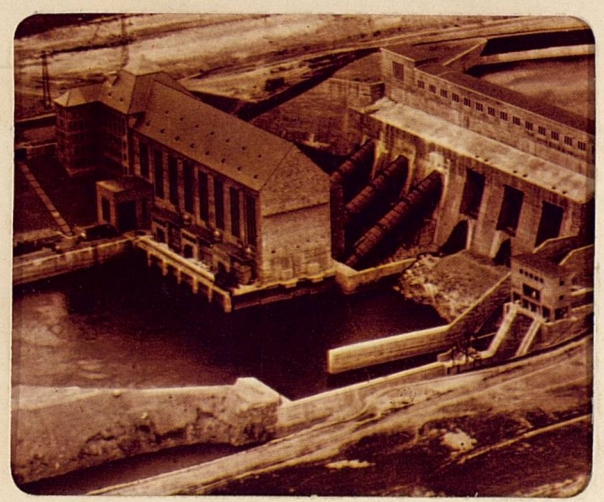
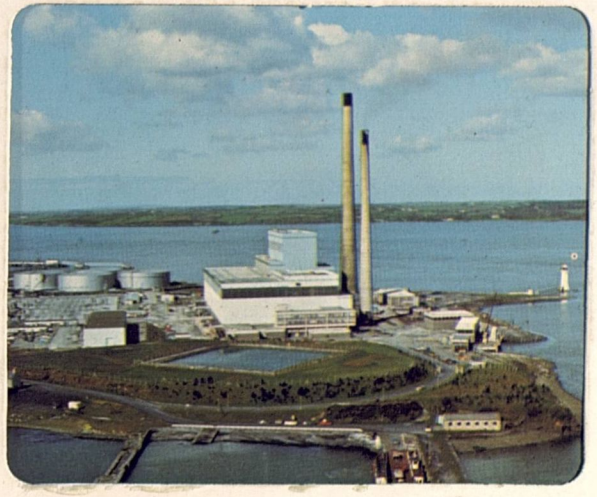


ESB

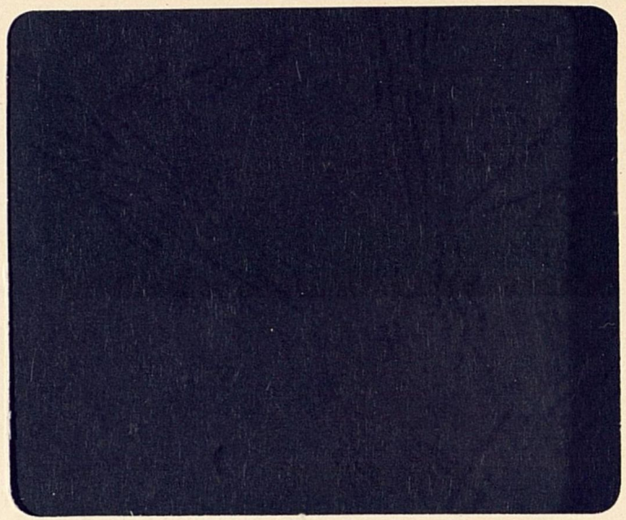
1927-1977

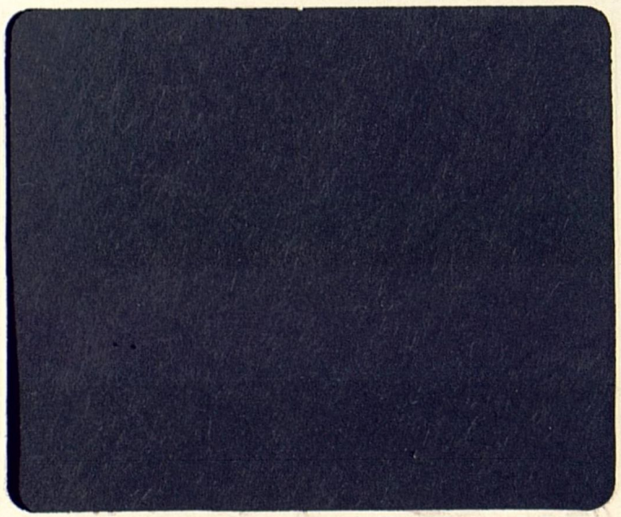
Fiftieth Annual Report For year ended 31st March 1977



ELECTRICITY SUPPLY BOARD
IRELAND

ELECTRICITY SUPPLY BOARD
Lower Fitzwilliam Street,
Dublin 2, Ireland
Telephone: Dublin 765831





Board Members
PROFESSOR C. T. G. DILLON, M.E., C.Eng., F.I.E.I., F.I.E.E., F.I.Mech.E., Chairman
C. KELLEHER
C. GORDON LAMBERT, B.A., B.Comm., F.C.A.
J. A. RYAN, M.A., LL.D.
S. SCALLY, B.Sc. (Econ.)
BARBARA SWEETMAN FITZGERALD
L. BOYD

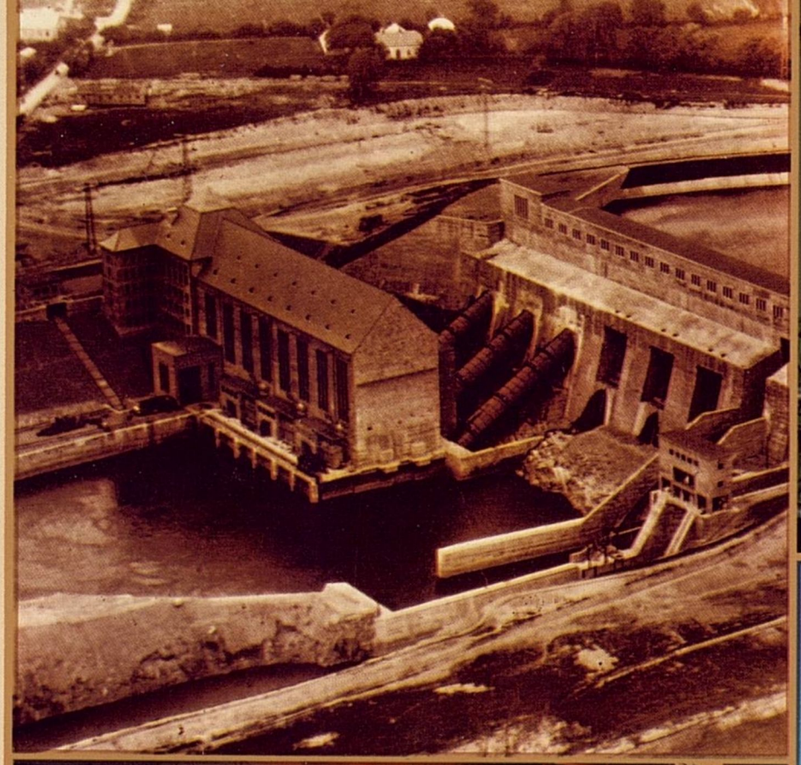
Chief Executive
J. J. KELLY, M.E., C.Eng., F.I.E.I., F.I.Mech.E.

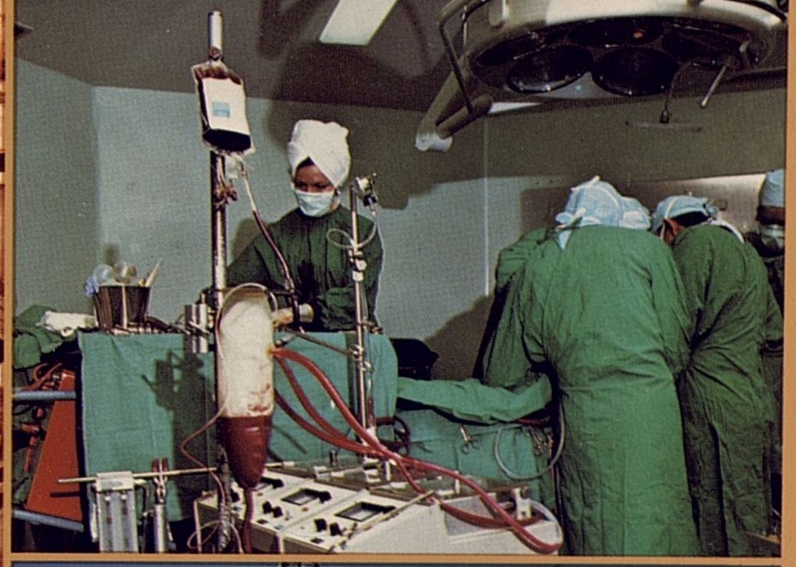
Assistant Chief Executive
P. J. MORIARTY, F.C.I.S., M.I.P.M.

Directors
Generation-Transmission S. TINNEY, B.E., B.Sc., M.I.E.E.
Finance J. B. O'DONOGHUE, F.C.C.A., A.C.M.A.
Personnel P. J. MORIARTY, F.C.I.S., M.I.P.M.
Commercial M. J. SHIEL, B.E., B.Sc., C.Eng., F.I.E.E., M.I.E.I.

Secretary
J. F. WILLIAMS, F.C.I.S.

Cover Pictures:
Ardnacrusha on the River Shannon, the Board's first generating station.
Tarbert on the Shannon Estuary – the most recently completed generating station.









ESB

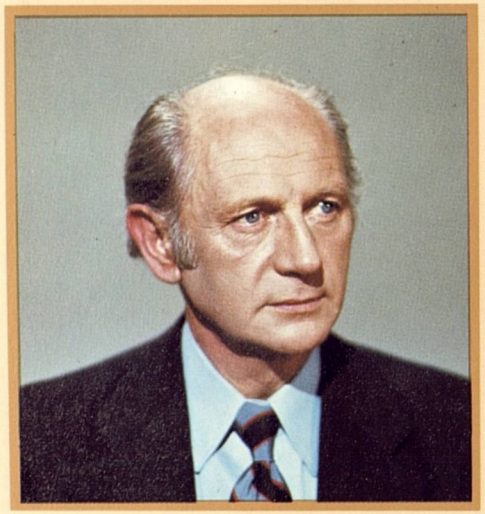
1927-1977

Fifty Years of Power for Progress









A message from An Taoiseach Mr. Jack Lynch

I congratulate the Electricity Supply Board on the occasion of their Golden Jubilee and wish continued success to all those who guide and work in the enterprise.

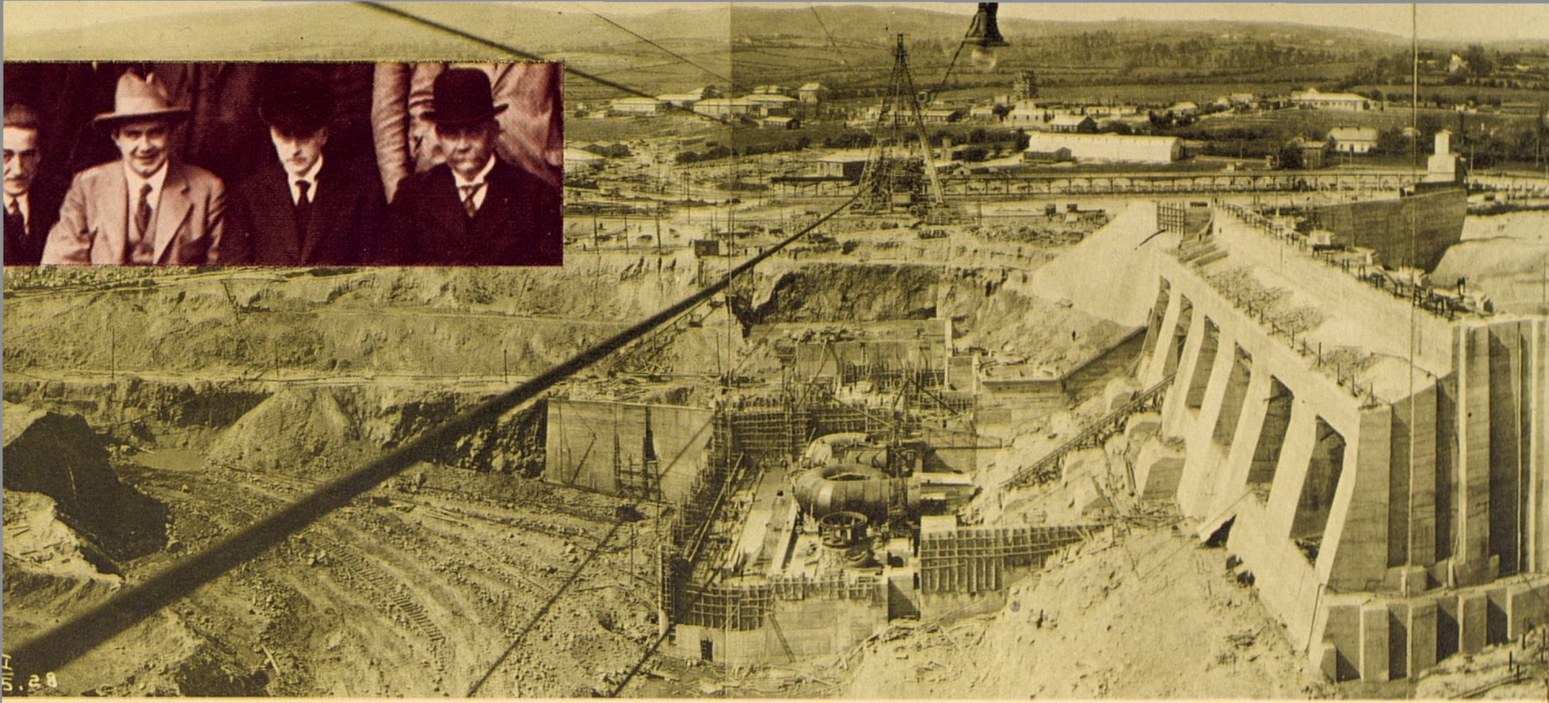
Whilst energy topics have frequently made headline news in recent times, successive Irish Governments have shown a deep realisation that a cheap, plentiful and secure electricity supply is an essential ingredient for social and economic progress. Over the years, projects such as the Shannon Scheme, the Peat Development Programme and the Rural Electrification Plan were inaugurated and the resources provided to get them under way.

These projects presented great organisational and technological challenges to the management and staff of the ESB whose response was all that could be desired. To-day, the standards of reliability and service which have been achieved in electricity supply in Ireland compare favourably with those in the world's most highly developed and richest countries and the Board's expertise is now in demand abroad to provide a wide range of administrative and technical consultancy services.

The ESB have built a proud tradition of public service and through their policy of developing their own staffs' abilities in all disciplines have not only provided a wide range of job opportunities for young people but have also made our country independent in the management and technology of the electricity supply industry.

Fifty years is a short period in the history of any nation, but the contributions which the ESB have made to the economic and social welfare of Ireland in that time have been substantial. I know that they will meet with confidence whatever greater challenges lie ahead. I wish them every success.

