity in kVA	Increase or decrease in capacity for year in kVA
220 kV Stations	7	1	300,000 at 275/220 kV	Nil
			1,003,000 at 220/110 kV	+250,000
			420,000 at 13/220 kV	+420,000
			47,000 at 10/220 kV	Nil
			310,000 at 10/110 kV	Nil
			20,000 at 110/ 6 kV	Nil
110 kV Stations	56	3	2,195,500 at 110/ 38 kV	+153,500
			59,000 at 110/ 10 kV	+4,000
			60,000 at 110/ 6 kV	Nil
			110,400 at 38/ 10 kV	Nil
			1,151,000 at 10/110 kV	Nil
			88,000 at 10/38/110 kV	Nil
			5,000 at 10/38 kV	Nil

Transmission Lines and Cables

Lines and cables	Length kms.	Increase or decrease for year kms.	Description
275 kV lines	10.5	Nil	6 x twin 485 sq.mm double circuit SCA
220 kV lines	19.1	+19.1	6 x 600 sq.mm. double circuit SCA
220 kV lines	114.6	+39.9	3 x 600 sq.mm. single circuit SCA
220 kV lines	277.5	Nil	3 x 425 sq.mm. single circuit SCA
110 kV lines	7.4	Nil	6 x 95 sq.mm. double circuit copper
110 kV lines	639.2	Nil	3 x 95 sq.mm. single circuit copper
110 kV lines	91.6	+3.6	6 x 200 and 6 x 300 sq.mm. double circuit SCA
110 kV lines	2385.7	+13.4	3 x 200 to 3 x 425 sq. mm. single circuit SCA
220 kV cables	27.1	+27.1	3 single core oil filled
110 kV cables	17.1	+0.6	3 single core oil filled
110 kV cables	17.4	Nil	3 core oil filled
110 kV cables	25.6	Nil	3 core pipe compression

Appendix 9

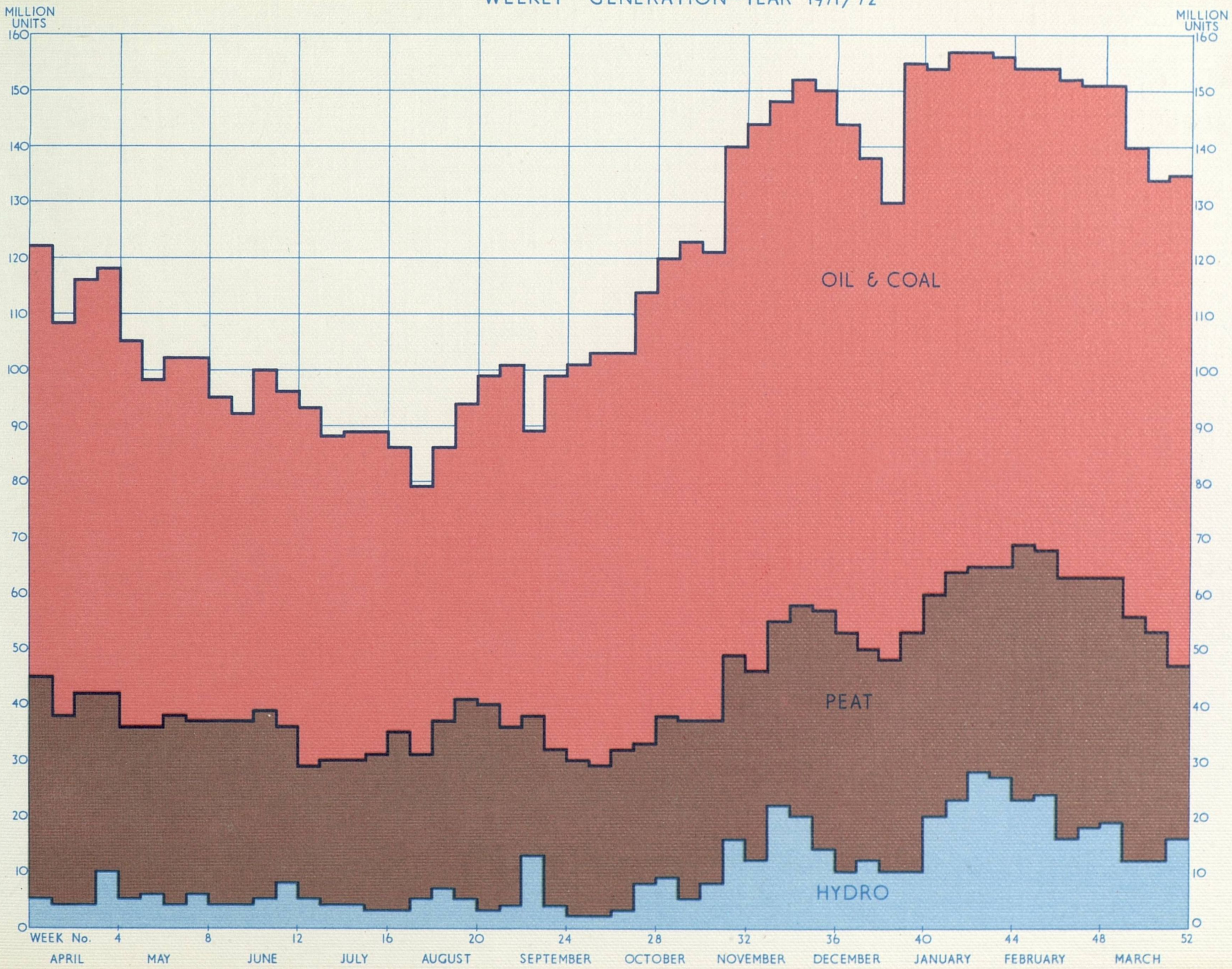
Distribution System at 31st March, 1972

Distribution System (Excluding Rural Networks)

Transformer stations	No. in commission	Increase (+) or Decrease (—) for year	Total capacity in kVA	Increase (+) or decrease (—) for year in kVA
38 kV Stations	295	+11	1,838,900	+115,800
10 kV Stations (Excl. U.R.D.)	6,714	+255	1,509,704	+73,936
10 kV Stations U.R.D.	1,023	+402	60,829	+26,789
5 kV Stations	53	—1	32,590	—630

Distribution lines and cables	Length kms.	Increase (+) or Decrease (—) for year km.	Description
38 kV lines	4,688.2	+210.7	3 x 25 to 3 x 300 sq.mm. Cu. and SCA.
38 kV cables	215.0	+9.3	3 x 95 to 3 x 680 sq.mm. Solid and oil filled.
10 kV lines	6,163.7	+51.9	Single and three phase.
10 kV and 5 kV cables	1,838.7	+120.7	2 x 16 to 3 x 185 sq.mm.
3.3 kV cables	3.7	—	3 x 185 sq.mm.

WEEKLY GENERATION - YEAR 1971/72



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PORTLAOISE Abbeyleix Road Telephone: Portlaoise 21327	J. F. Heslin, B.E.
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