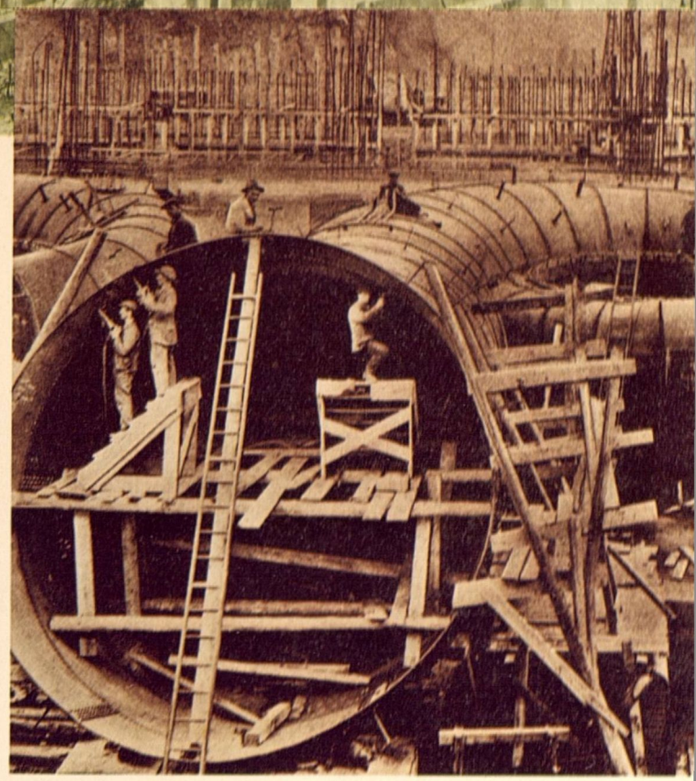
Jack Lynch

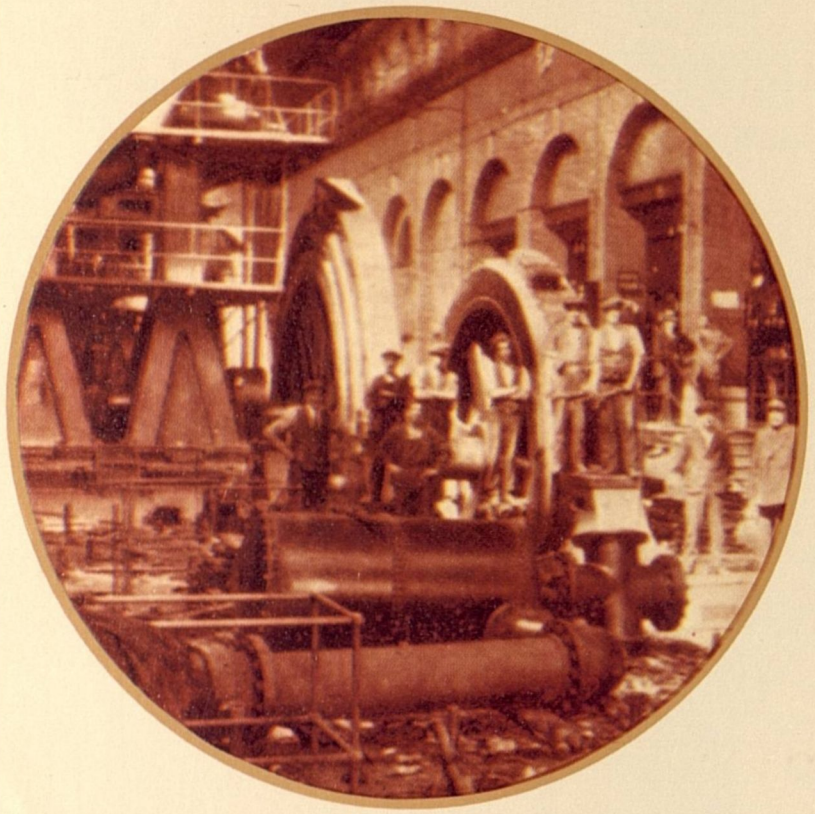


The construction of Ardnacrusha generating station on the River Shannon. Inset: shows Mr. P. McGilligan, Minister for Industry and Commerce, Dr. T. A. McLaughlin, Managing Director of the ESB, Mr. W. T. Cosgrave, President of the Executive Council and Mr. J. J. Murphy, first Chairman of the ESB.

The Twenties

With the Shannon Scheme already under construction the ESB, on its foundation in 1927, was charged by the Government with the pioneering task of supplying Shannon power to the nation. With the prospect of generating capacity to meet all of the country's foreseeable electricity requirements, the ESB decided that the community's interests would best be served by supplying directly to customers instead of wholesaling electricity to existing local companies for resale and by achieving self-sufficiency and a national competence in technical and administrative development. These far-sighted decisions proved of immense benefit to the country by stabilising the price of electricity at economic levels and developing talent, expertise and job opportunities for the Irish people.

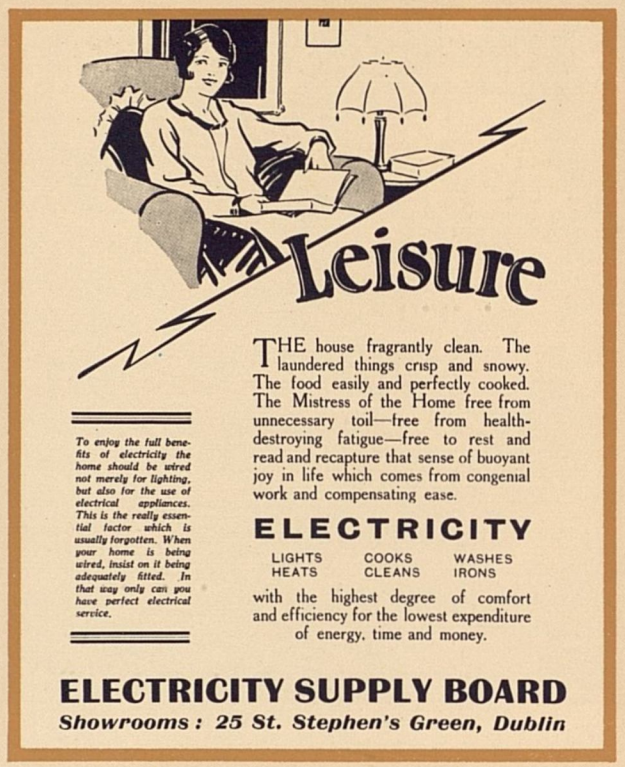




The Pigeon House generating station, Dublin.

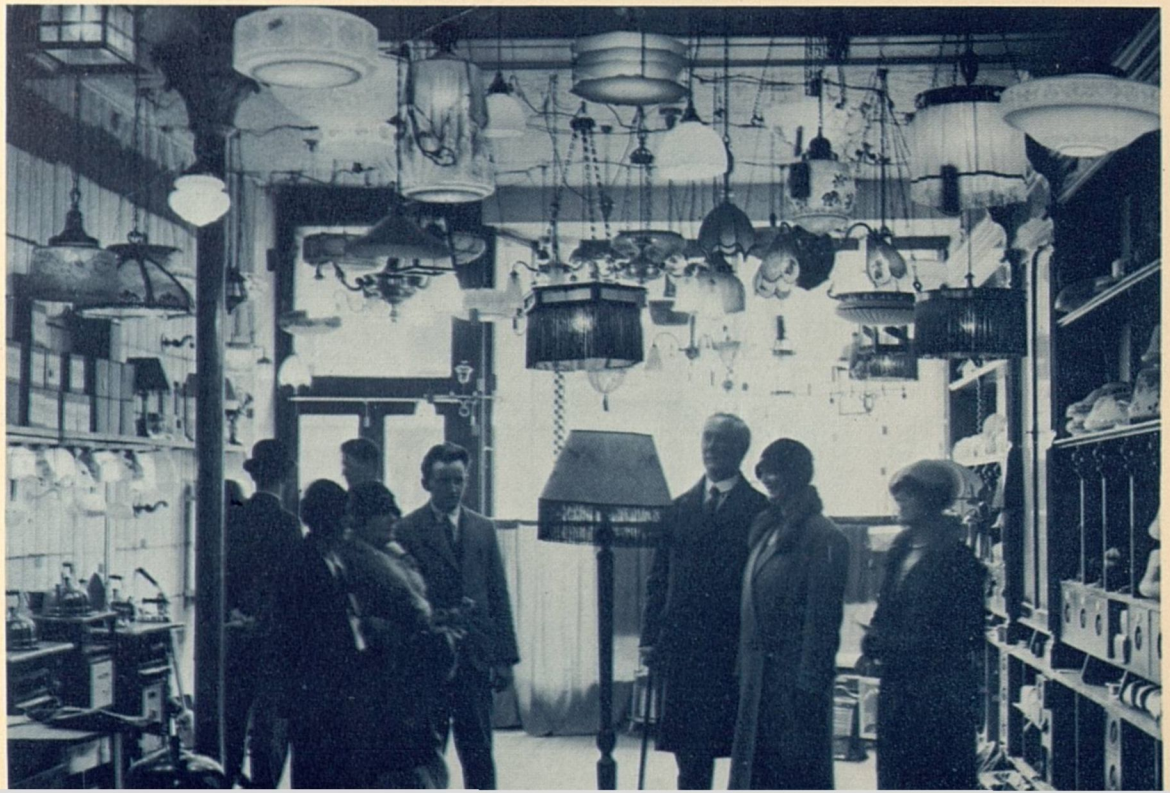


First mechanised accounting system in Ireland.



An early advertisement promoting the use of electricity.

The ESB's first showrooms in Grafton Street, Dublin.



The Thirties

In a time of major economic uncertainty throughout the world the extended availability of electricity from ESB networks contributed to development in Ireland. When it became evident that even the mighty Shannon Scheme would not be sufficient to meet the various requirements, the ESB selected the Liffey for its new power stations, on which work began in 1937. The Liffey project was designed and executed by the ESB itself. New technology too was introduced into administration with the first installation in Ireland of a sophisticated punched-card system.

Pioneering developments in apprentice training, later to become a model widely followed elsewhere, added to the self-sufficiency of the ESB and became the basis for a new national skilled manpower resource.

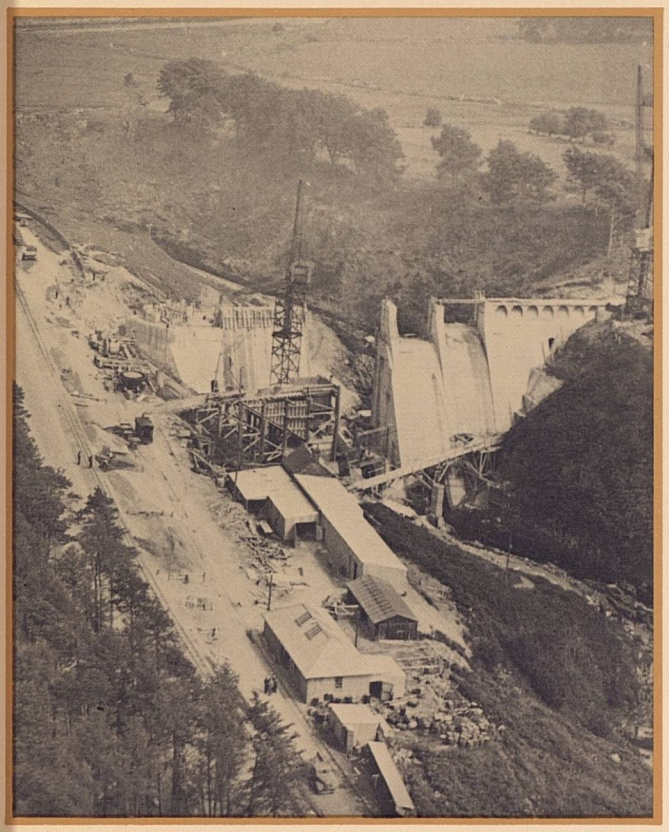
The Forties

The three hydro-electric generating stations on the Liffey came into service and were an invaluable addition to the nation's capacity at a time of general fuel shortage due to World War 2. In the process a new amenity was created which has become a notable scenic and leisure feature of the area.

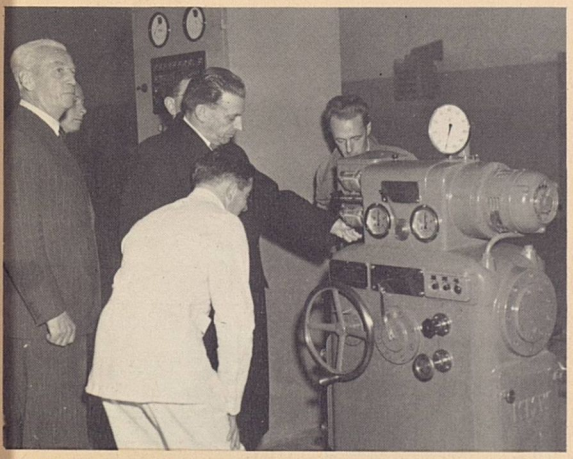
Plans were made for hydro development of the River Erne and for expansion into oil-fired electricity generation in Dublin and Cork; a small oil-burning station was built at North Wall, Dublin.

It was long an Irish dream to bring the vast boglands into productive use. The Government set the objective to burn peat as fuel for electricity generation. Bord na Mona and the ESB were ready to meet the challenge of converting the dream into reality and the ESB devised a complete new technology for peat-fired generation.

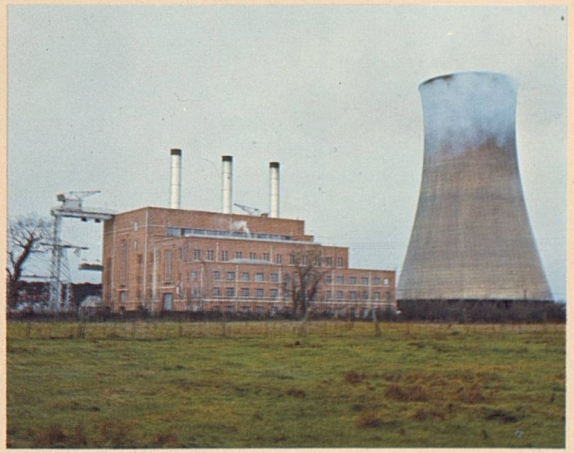
The ESB undertook another great Government objective of this decade to bring the benefits of electricity to rural communities. The Rural Electrification Programme commenced in 1946. It was ultimately to reach practically every home in the Irish countryside and to take its place as one of the greatest social developments in latter-day Irish history.



The development of the River Liffey hydro-electric scheme.



Mr. Séan Lemass, Minister for Industry and Commerce, opens the River Erne Scheme accompanied by Mr. R. F. Browne (left) Chairman of the ESB.



The first turf-station built at Portarlington.



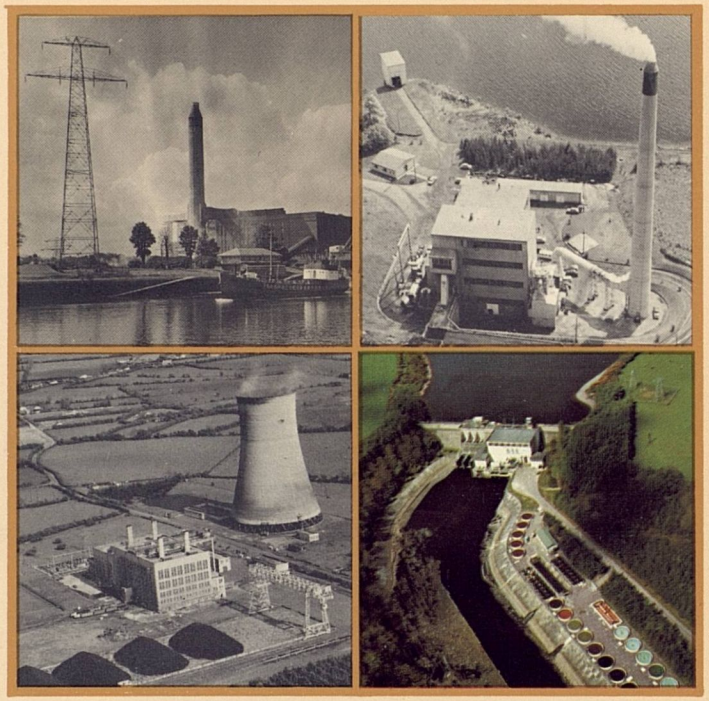
Electricity brought many services to rural Ireland.

The Fifties

In the decade of post-war recovery, the generation and supply programmes of the ESB made a signal impact on the social and economic life of the nation. Four peat-fired generating stations in the Midlands came into operation. Built, staffed and supplied with fuel by local labour, they were the focus of pride and opportunity in a traditionally depressed region of high emigration. Four small stations to burn local hand-won turf were built as a social contribution to depressed areas on the Western seaboard and a generating station to use local coal was built at Arigna. Hydro-electric schemes were completed on the Erne and the Lee, and new steam stations at Ringsend (Dublin) and Marina (Cork) came into production.

The impact of the Rural Electrification Scheme was unprecedented. The whole environment of rural living was being changed. All kinds of electrically-powered agricultural, dairy and domestic equipment were heavily in demand. The ESB provided an educational and advisory service to newly electrified areas of the country. By the close of the fifties the ESB was meeting a demand for electricity which had multiplied forty-fold since 1930. As the system expanded the Board issued its first public stocks which were enthusiastically supported, particularly by small investors, indicating widespread confidence in the ESB.

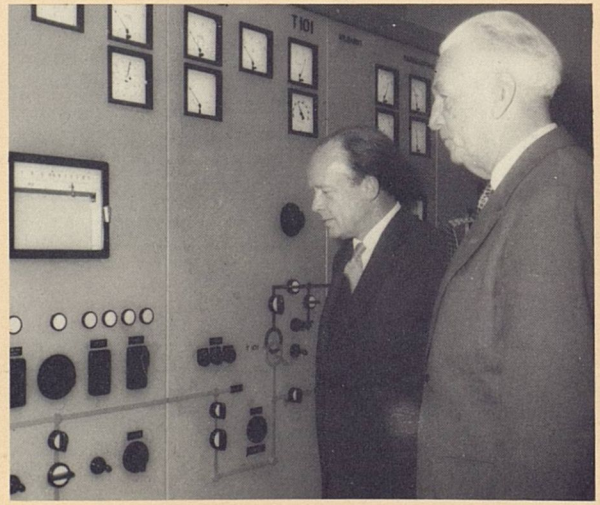
Diversification of fuel sources in generating stations: top left, Marina (oil-fired) and, right, Arigna (native coal-fired). Bottom left, Allenwood (turf-fired) and right, Carrigadrohid, (water-powered).



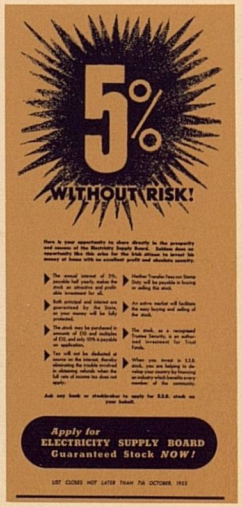
The planning and erection of rural networks.



Mr. Erskine Childers, Minister for Transport and Power opens the River Lee hydro-electric scheme with Mr. R. F. Browne, Chairman of the Board.



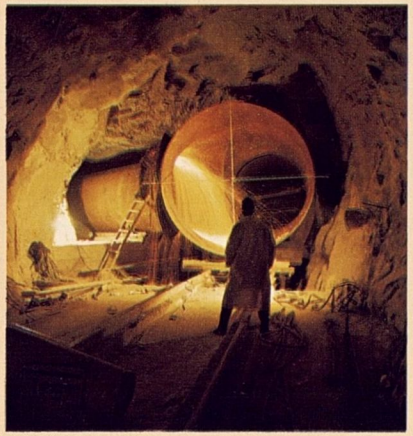
ESB Stock Issue advertisement.



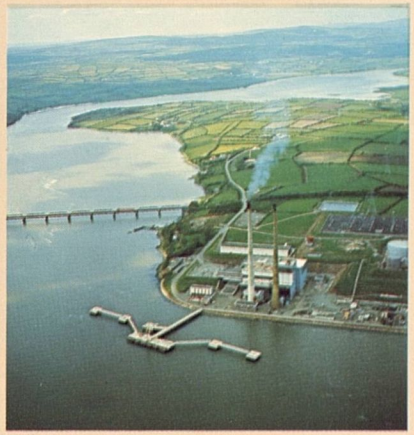
Mr. Jack Lynch, Minister for Industry and Commerce opens Showrooms in Cork with Dr. T. Murray (left) Chairman of the ESB and Mr. S. Barrett, Lord Mayor of Cork.



Construction work at Turlough Hill, pumped-storage generating station.



Great Island generating station.





An amenity area at Leixlip on the River Liffey.

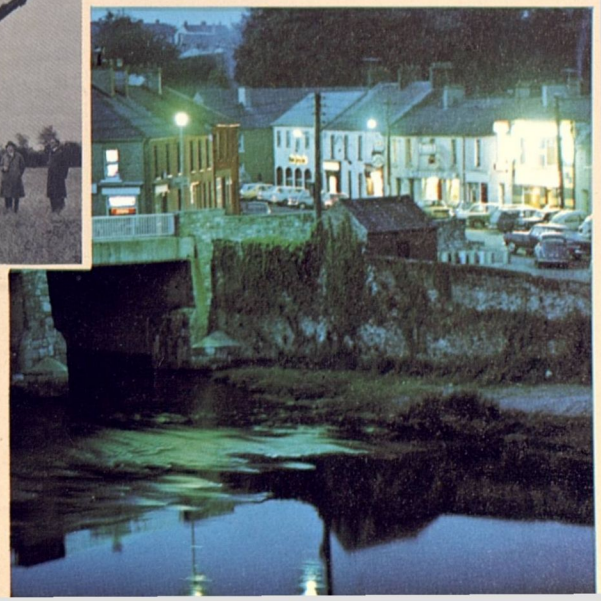
The Sixties

The surge of economic expansion was reflected in an almost three-fold increase in electricity requirements during the sixties. As hydro and native peat resources continued to be utilised the main thrust of development in this decade was in oil-fired generation. Oil was a comparatively cheap fuel and new technology enabled the ESB to construct large and efficient generating stations at Great Island (Wexford) and Tarbert (Kerry). Exploiting new technology, the ESB designed and commenced construction of a pumped storage generating station at Turlough Hill. High in the Wicklow mountains, this was the biggest civil engineering project ever carried out in Ireland.

As demand and customers continued to increase the growing complexities of administration were met by the installation of a computer system, and pioneering work in data processing became another contribution by the ESB to national progress.

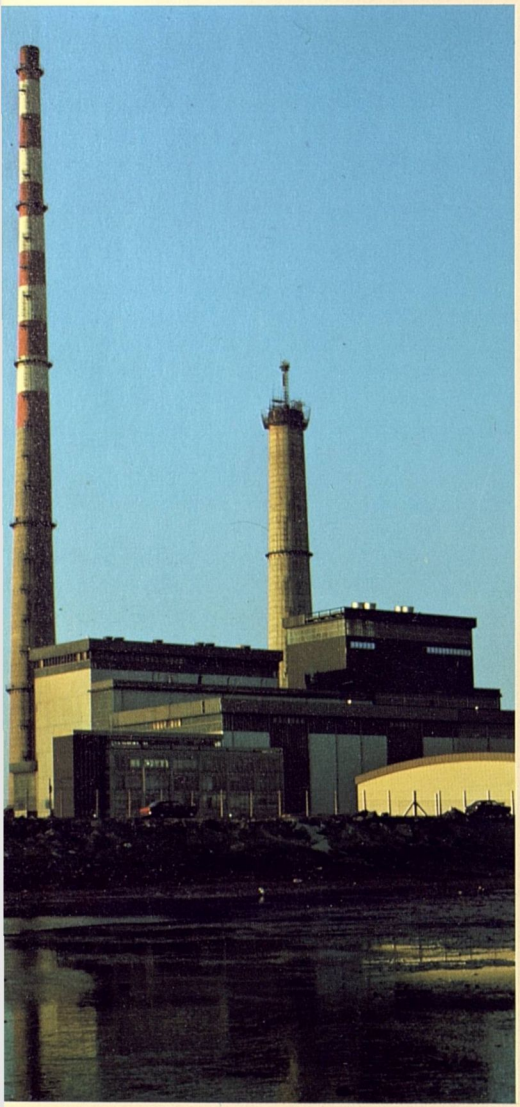
Responsibility for conservation of the environment had a high priority in all ESB operations. Hydro-electric projects had affected fisheries, and the ESB saw to it that fisheries in the waters under its control were rehabilitated and developed. Fish passes were built and the ESB fish hatchery at Parteen became the basis of its restocking programme, particularly for salmon, which has been so successful. Tree planting and landscaping were also carried out at most development sites.





Rural Electrification had brought supply to 81% of rural homes by the mid 1960's. Inset: The erection of the first pole in North County Dublin in 1946.

Poolbeg generating station, Dublin.



The Seventies

An emphasis on productivity and efficiency led to negotiations with trade unions representing staff of all categories, and new bases for working were established in many areas. In 1973, the oil crisis intervened. Practically overnight, energy demand declined. Fuel prices soared immediately. Later the depreciation of sterling added to costs. Despite these unforseen disruptions, the ESB held price increase levels below those of most other forms of energy. Overall staff numbers were reduced by 11% – without redundancies. When the initial impact of the crisis was absorbed, the ESB increased output by 10%, met mainly from its new generating units at Poolbeg (Dublin) and Tarbert (Kerry).

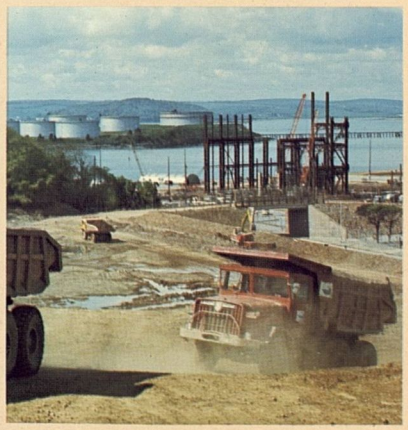
The Government allocation of natural gas to the ESB provided a new source of native energy and a gas fired generating station will be commissioned at Aghada (Cork) in 1980 and a gas turbine will go into operation at Marina in 1978.

In fifty years the wheel has turned full circle. In 1925 the Shannon Scheme was built with foreign expertise and handed over to the ESB in 1927. Since then, the ESB has concentrated on producing its own expertise through training and development of Irish people. Now the ESB itself is marketing its technology abroad and has already procured more than £5 million of business in overseas training, design, administrative and engineering services. This directly benefits the Irish electricity user and helps both the economy and international prestige of Ireland.

An ESB instructor on consultancy work in Bahrain.



The construction of the natural gas-fired generating station at Aghada, Co. Cork.





The modern computer installation at ESB Head Office.



Restocking Irish rivers with young salmon reared at ESB hatcheries.



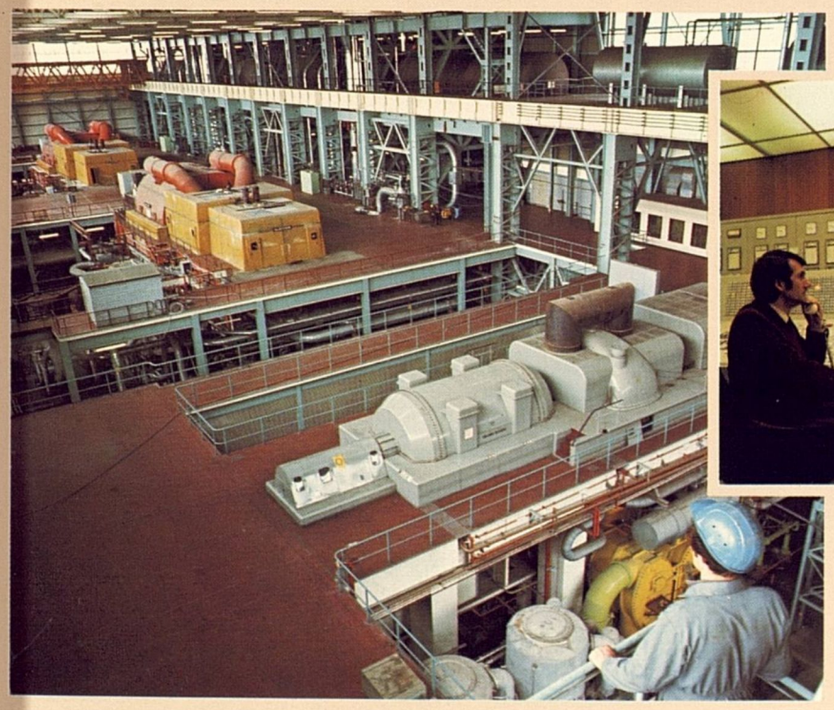


Aerial view of Turlough Hill pumped storage station.
Inset: generating hall.

Shannonbridge turf-fired generating station.



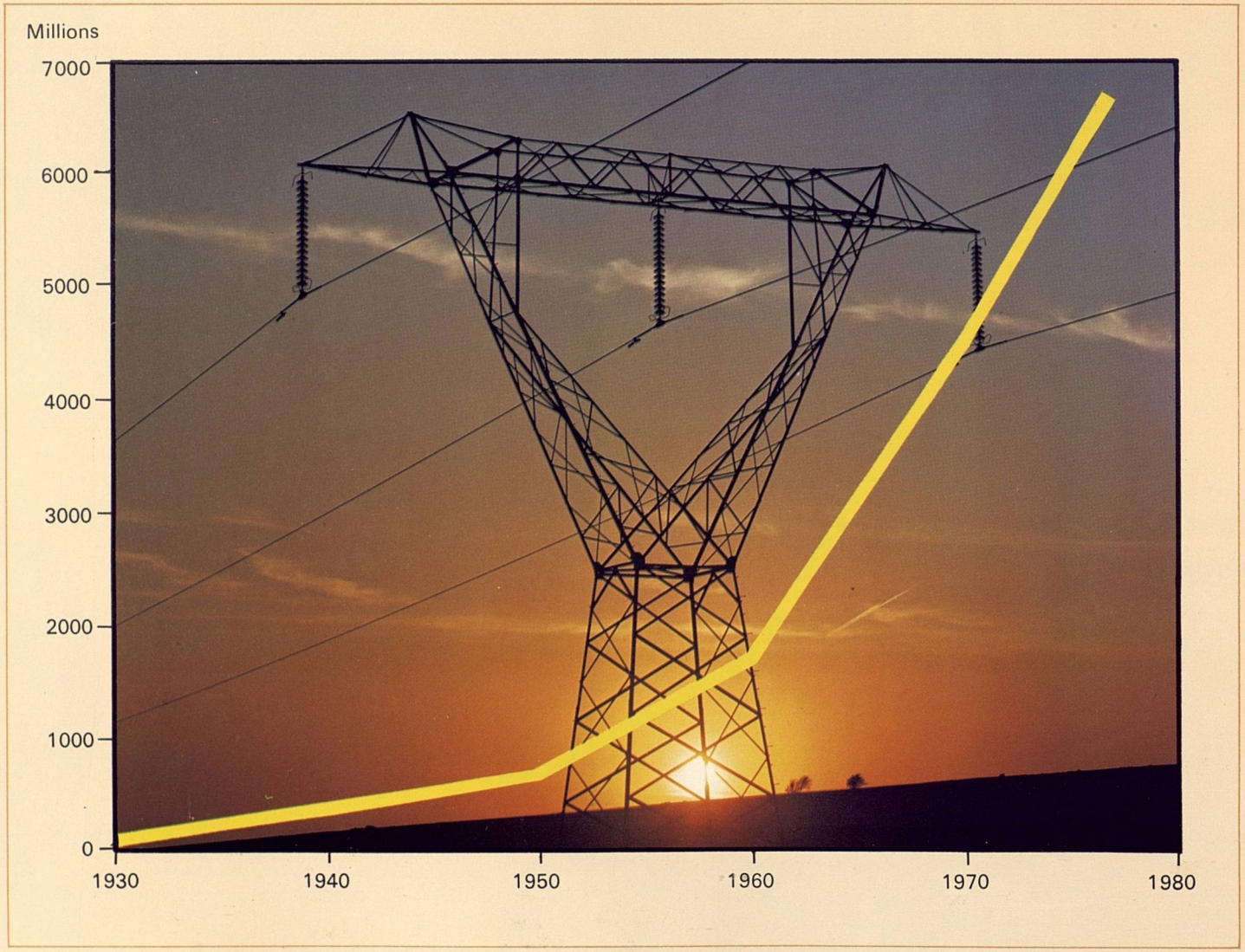
Tarbert station generating hall and (inset) control room.





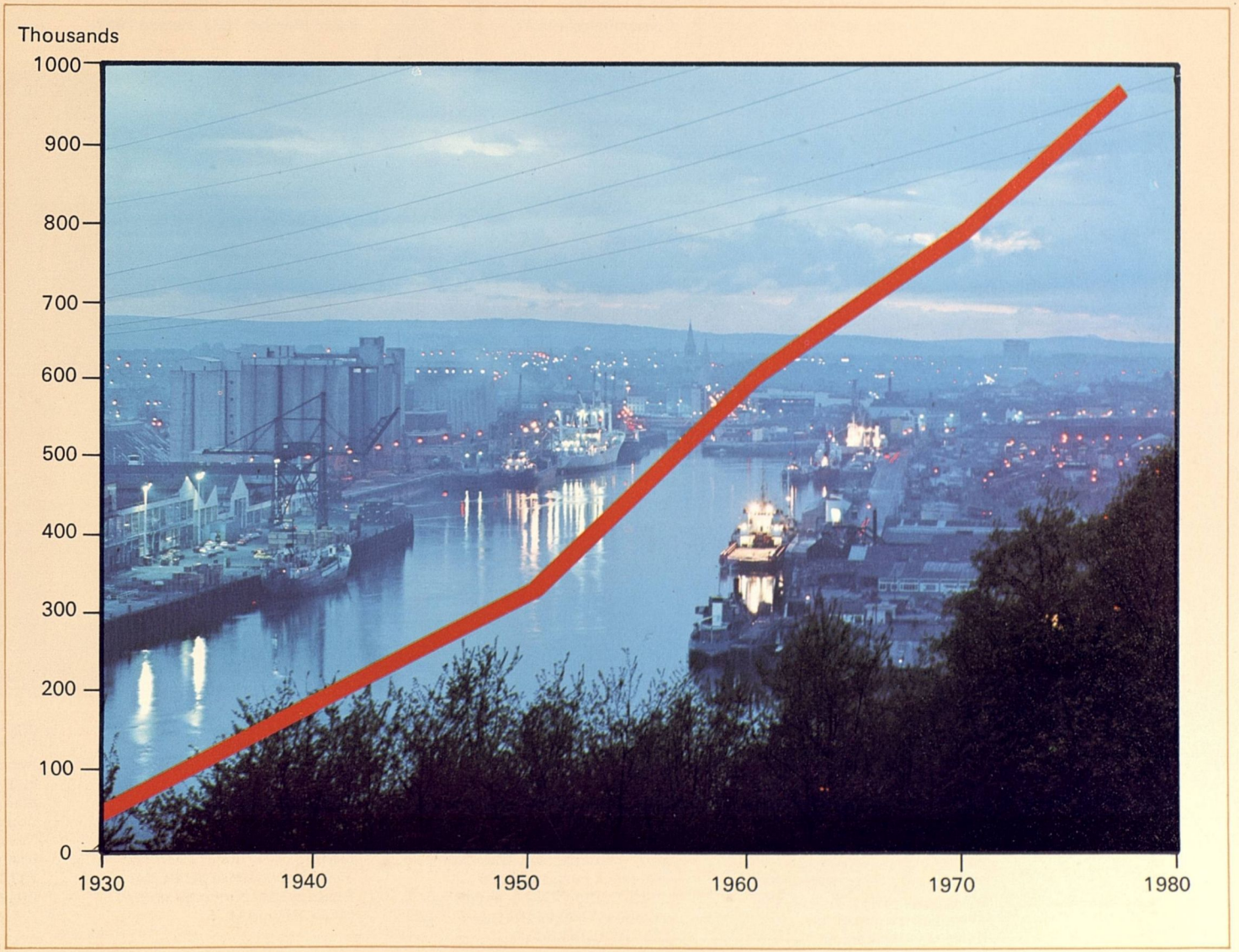
Units Sold 1927-1977

The growth rate in the use of electricity provides a good index to the rate of industrial and social development. The ESB has always seen itself as an agent of such development and has ensured, over the years, that power was readily available to facilitate such growth. Its faith in Ireland's potential has always been justified. In 1930, it sold just over 43 million units. Last year it sold 6,783 million units – that is an increase of almost 160-fold.



Number of Customers 1927-1977

In 1930, the ESB had less than 50,000 customers – to-day it has almost one million, representing 99% of all Irish homes, factories, farms and commercial premises. It has met the objective set for it – to make the benefits of electricity available throughout the country. And today, customers can pay less for a unit of electricity than did users at the time the ESB was established because local supply companies often charged up to 7p per unit in the 'twenties compared with today's $2\frac{1}{2}$p.



Personalities 1927-1977

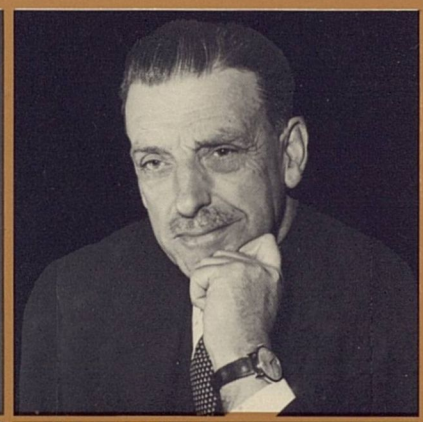
Dr. Patrick McGilligan
Born Derry 1891.
Graduate of N.U.I.
Minister for Industry and Commerce 1924-1932.
Introduced the electricity legislation into the Dail which established the ESB as the first of the Irish State-sponsored Corporations in 1927.

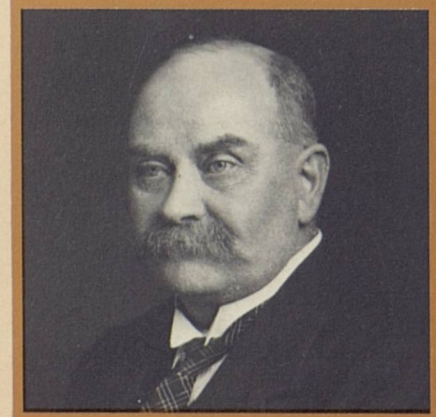
Dr. Thomas McLaughlin (1896-1971)
Born Drogheda, Co. Louth.
Graduate of N.U.I.
His proposals for the construction of a national supply scheme based on the Shannon were adopted by the Irish Government.
Appointed Board Member and Managing Director in 1927.
Resigned 1931. Re-appointed Board Member 1932. Retired 1957.

Sean Lemass (1899-1971)
As Minister for Industry and Commerce over 15 years during the period 1932 to 1959 and as Taoiseach from 1959-1966, he shaped ESB policy in many major aspects.



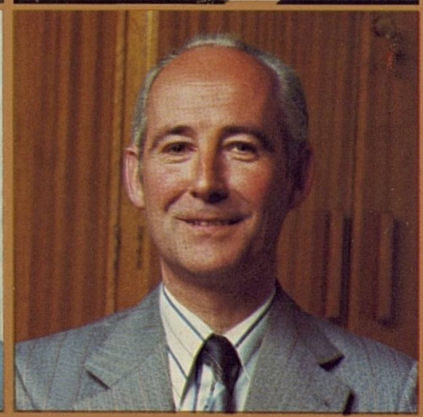












John J. Murphy (1875-1947)
First Chairman of the ESB 1927-1930.
Presided at a time when many important decisions, which shaped the future development of the ESB, were being made, viz. not to supply in bulk to existing electricity undertakings but to acquire them and supply directly to the customers.
Resigned membership of the Board in 1931.

Richard F. Browne (1891-1965)
Chairman of ESB 1930-1960.
Presided over the major development and expansion of the ESB; piloted it through the difficult thirties, the war years and into the beginnings of the post-war expansion. Milestones in his term included Rural Electrification, further hydro electric schemes and construction of peat fired stations.

Dr. Thomas Murray
Born Templederry, Co. Tipperary in 1913.
Graduate of N.U.I.
Distinguished career in Irish Civil Service.
Appointed Deputy Chairman of the ESB in 1959 and Chairman in 1960. Enormous expansion of Board system during his term of office. Retired 1975.

Professor Charles T. G. Dillon
Born Dublin. Graduate of N.U.I.
Appointed Professor of Electrical Engineering in U.C.C. in 1959.
Member of National Science Council since 1967, was Chairman of Nuclear Energy Board from its foundation in 1973 to 1975. Appointed Chairman of ESB 1975.

Significant Facts

	1976/77	1975/76
REVENUE		
Electricity	£173,429,000	£136,277,000
Appliance Sales (Net of Taxes)	£4,609,000	£4,535,000
Installations	£2,511,000	£2,365,000
ASSETS	£466,976,000	£423,658,000
PAYROLL	£53,598,000	£48,327,000
SALES (million units)	6,783	6,259
GENERATION CAPACITY (MW)	2,290	2,000
PEAK DEMAND (MW)	1,634	1,478
LOAD FACTOR	57.1%	57.1%
CUSTOMERS	959,428	931,469
EMPLOYEES	10,759	10,910

(Cash figures are rounded off to the nearest thousand)

Prl 6134

ESB

1927-1977

Fiftieth Annual Report For year ended 31st March 1977

ELECTRICITY SUPPLY BOARD
IRELAND

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Weekly System Demand	Inside back cover

To the Minister for Transport and Power

The Electricity Supply Board, established by Government in 1927 as the first Irish state-sponsored corporation, this year records half a century of achievement in the service of the nation. The Board takes particular pride on this occasion in presenting its Annual Report and Accounts for the year ended 31st March, 1977; as its fiftieth Annual Report it marks in a special way the continuous contribution of the ESB as a cornerstone of national economic and social development since its foundation in the infancy of the State itself.

In recording the achievements of the last fifty years the Board acknowledges the dedication of those whose efforts made them possible. The past, however, is history; the Board's concern is properly for the future in which the new realities of the world energy situation present the greatest ever challenges for the years immediately ahead. Fundamental questions about sources of energy to fuel the country's continuing progress will have to be determined, financial implications mastered, and new technologies embraced and applied for the benefit of the Irish people. The Board stands prepared to face these challenges and to play its part in overcoming them with enterprise and responsibility as its contribution to the prosperity of the nation.

Fifty years of service to the nation

The decades of achievement are recorded elsewhere in this report. However, looking back over the years to the Board's first Annual Report in 1928 affords a timely reminder of the magnitude of the task which faced the ESB at its inception. Against a background of low agricultural production, nascent industrial development and a dearth of the technology required for expansion, the immediate need was to distribute electricity from the newly constructed Shannon Scheme to cities, towns and villages across the nation so that the maximum benefits of the State's far-sighted investment could be realised as quickly as possible. The major urban areas had electricity but their systems were local and limited; many hundreds of towns had no electricity at all and the rural community at large had, up to then, no prospect of access to the benefits of electric power.

It was to be the major achievement of the Board to confront and overcome the many obstacles to the development of a national electricity industry providing an integrated, comprehensive and reliable electricity service to the whole community with standards comparable to the best anywhere.

The Board's customers now number 959,428 from an early figure of 49,000. Electricity sales have risen from 43 million units to 6783 million. Annual revenue has grown from £478,000 to £174 million and by the end of this year practically every household in the nation will have supply.

Apart from the initial State allocation of capital funds which the Board is repaying over an agreed period of years, this growth has been achieved by the ESB from its own resources, principally depreciation cash flow, and from approved arrangements for borrowing directly from the public and financial institutions.

Social Responsibility

In its special position as the provider of a vital national service and in its capacity as a heavy user of the nation's capital resources the Board has always accepted a high level of social responsibility. It has constantly and successfully pursued opportunities for electricity to contribute to the expansion of productivity in every sector of the economy and to the betterment of living standards nationally. It will continue to strive for the most efficient use of electricity in line with world and national imperatives to conserve energy and eliminate waste, in addition to discharging its statutory duty of advising the Government on all matters relating to natural resources for generation of electricity.

As a major public service employer throughout the State, the Board is conscious also of its responsibilities to its staff and of the obligation to contribute, through its employment and developmental policies, to the country's resources of enterprise and talent. In the national debate on policies for primary energy the technological and financial expertise which has been developed within the ESB is making its contribution and the Board is anxious to place at the service of the community all the expertise which it has available.

A recent development of significant national potential has been the sale of consultancy services overseas. Initially undertaken as a means of using the spare expert capacity of staff available from a down-turn in the energy capital programme due to the mid-seventies recession, it is now evident that consultancy services can be marketed in a wide range which will provide hard-currency earnings not only for the Board but for the economy generally through associated promotion of Irish goods and services. Opportunities in this area have already been seized in co-operation with Coras Trachtala and other relevant agencies. There is the further advantage that the Board's strong technological base and expertise in world markets is available to support the national effort in the encouragement of investment in Irish industry and the experience gained in working abroad adds a new dimension to the contribution which the Board can make to the pool of talent at home. In these and other practical ways the Board, in line with Government thinking, wishes to develop a new and productive level of relationship with other state agencies and with the private sector in the national task of improving the economy.

Fisheries

In successfully meeting its responsibilities for the rehabilitation and conservation of fish stocks in the rivers and waters under its care the Board has developed and enhanced a valuable national resource, created new amenities in the countryside and made a significant contribution to tourism. The Board is accordingly alarmed at the continuing level of exploitation of salmon fishing in the sea. It looks forward to the urgent implementation of the recommendations of the Fishery Commission if salmon is not to become an extinct species in this country as has occurred elsewhere in Western Europe.

Financial Structure

The Board is required by statute to apply a tariff policy which will cover the costs of producing and supplying electricity, including costs of operation, depreciation, interest and repayment of borrowings. The objective is to break-even taking one year with another, and the financial base and structure of the ESB is determined accordingly.

The electricity supply industry is highly capital intensive and its required growth to keep pace with the country's needs in the vital matter of electric power necessitates continuing an intensive capital expenditure, projected at more than £250m. over the next four years to maintain electricity supplies at an adequate level. The financial structure of the ESB, backed by legislation, provides the Board with the capacity to service existing debts and enables further borrowings to be made as necessary; the value of the structure has been demonstrated in the recent difficult years of capital shortage by the Board's success in raising funds both at home and abroad.

At minimum, at a time of high inflation, it is essential to maintain this legal base if funds to finance the necessary capital programme are to be secured, and if the price of electricity is to be kept to a reasonable level. The advantages of the Board's financial structure can be demonstrated in comparison of debt service costs borne by the Board with those of utilities in other parts of the world.

Finance

There was a deficit of £1.5 m. on the year's operations which, viewed against the scale of the Board's business, is close to break-even on an income of £174 m. and a creditable management performance in face of a number of difficult and variable circumstances, including the delay in implementing the recommendation of the National Prices Commission. The accumulated deficit as at 31st March, 1977, stands at £8.6m.

Fuel was the major cost factor; it now accounts for close on 45% of total costs. The scale of oil price increases since December, 1975 has been just as steep as the initial "oil crisis" increase in 1973; oil prices went up by nearly 60% in the fifteen months to March, 1977. Two important contributory factors were the 2p per gallon excise duty imposed in the budget of January, 1976 and adverse movements in sterling parities.

The servicing of borrowings is another significant cost item – 18% of total cost. Over the past two years the cost of servicing foreign borrowings and the level of Balance Sheet liabilities have, like oil prices, been adversely affected by the weakness of sterling. Prudent forward purchasing of currencies in 1976/'77 mitigated to a significant degree the adverse change in parities.

The success of ESB loan stock issues on the home market in 1976, and more especially the recent issues, is clear evidence of public confidence in the Board and its financial soundness. We are grateful for this demonstration of public support, particularly emphasised by the large number of subscriptions from the small private investors. Prospects are increasing that it may be possible to reduce the level of dependence on borrowing foreign currencies in the future and the trend is encouraging. It is a matter of great importance to the Board and to national reputation that the financial obligations imposed by the Electricity Acts are fulfilled. The level of accumulated deficit continues to be of serious concern and its early elimination over a phased period must be achieved.

The commissioning of the large generating units at Tarbert, Poolbeg (1978) and Aghada (gas 1980) should yield significant economies in operation. Further economies are expected from the Board's financial structure and staff productivity. All these will help to stabilize the level of electricity prices, particularly if fuel costs and currency exchange rates do not change drastically.

Customer Service

The Board appreciates and is concerned at the impact of inflation and recession on customers' ability to use and pay for a supply of electricity adequate for their needs. The Department of Social Welfare scheme for pensioners and certain others has made a noteworthy contribution in enabling such customers to meet their essential requirements, but the Board is anxious to assist customers generally to adjust to the new levels of cost by advising on wise use of electricity and promoting payment facilities which encourage saving and spread payments more evenly. In the near future a new budget payment plan will be offered as an attractive alternative to optional monthly billing on domestic accounts. Savings stamps have become a favoured way of meeting electricity bills amongst a wide range of domestic users, and later in the year there will be a new bill format and an information leaflet on the payment of domestic electricity bills for the guidance of customers.

It is the long-established and continuing policy of the Board to respond with understanding and sympathy to requests for special payment arrangements in individual cases where illness or other domestic difficulty affects a customer's normal ability to pay the electricity bill.

Energy

Most developed countries are now intent on producing a total energy policy embracing the best use of all available fuels. The EEC is also proposing Community Guidelines. There are serious implications in the Irish context and the ESB is contributing to the study of a national energy policy.

There is continuing uncertainty about future demand for electricity and also about energy sources. Before the world-wide impact of the 1973 energy crisis and the severe inflation and recession which accompanied it, Ireland, in common with many other countries, had been accustomed to a steady annual growth of about 9% in demand for electricity, and planning was based on the reasonable assumption that this level of demand would be sustained.

The oil crisis severely disrupted the growth pattern however and the climb towards recovery has taken several years. 1976/'77 has shown a growth level more like that of pre-recession times; the largest increase in demand is recorded in the industrial and rural domestic sectors and generation of electricity was up by 10.7% for the year. The ESB as a service organisation reflects the economic development of the country and, while major difficulties, as described in the next paragraph, still attend the uncertainties about future costs and sources of energy and consequential patterns of demand likely in the years ahead, the

Board is pleased to be able to report in the context of national economic activity an apparent return to a sustained growth in electricity demand over the year as a whole.

Because the uncertainty about energy sources continues through the world, the Board's basic strategy in planning is to keep options open as long as possible while questions of supply, cost and demand are being clarified. Plans and programmes are kept constantly under review and are designed to incorporate as much flexibility as is practicable to provide a quick response to any development which may threaten the country's supply of electrical energy essential for economic progress. Moreover, the Board is sensitive to the heavy financial burden placed on the community by the necessary importation of fuel oil; it wants to reduce dependence on oil and provide the country with an increased readiness and capability to use indigenous Irish resources to maximum economic advantage. For these reasons, there is an advanced programme to avail of natural gas at the earliest possible opportunity, planning in co-operation with Bord na Mona for a third development programme for more peat, and involvement in the examination of future energy options including nuclear energy, imported and low-grade native coal, wind and wave motion, and solar conversion.

General

The Board is one of the State's biggest employers. It has a staff of 10,759 embracing a wide range of professions, skills and occupations who are employed across the entire country in twelve districts, twenty eight generating stations (each the equivalent of a complex factory in its own right) and an administrative headquarters in Dublin. Its employees are in membership of nineteen separate trade unions. Maintaining a balanced level of industrial relations in this diverse organisation entails the unremitting efforts of management, staff and trade unions and progress is dependent above all on the establishment and use of effective negotiating processes to handle peaceably the myriad issues, large and small, which arise in a typical year throughout the industry.

A dispute in which any party seeks to by-pass the joint grievance processes hits at the foundation of the relations carefully established over the years between the Board and its staff through their trade unions. It is especially serious in its implications for the conduct of future industrial relations in the organisation and consequently for the stability which the community is entitled to expect. The Board greatly regrets that during the year such a dispute, which occurred at Shannonbridge Generating Station, resulted in widespread power cuts which caused inconvenience to its customers and hardship to the community in general while unofficial action was taken by a small group operating outside trade union conventions and the established grievance procedures. Although the unofficial action was supported by some shift staff in other generating stations, the Board is proud to record that the majority of staff followed a peaceful and constructive course of industrial relations through the official trade union movement during the strike and throughout the year, thus ensuring that the careful progress made between the Board and the unions in the essential task of constantly improving industrial relations in this vital industry was not negated.

The Joint Committee of the Oireachtas on State-Sponsored Bodies has been established and the Board has been informed that it is one of the organisations to be included in the Committee's terms of reference. It has always been the Board's policy and practice to provide the community with maximum information on its operations and it welcomes this new opportunity of establishing a significant and fruitful liaison.

Staff

When the ESB was founded there was little native experience of large-scale electricity supply, or of administration outside central and local government. The Board responded to the need by a policy of developing Irish expertise within the organisation to the maximum extent possible. This development has been achieved to a remarkable degree which is unique amongst electricity utilities throughout the world. The nature of the industry, operating as it does in a climate of continuous and

rapid technological change, is such that it requires a wide selection of disciplines, professions and skills; apart from the beneficial effects within the organisation itself this development policy has been of immense importance to the Irish community at large where ESB trained managers and others have, for many years, been making notable contributions to economic progress. Moreover the present success being achieved in consultancy is a direct result of the multi-disciplinary expertise which the ESB can provide.

The Board is designated in the recent Worker Participation (State Enterprises) Act 1977 as one of the public sector boards to which employees may in future be elected as members. The Board welcomes this extension of industrial democracy which is likely to take place during the year of its fiftieth anniversary. Employee participation has been a feature of the Board's personnel policy for many years and it is the intention to continue with the development of participative structures within the organisation to complement the appointment of employee members to the Board. It is the Board's earnest desire that all concerned with this far-reaching experiment will work constructively to ensure that it has a beneficial impact on the organisation and on staff relations.

The Board takes this opportunity to thank its staff for the manner in which they performed their duties during another difficult year. Although there are many uncertainties concerning the future, the skills in the organisation enable the Board to look ahead with confidence that each challenge presents its particular opportunity for demonstrating renewed commitment to the achievement of national ideals. In particular, on this golden jubilee, it is fitting that the Board should record its thanks to former Board members and staff who guided and developed the organisation from its beginnings to the present day and were, in a variety of ways, the architects of its achievements.

Board Membership

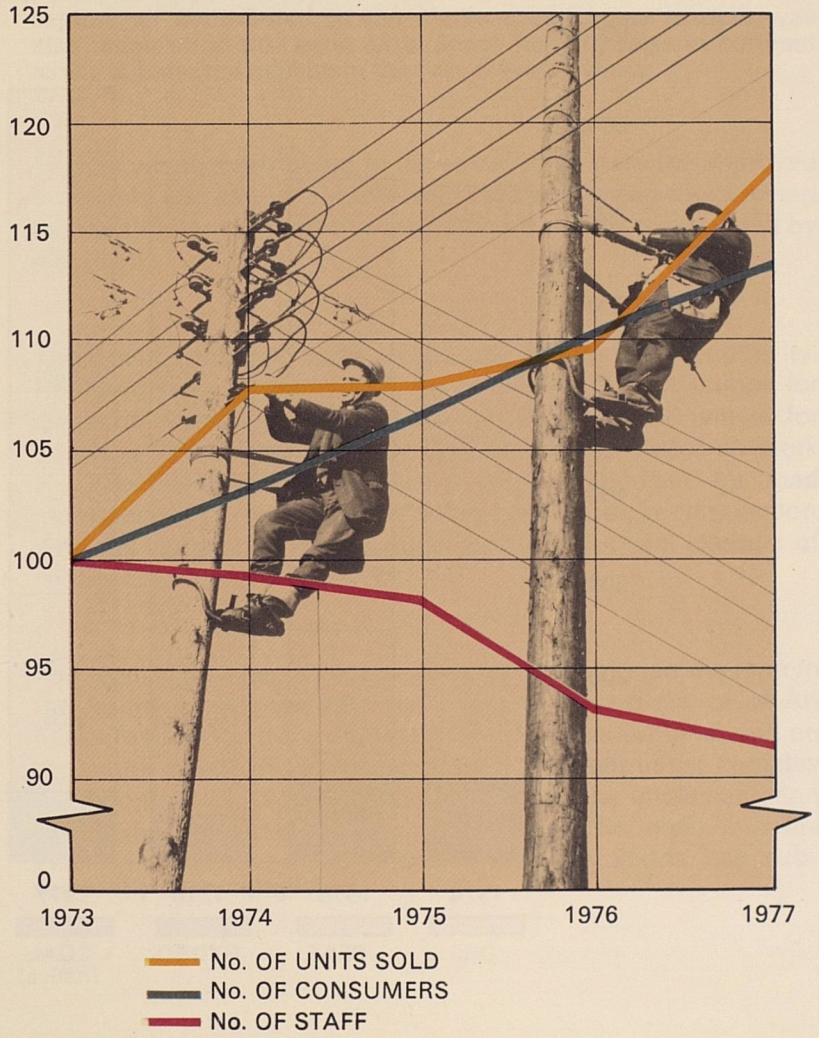
Mr. Liam Boyd was appointed a Member of the Board by the Government as from the 2nd July, 1976. He replaced the late Mr. Thomas MacMahon who had served as a Board Member since 1953 and whose death, following his retirement the Board noted with deep regret.

(Signed) *C. T. G. Dillon,* Chairman
S. Scally
C. Kelleher
C. Gordon Lambert
L. Boyd
B. Sweetman Fitzgerald
J. A. Ryan

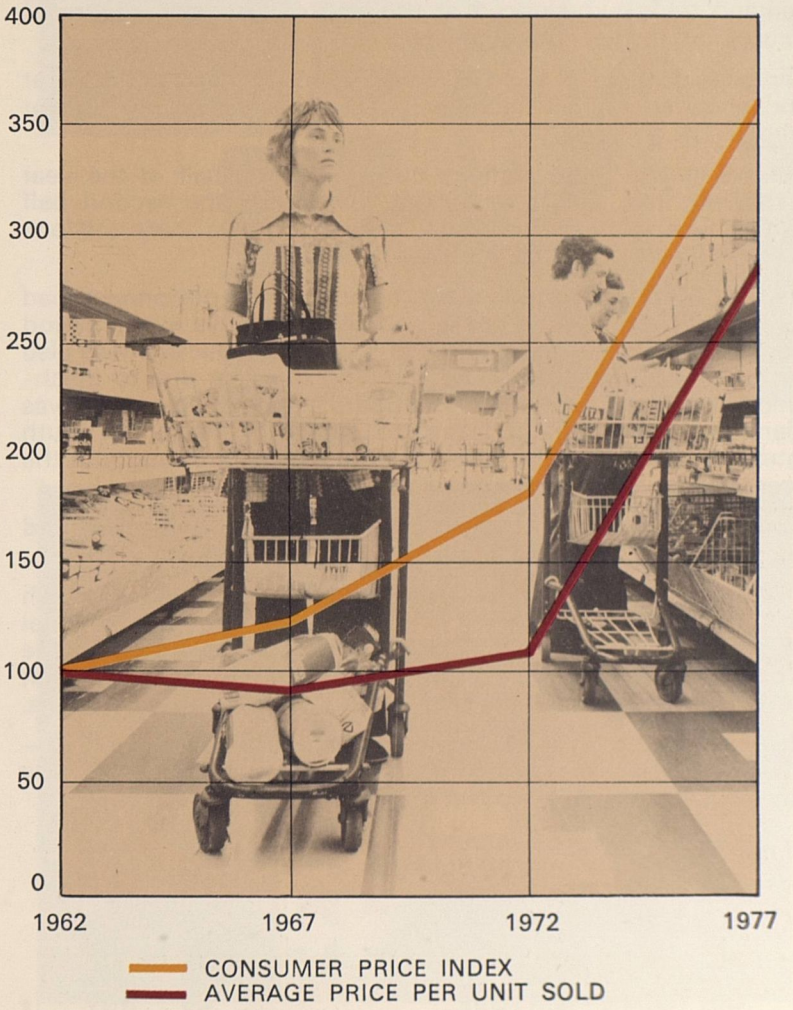
(Signed) *J. F. Williams,* Secretary
5th July, 1977

GROWTH OF E.S.B.

1973–1977



COMPARISON OF INCREASES IN CONSUMER PRICE INDEX WITH INCREASES IN AVERAGE PRICE PER UNIT SOLD



Electricity Production

System demand required the generation of 8161 million units, an increase of 10.7% over the previous year. The increasing demand trend experienced at the end of last year continued throughout the year under review.

The peak demand of 1634 MW was 10.6% higher than last year and occurred on 1st February, 1977. The annual load factor was 57.1%.

Inflows at the hydro stations during the first half of the year were very low, 49.3% of normal, but during the second half rainfall was so heavy that total generation from these stations reached 95.4% of normal for the whole year.

Unofficial industrial action made it necessary to disconnect load on six days and reduce voltage on six other days in the period from late December to mid January. Voltage reduction was also necessary on eight further days during the year due to mechanical difficulties with plant. The Board's generating system was planned on the basis of taking advantage of the North/South interconnection, but the latter was not available throughout the year because of malicious damage.

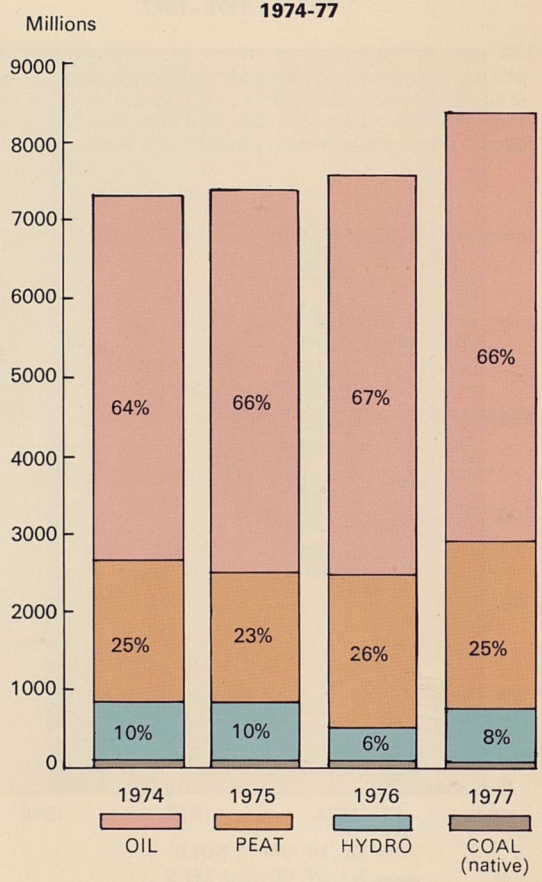
System frequency was maintained between 49.84 Hz. and 50.16 Hz. for 95% of the time.

The efficiency of Poolbeg Station has been consistently high since it was commissioned in 1970. The latest international efficiency figures available (1975/'76) placed it second in the world. This is all the more noteworthy when it is considered that its 120 MW units were the smallest in the top group of stations.

New generating units were commissioned at Tarbert (oil fired – 250 MW) and Shannonbridge (peat fired – 40 MW) and the total installed capacity at 31st March, 1977 was as follows:

Hydro Plant (Conventional)	219	MW
Hydro Plant (Pumped Storage)	292	MW
Steam Plant (Sod Peat)	117.5	MW
Steam Plant (Milled Peat)	330	MW
Steam Plant (Oil)	1288	MW
Steam Plant (Coal)	15	MW
Gas Turbine Plant (Oil)	28	MW
	2289.5	MW

ENERGY SOURCES UNITS GENERATED 1974-77



Electricity Sales

The total amount of electricity sold during the year increased by 10% (see Appendix 3). The domestic, commercial and industrial sectors all contributed to the increase and some growth was also recorded in domestic night space heating sales in contrast to the substantial decline in the two previous years.

Factors which contributed to increased sales were the improved economic conditions, the relatively cold winter and the growing recognition by the public of the value for money represented by electricity.

The Board continued to assist industry to improve productivity. Research work continued on the suitability of heat pumps for domestic space heating and on the use of solar panels for domestic water heating under Irish conditions. Research work also commenced on the use of new equipment for load management purposes; this is being carried out in conjunction with the National Science Council and the National Institute of Higher Education in Limerick.

The studies into the increased need for electricity on the farm in the future (which were carried out with the assistance of An Foras Taluntais and the voluntary farming organisations) and on the supply of heat from a power station to a glass house complex were completed; work has commenced on the implementation of the recommendations of these studies. The study into the viability of district heating under Irish conditions has subsequently been completed.

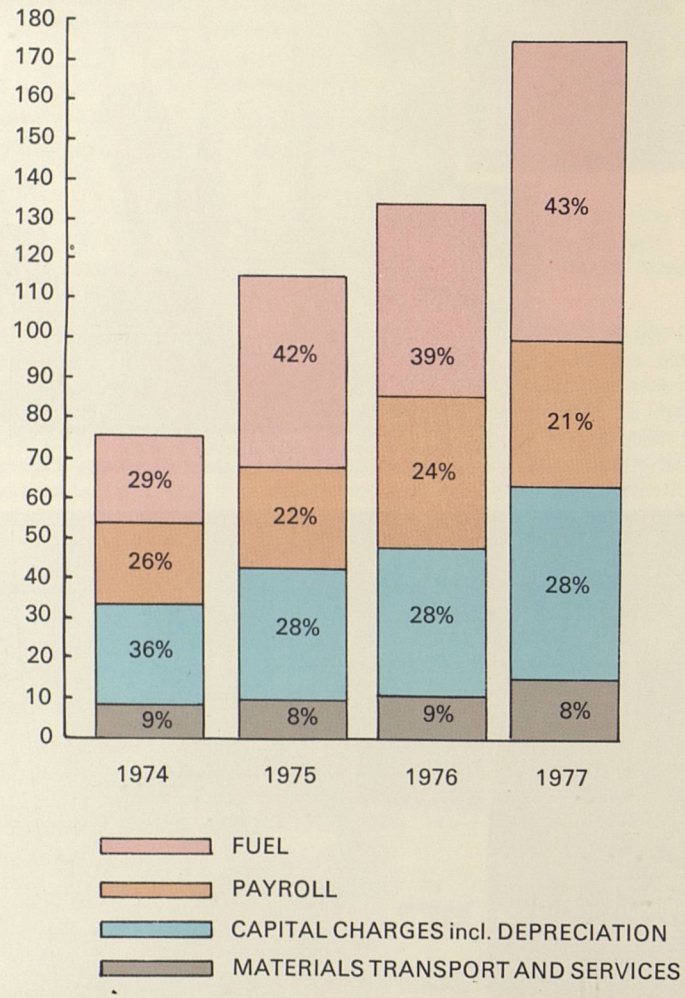


Monitoring the performance of solar panels for domestic water heating. Inset: A solar-panel under test at ESB premises.

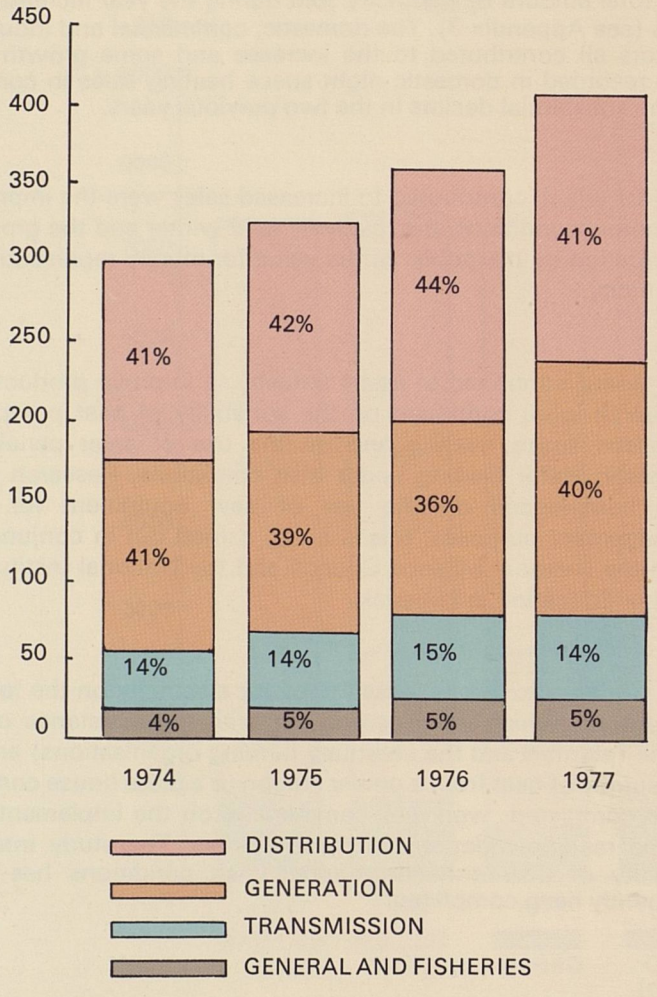


The use of a convertor can provide the farmer and small industry with the facility of three phase supply from single phase networks.

EXPENDITURE



CAPITAL INVESTMENT IN FIXED ASSETS



Finance

Revenue Income and Expenditure:

Revenue Income was £174,105,440, an increase of £37,463,618 over the previous year while Expenditure at £175,226,698 showed an increase in the year of £40,385,053.

Summarised figures are as follows:

	Year ended 31st March 1977	*Preceding Year*
	£	£
Expenditure:		
Fuel	76,023,268	53,117,229
Payroll and other direct costs	51,251,600	44,308,561
Capital charges including depreciation	47,951,830	37,415,855
	£175,226,698	£134,841,645
Revenue Income	£174,105,440	£136,641,822
	£1,121,258 (Deficit)	£1,800,177 (Surplus)

After taking account of losses on trading activities and deducting expenses on new borrowings the result for the year was a deficit of £1,502,088, which increases the total deficit carried forward to 1977/78 from £7,134,894 to £8,636,982.

Capital Expenditure:

Expenditure in the year was £46,229,014. After allowing for retirements of assets of £2,911,331 investment in capital assets increased to £466,975,640 (See Schedule D).

Assets brought into commission during the year were £54,382,846 bringing the total value of assets in service at year end to £410,030,165. Work in progress was £56,945,475; work approved amounted to £581,132,569 leaving £114,156,929 of approved work to be completed.

The Electricity (Supply) (Amendment) Act, 1974, authorises capital expenditure of £700 million for general purposes.

Expenditure was financed by:–

(a) balance of funds brought forward

(b) internal resources arising mainly from charges for depreciation of assets and from supply contributions

(c) issue of redeemable public stocks on the home market

(d) private placement with Banks

(e) further drawings of the loans from the World Bank

(f) project finance from Banks/Suppliers for purchase and erection of major plant

(g) deferred instalment of rural subsidy from the Minister for Finance

Major Construction Works

The additional peat supplies which will become available as a result of the Bord na Mona Third Development Programme will considerably increase the amount of electricity generated from native fuel sources.

It will be possible to use part of the additional supplies in the existing milled peat fired generating stations as these can now be operated for longer periods between overhaul due to design modifications and development work on operation and maintenance over the years. Proposals for additional generating capacity to use the remainder of the additional fuel are under consideration by the Minister for Transport and Power.

Research and development work continued on the possibility of using low grade "crow" coal from the Arigna, Co. Leitrim area. Tests on the coal were carried out in Britain and the United States. The results of the initial tests indicate that the fuel can be burned using fluidised bed combustion techniques. This technique is different from the traditional combustion methods. It will, however, be necessary to carry out further tests during the coming year before a final assessment can be made. This work is being done in co-operation with Arigna Collieries Ltd., and their consultants.

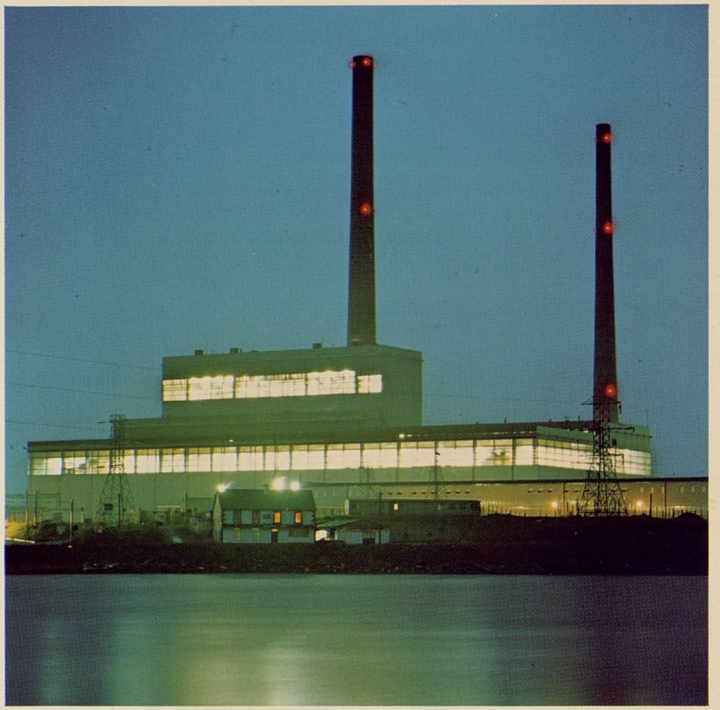
Tarbert Generating Station Extension, Co. Kerry (Oil Fired) 2-250 MW Sets: (The capacity of the existing station is 2-60 MW Sets).

The first 250 MW unit at Tarbert was commissioned in April 1976. Erection work on the second unit had been completed and commissioning was due to take place in early April 1977.

Landscaping and site restoration work are continuing.

Shannonbridge Generating Station Extension, Co. Offaly (Milled Peat Fired) 1-40 MW Set: (The capacity of the existing station is 1-40 MW Set).

The new set was synchronised in September 1976 but further work on commissioning was delayed until February, 1977 because of industrial relations problems. Full load was achieved in March.



Tarbert, Co. Kerry – the largest of the Board's generating stations.

Poolbeg Generating Station Extension, Dublin (Oil Fired) 1-270 MW Set: (The capacity of the existing station is 2-120 MW Sets).

The general civil engineering work was almost complete and construction of the chimney was in progress. Site erection of the main plant was well advanced. Structural steel erection had been completed apart from some minor items.

The scheduled completion date for the extension is 1978/1979.

Aghada Generating Station, Co. Cork (Gas Fired) 1-270 MW Set:

The first phase of the site development and the access bridge

were completed. The main site development works and construction of the main station foundations were continuing. The contracts for the main civil works, chimney, and administration building works were about to be placed. Tender documents for the marine contract had issued.

Erection of the main plant is scheduled to commence in May 1978 and is due to be completed in 1980/1981.

Marina Generating Station Extension, Cork (Gas Fired) 1-83 MW Set: (The capacity of the existing Station is 2-30 MW Sets and 1-60 MW Set).

Piling for the foundations of the gas turbine was in progress.

Orders were placed for the Waste Heat Recovery boiler and for the conversion of the existing boilers to allow for the use of natural gas.

Commissioning of the plant is scheduled for 1978/1979.

Parteen Weir, Co. Tipperary:

A submission to the Minister for Transport and Power had been prepared proposing the installation of a small (0.6 MW) hydro generating set on the river Shannon at Parteen Weir.

Nuclear Generating Station Project:

The decline in growth rate over previous years led to this station being deferred. Nevertheless, work has continued on its progression through the various planning stages. Its future will depend basically on the rate of growth in electricity demand and developments in off-shore oil and gas exploration.

Other Energy Sources:

The discovery of commercial quantities of oil off-shore could ensure the security of supply which is the Board's primary aim in seeking to diversify its sources of energy supply which had become so dependent on imported oil.

Feasibility investigations are at present under way on the possibility of building a major station to burn imported coal.

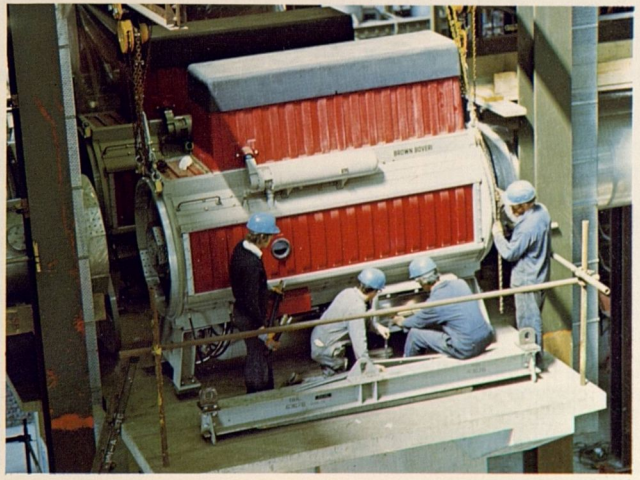
The Board is making the Cahirciveen 5 MW station available for a research project on biomass conversion viz., the growing of short time rotational crops for firing in the station boiler.

The Board is maintaining its interest in developments in generation of electricity from wind and wave motion.



Work on the construction of a natural gas-fired generating station at Aghada Co. Cork.

The installation of a circuit breaker at Poolbeg generating station extension, Dublin.



Transmission

220 kV Transformer Stations:

Extensions were completed to the existing stations at Knockraha, Co. Cork and Maynooth.

Construction work continued on new stations at Finglas, Co. Dublin and Cashla, Co. Galway and on the extension at Poolbeg, Dublin.

Design work commenced on two new stations; one near Carrick-on-Shannon to reinforce supply to the North-West and the other at Aghada, Co. Cork, associated with the new 270 MW generating station.

110 kV Transformer Stations:

Two new stations, at Ballina and Tallaght, were commissioned. Work was in progress on a new station at Cobh and on the station being built under contract for Nitrigin Eireann Teoranta at Marino Point, Co. Cork. A new station at Aghada and an extension of the existing station at Marina were at the design stage.

Renewals and protection changes in existing stations continued.

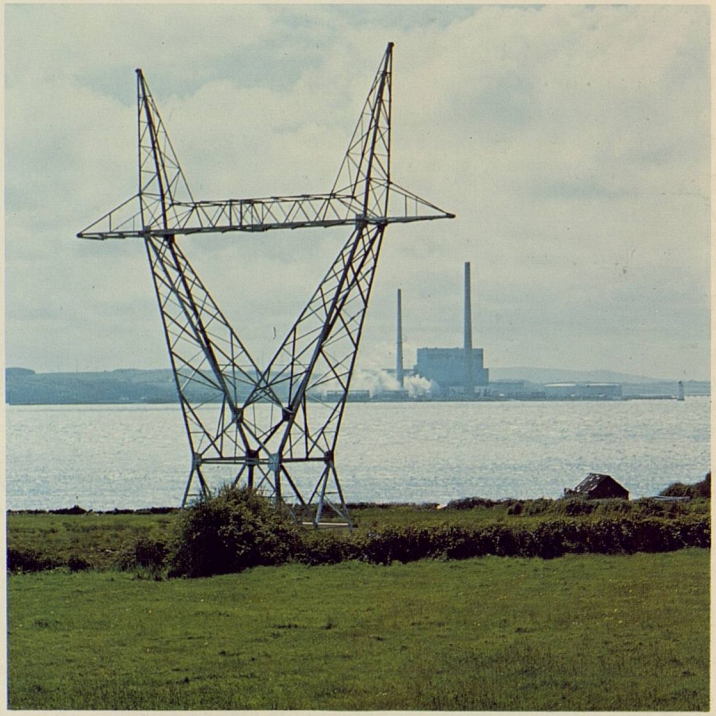
Lines and Cables:

The Maynooth-Donard 220 kV Line (44 Kms. approx.) was completed and commissioned this year. The 220 kV Line from Tarbert to Knockraha (142 Kms.) was almost complete and was due for commissioning in April. Work was well advanced on the 220 kV Line from Tarbert to Cashla (approx. 96 Kms.). Survey work was in progress on 220 kV lines from Cashla to Carrick-on-Shannon and to Louth (approx. 200 Kms.).

During the year 182.88 Kms. of new 110 kV Lines were erected and commissioned. The work of reconstructing the old (pre 1939) copper – conductored lines continued and 68 Kms. were decommissioned on completion of the new works. Lines to supply new industries were surveyed and designed.

The order was placed for the materials for the 220 kV cable crossing of the River Shannon at Tarbert and installation was due to commence in the Summer of 1977. The cable will consist of three cores pulled into a ten inch diameter steel pipe. The crossing will be the longest in Europe using this type of cable and there are only a small number of similar crossings of comparable length in the USA. Maximum currents in the area are up to six knots and the maximum water depth is ninety feet.

Pipe installations for the Poolbeg-Finglas 220 kV pipe type cable were well advanced.



A cable laid on the river bed will carry power from Tarbert generating station (background) to this 220kV transmission mast at Labasheeda.

Distribution

The distribution networks were affected by a severe snow storm in mid January resulting in loss of supply to some 50,000 customers mainly in the Cork, Waterford and Galway areas. The Board's staff, despite the exceptional weather conditions, worked strenuously to restore supply and 90% of the customers involved had electricity again within 48 hours.

Work was completed on the major project of placing underground the Board's overhead low voltage networks in Killarney. This is part of a continuing programme of improving the amenities in selected provincial towns in conjunction with the local authorities. A feature of the Killarney scheme was the low level of inconvenience to the town, mainly due to the excellent relationship developed with the local authority staff involved.

Since its inception, the Board has taken a very positive role in support of Irish industry. Many of the items at present used on the system are the direct result of co-operation between the Board's technical experts and Irish manufacturers. During the last year, Irish manufacturers were invited to examine specifications for certain items of equipment not manufactured in Ireland at present. It is expected that this initiative will yield positive results in the near future.

It is of interest to record that many of the timber products associated with the construction of the distribution overhead networks have been obtained from forests owned by the Board as a result of the development of Hydro Electric Generating Stations.

During the year four 38 kV transformer stations were commissioned at Kilmallock, Co. Limerick, Rooskey, Co. Roscommon, Rahans (Ballina), Co. Mayo and Randalstown, Co. Meath. In addition, there was a net increase of four hundred and twenty eight 10 kV transformer stations in the system.

Rural Electrification:

At the end of the year work under the final phase of the subsidised Rural Electrification Scheme had been completed in 759 of the 791 Rural Areas in the country. It is expected that work in the remaining areas will be completed by the end of 1977.



Line repair work following severe storm damage to networks.

In December the Electricity (Supply) (Amendment) Act, 1976, was passed. The objective of this Act is to enable additional assistance to be given from public funds towards the cost of connecting some isolated houses in rural locations to the electricity supply. The houses eligible for this subsidy are those where terms for connection quoted under the 1971-1975 Scheme of Rural Electrification included a capital contribution and where such terms had been refused by the owner or occupier of the premises in question at the time. Work in connection with the provision of supply to those eligible has already commenced on a countrywide basis.

During the year the Board introduced a Deferred Payments Scheme for applicants seeking unsubsidised supply to domestic premises.

Trading

The three activities – appliance sales, appliance repairs and installations contracts – showed a combined net loss of £97,145 on a turnover of £7,910,232. In the previous year there was a combined net profit of £118,696 on a turnover of £7,599,118.

Appliance Sales:

There was a fall in the volume of business and although the value of appliances sold increased from £4,535,451 to £4,609,137, net profit fell from the record level of £214,469 achieved in the previous year to £48,333. It is thought unlikely that there will be a significant increase in the appliance trading business in the current year though the Board expects to maintain its share of the market.

Appliance Repairs:

Further progress was made during the year towards the Board's objective of achieving a balanced position on the appliance repair activity. The loss on the activity was reduced from the previous year's figure of £180,912 to £118,343 on an increased turnover.

Installations Contracts:

This was not a good year for the Board's contracting service.

The general difficulties in the electrical contracting trade mentioned in the last report continued during the year under review and, despite increase in turnover from £2,365,306 to £2,511,388 there was a loss on contracting of £27,135 compared to a profit of £85,139 in the previous year. It is expected that the coming year will also be a difficult one, but that the position will improve towards the end of the year.

A service repair electrician at work in a customer's home.



Checking the performance of electrical appliances in an ESB test-kitchen.



Personnel

There was one Industrial Relations issue during the year, which led to power cuts. It was an unofficial dispute at Shannonbridge Generating Station and caused interruptions to the electricity supply in the December/January period, when it was supported by shiftworkers in some other stations. The Board regrets that there was any instance of such inconvenience to the public but wishes to record that the majority of its staff followed a peaceful and constructive course of industrial relations through the official Trade Union movement. There was only one official stoppage of work of short duration.



On consultancy work in Bahrain: Mr. Brian Cronly of the ESB with his wife Antonia and their baby, Suzanne, who was born in Bahrain.

The Industrial Council, under the chairmanship of Mr. Con Murphy, continued its vital role in the resolution of disputes and during the year made recommendations on 66 cases not resolved in direct negotiations with the Trade Unions.

When the necessary Ministerial Order is issued Worker Members of the Board will be elected by the staff. This is scheduled to occur during the coming year. Staff participation below Board level has been a feature of ESB personnel policy for some time and during the year under review staff/management working parties made valuable contributions in such areas as Job Evaluation, Work Measurement and Joint Consultation.

The economic recession which followed the energy crisis seriously affected ESB business, particularly its new capital developments. There were both short and long term difficulties which required major changes in staffing policies. The position was satisfactorily controlled without any compulsory redundancy, due largely to the high degree of staff/management co-operation made possible by the commitments of management and Trade Unions to orderly industrial relations and stable employment policies. As part of the programme to contain the staffing problems, new initiatives were taken in the introduction of schemes for early retirement, special leave, secondments, consultancy work abroad and the training of external staff, including IDA/AnCO sponsored apprentices. These schemes have had notable success.

In the Staff Welfare area a number of initiatives on the placement of rehabilitated staff were highly successful. Programmes designed to control the level of absenteeism are proving effective and are being kept under constant review.

Staff in the ESB at the 31st March, 1977, totalled 10,759.

Consultancy

The major expansion programmes of the past fifty years have been achieved by the ESB with the minimum involvement of outside consultants, largely through its consistent policy of developing native expertise in all areas of its operations. In the process a valuable resource of talent and experience has been built up, the retention of which is important not only to the organisation's future but in the interests of national development.

The reduction in the development programme during the recession of the mid-seventies posed the problem of retaining the skills of these staffs within the organisation and this was an important factor in the decision to enter into consultancy business which could provide invaluable development opportunities for them in the international environment. In the process, consultancy would contribute to the main electricity trading account and earn foreign currency, enhancing the image of Ireland and its products and assisting other firms to get established abroad.

The ESB now competes openly for consultancy work abroad in all fields in which it is competent, and is also engaged on assignments in Ireland. A substantial marketing effort resulted in a valuable level of consultancy work during the year. At the year end 154 staff were engaged on consultancy or on secondment. Notable programmes carried out during the year or contracted for include:

Bahrain: This large-scale assignment involves the provision of consultancy services relating to transformer stations; the training of Bahraini staff in Ireland; the development of instructors; the design of a training centre with initial ESB involvement in the administration of the centre; the temporary loan of engineering, accounting and technical staff to assist the State Electricity Directorate, and consultancy reports on a wide range of engineering, financial and commercial matters. There are at present 35 ESB staff in Bahrain, including 20 families.

Saudi Arabia: The Board, in association with a prominent British firm of consultants, will be engaged in the tender analysis, design approval, test, inspection and contract supervision of a major regional electrification scheme.

Philippines: At the invitation of the National Power Corporation an initial survey was conducted by senior personnel on certain aspects of its organisation. Talks are in progress for a future assignment. In this instance the Board's name was put forward by the World Bank, which is financing the project.

In addition to the foregoing particular consultancy contracts, a variety of services were carried out in Egypt, Iran, Lesotho, Tanzania, Switzerland, India, Zambia and Nigeria.

At home, several assignments were undertaken where the Board's specialised experience and facilities were relevant, including the provision of certain training courses on behalf of AnCO. A major Irish-based programme for training Nigerian staff in power station operation was continued.

Having provided for all related direct costs, a contribution of the order of one third of a million pounds resulted from the activity for the year; these earnings are applied to the electricity account and are thus of direct benefit to the electricity customers.



Technical staff from overseas receiving training in an ESB generating station.

Fisheries and Conservation

The total expenditure by the Board in Fisheries and Conservation amounted to £316,347. Income from the sale of salmon and eels was £142,792 and miscellaneous income amounted to £8,608.

It was a bad year for salmon and the run in the River Shannon was one of the lowest on record. The Board's catch was only 32% of the previous year's figure.

The Board has conveyed to the appropriate Government Department its concern for the capacity of the national salmon stocks to sustain the heavy landings from netting (sometimes illegal) in coastal waters.

The Board again did not fish the Clady or Erne in the interests of stock conservation. The salmon run in the Liffey showed an increase on that for 1975 but the numbers were not of significance.

Up to the end of January the catch of eels had been very low but the heavy rainfall in February improved the position so substantially that the final catch was above target. Sharply increased prices resulted in the final trading outcome being very satisfactory.

The salmon rearing project sponsored jointly by the Board and Gaeltarra Eireann commenced and on the basis of the results to date the prospects are good.

The hatcheries at Carrigadrohid and Parteen both had a most successful year with high output and low casualties. The quality of fish was excellent.

The Board continued its activities in the field of water pollution control. During the year two important reports dealing with problems in the Shannon catchment area were published. The first, by An Foras Forbartha, dealt with pollution in the Lower Shannon and confirmed that a problem exists in the Limerick area. The second, by the Inland Fisheries Trust, dealt with the eutrophication problem of Lough Ennell. The Board hopes that both reports will be considered carefully by the appropriate authorities and that positive action will be taken to remedy the problems outlined.



A Regatta on Pollaphuca Lake.

One of the Board's fisheries staff planting-out young eels in the River Shannon.



General outline of the

GENERATION and TRANSMISSION SYSTEMS

31st March, 1977

HYDRO STATIONS

STEAM STATIONS

STEAM STATIONS PROJECTED

PUMPED STORAGE STATION

220 KV TRANSFORMER STATIONS

220 KV TRANSFORMER STATIONS PROJECTED

110 KV TRANSFORMER STATIONS

110 KV TRANSFORMER STATIONS PROJECTED

220 KV LINES

220 KV LINES PROJECTED

110 KV LINES

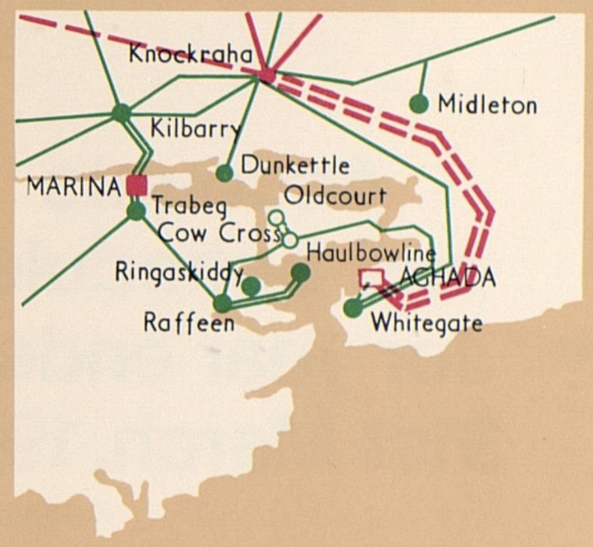
110 KV LINES PROJECTED

OTHER HIGH VOLTAGE LINES

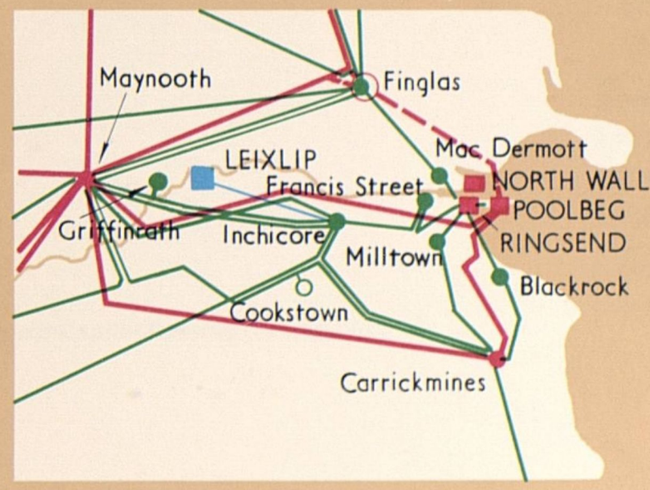
NORTH/SOUTH INTERCONNECTION



INSET 1



INSET 2



Accounts and Schedules for year ended 31st March, 1977

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Profit and Loss Account

Account No. 1

1975/1976		1976/1977
£000's		£000's
	Operations	
11,904	Electricity Trading before Amortisation of Borrowings (Schedule A)	14,350
119	Appliance Sales, Repairs and Installations Contracts Trading, Profit/(Loss) as per Schedule B	(97)
(193)	Expenses on new Borrowings	(284)
11,830		13,969
(10,104)	Amortisation of Borrowings, as required by Section 21 (2) of the Electricity (Supply) Act, 1927 (See Note – Schedule L)	(15,471)
1,726	Surplus/(Deficit) for Year	(1,502)
	Non-Operating Income and Credits	
2,189	Non-repayable Supply Contributions	2,701
1,239	Credits arising on ESB Stock Cancellations	471
529	Interest on Sinking Fund Investments for Repayment of Borrowings	930
5,683		2,600
(3,428)	To Capital Reserves	(3,172)
(529)	To Sinking Funds for Repayment of Borrowings	(930)
(8,861)	Deficit brought forward from previous year	(7,135)
£(7,135)	Surplus/(Deficit) carried forward to next year	£(8,637)

Note: Adjustments in year-end parities of foreign borrowings have been reflected in Repaid Capital Reserve (Schedule I)

Account No. 2

Balance Sheet

31st March, 1976					31st March, 1977
£000's	*Reference*		£000's	£000's	£000's
423,658	Schedule D	**Total investment in Capital Assets** including work-in-progress		466,976	
135,772	Schedule D	Less Accumulated Depreciation		151,490	
287,886					315,486
80,955	Schedule E	**Current Assets**		101,586	
		Less:			
39,496	Schedule E	**Current Liabilities**		45,605	
41,459		**Net Current Assets**			55,981
7,557	Schedule F	**Sinking Fund Investments,** at cost			15,480
270	—	**Deferred Expenditure**			—
£337,172					£386,947
		Financed as follows:			
283,928	Schedule G	**Borrowings**			333,786
		Reserves			
52,099	Schedule I	Capital		45,529	
7,705	—	Sinking funds for borrowings		15,694	
		Revenue Reserves:			
500	—	Plant, self-insurance	500		
75	—	Others	75		
				575	
(7,135)	Account No. 1	Profit and Loss Account balance (deficit)		(8,637)	
53,244					53,161
£337,172					£386,947

Note: At 31st March, 1977 contractual capital commitments amounted to approximately £51,500,000 (1976 – £49,000,000)

Signed: C. T. G. Dillon *Chairman*

Signed: J. J. Kelly *Chief Executive*
J. B. O'Donoghue *Director, Finance*

Electricity Income and Expenditure Account

Schedule A

1975/1976 £		£	£	£	£	1976/1977 £
136,277,317	**Income** – Electricity Sales	173,428,908				
364,505	– Miscellaneous Income	676,532				
136,641,822						174,105,440
	Expenditure:	**Generation**	**Transmission**	**Distribution**		
53,117,229	Fuel	76,023,268				
35,777,088	Operation, maintenance and local charges	17,704,203	1,894,385	21,967,778		
8,353,086	General charges	4,300,524	1,203,520	4,016,243		
13,513,000	Depreciation	6,856,612	2,151,480	6,513,908		
178,387	Fisheries net cost	164,947				
110,938,790		105,049,554	5,249,385	32,497,929	142,796,868	
13,798,937	Interest	7,303,014	2,603,691	7,052,218	16,958,923	
124,737,727		112,352,568	7,853,076	39,550,147		159,755,791
11,904,095						14,349,649
10,103,918	Amortisation of Borrowings as required by Section 21 (2) of the Electricity (Supply) Act, 1927	6,490,212	2,387,859	6,592,836		15,470,907
£1,800,177	Surplus/(Deficit)					£(1,121,258)

Notes:

Charges include: Local Rates £732,307 (1975/76 £571,376), Central Transport and Stores Depot Costs £840,010 (1975/76 £783,098), General Publicity £469,228 (1975/76 £280,962), Bad Debts £167,653 (1975/76 £162,861), Audit Fee £18,000 (1975/76 £11,000), Board Members' Remuneration (including full-time Chairman) £20,477 (1975/76 £21,686).

Fuel includes purchased electricity £38,420 (1975/76 £422,184).

Trading Account

Schedule B — Appliance Sales, Repairs and Installations Contracts

1975/1976 Appliance Sales £	Appliance Repairs £	Installations Contracts £	Total £		1976/1977 Total £	Appliance Sales £	Appliance Repairs £	Installations Contracts £
4,535,451	698,361	2,365,306	7,599,118	Turnover, exclusive of VAT	7,910,232	4,609,137	789,707	2,511,388
3,445,599	641,698	1,886,962	5,974,259	Direct Costs	6,299,655	3,558,295	642,859	2,098,501
1,089,852	56,663	478,344	1,624,859	Gross Profit	1,610,577	1,050,842	146,848	412,887
				Overheads:				
514,013	235,281	203,263	952,557	Payroll costs	1,062,274	570,248	260,228	231,798
41,561	—	—	41,561	Publicity	61,266	61,266	—	—
89,156	—	—	89,156	Premises costs	109,841	109,841	—	—
40,733	2,294	23,967	66,994	Sundry expenses	78,323	52,494	4,963	20,866
189,920	—	165,975	355,895	General charges and interest, as apportioned	396,018	208,660	—	187,358
875,383	237,575	393,205	1,506,163		1,707,722	1,002,509	265,191	440,022
£214,469	£(180,912)	£85,139	£118,696	Profit/(Loss) transferred to Profit and Loss Account	£(97,145)	£48,333	£(118,343)	£(27,135)

Statement of Source and Application of Funds

Schedule C

1975/1976 £	*Reference*		1976/1977 £
		Source:	
11,832,778	Account No. 1	Operations before Amortisation of Borrowings*	13,971,546
14,278,431	Schedule D	Depreciation	16,347,218
1,153,090	Schedule D	Credits on disposal of assets	2,281,656
529,303	Account No. 1	Interest on sinking fund investments	930,305
27,793,602			33,530,725
2,188,934	Schedule I	Non-repayable supply contributions	2,701,161
42,741,089	Schedule G	Borrowings	43,163,553
£72,723,625			£79,395,439
		Application:	
41,000,209	Schedule D	Capital expenditure	46,229,014
15,531,522	Schedule F	Redemption of borrowings (net)	10,526,320
594,077	Schedule F	Payment of premium on Premium Stock	464,839
837,034	Schedule F	Increase in sinking fund investments	7,923,568
14,760,783	Schedule E	Net movement in current assets, current liabilities and in deferred expenditure	14,251,698
£72,723,625			£79,395,439

*Adjusted for amortisation on Fisheries (£2,727).

Schedule D

Statement of Capital Assets

	Total at 31st March, 1976 £	Additions Less Retirements during year £	**Total at 31st March, 1977 £**
Generation	130,637,381	31,596,277	**162,233,658**
Transmission	53,418,297	3,174,226	**56,592,523**
Distribution	155,967,793	14,258,481	**170,226,274**
General Buildings, Transport and Working Equipment	18,359,387	2,442,531	**20,801,918**
Fisheries	175,792		**175,792**
	358,558,650	£51,471,515	**410,030,165**
Work-in-Progress, including payments on account	65,099,307		**56,945,475**
Total Investment in Capital Assets (at cost)	423,657,957		**466,975,640**
Deduct Accumulated Depreciation, as below	135,772,322		**151,489,865**
Net Investment in Capital Assets	£287,885,635		**£315,485,775**

Accumulated Depreciation:	£	£	£
Provision for depreciation of assets, together with proceeds of disposal or stores value of assets retired, less assets retired, as at 31st March, 1976		135,772,322	
Movements in year:			
Depreciation of assets	16,347,218		
Credits arising on disposal of assets retired	2,281,656		
Assets retired	(2,911,331)	15,717,543	
Total as at 31st March, 1977			**£151,489,865**

Note: Work carried out in the year amounted to £46,229,014 (1975/76 £41,000,209)

Statement of Current Assets and Current Liabilities

Schedule E

Current Assets

31st March, 1976						31st March, 1977
£				£	£	£
334,378	Cash at bank and in hand				501,641	
15,187,955	Temporary cash deposits				16,059,179	
15,522,333						16,560,820
		Nominal Value				
	Investments, at cost:	£				
2,003,101	E.S.B. Stocks	2,494,571	(1975/1976 £2,706,801)		1,927,524	
3,034,473	Government Stocks	—	(1975/1976 £3,781,772)		—	
521,878	Units of Account	758,436	(1975/1976 £ 593,043)		687,512	
5,559,452						2,615,036
	Accounts Receivable:					
	Electricity: billed			13,384,341		
	unbilled			23,682,702		
25,320,167					37,067,043	
9,144,785	Trading including Hire Purchase				11,034,112	
2,239,209	Miscellaneous				5,023,611	
36,704,161						53,124,766
	Materials at cost:					
10,685,601	Fuel				14,800,805	
11,014,051	Others				13,125,677	
21,699,652						27,926,482
1,469,211	Repayable Work-in-Progress at cost					1,358,933
£80,954,809						£101,586,037

Current Liabilities

13,644,339	Accounts Payable	15,765,822
831,455	Progress Payments on Repayable Work-in-Progress	1,143,247
1,049,679	Borrowings – Less than Twelve Month Term	—
6,157,468	– To finance Trading Account debtors	6,711,906
5,153,365	Supply Contributions and Deposits	7,764,156
6,932,333	Accrued Charges and Provisions	7,575,314
5,727,218	Accrued Interest on Borrowings	6,644,849
£39,495,857		£45,605,294

Schedule F

Statement of Redemption of Borrowings and Sinking Fund Investments

1975/1976 £					1976/1977 £
	Redemption:				
2,641,903	Sinking Fund utilised in year				438,183
6,534,742	Funded redemption – Schedule H				7,511,495
1,239,141	Credits arising on ESB Stock cancellations				470,847
	Reflected in Repaid Capital Reserve – Schedule I				8,420,525
6,354,877	Non-funded redemption				2,576,642
£16,770,663	Total redeemed during year – Schedule G				£10,997,167
	Sinking Fund Investments:				
		Nominal £	Market £	Cost £	
	Opening Balance:				
2,206,971	ESB Stocks	1,443,768	1,104,235	1,382,733	
2,537,253	Government Stocks	5,864,728	4,717,289	5,307,578	
1,975,507	Bank Deposits			866,453	
6,719,731					7,556,764
501,206	Interest Received				864,451
3,571,807	Addition in year – Schedule H				7,962,139
10,792,744					16,383,354
	Utilised in year:				
	Towards redemption of borrowings			438,183	
	Payment of premium on Premium Stock			464,839	
3,235,980					903,022
	Closing Balance:				
	ESB Stocks	1,908,017	1,793,956	1,731,299	
	Government Stocks	9,646,500	8,542,294	8,342,051	
	Bank Deposits			5,406,982	
£7,556,764					£15,480,332

The Closing Balance £15,480,332 plus interest accrued £213,366 represents the full Sinking Fund Reserve of £15,693,698 (1975/76 £7,704,276)

Statement of Borrowings

Schedule G

Amount of Borrowing				Balance Outstanding 31st March, 1976	Borrowed during year	Redeemed during year	Adjustment for currency changes	Balance Outstanding 31st March, 1977
£				£	£	£	£	£
	Irish Pound and Sterling:							
68,450,236	Advances	–	Minister for Finance	49,458,695	—	1,233,923	—	48,224,772
500,000	Loan	–	New Ireland Assurance Co. Ltd. 6% – 1962/87	309,698	—	20,588	—	289,110
14,865,000	Loan	–	Central Bank of Ireland 7¼% – 1972/87	12,300,316	—	763,696	—	11,536,620
4,791,500	Loan	–	Central Bank of Ireland 5½% – 1973/79	2,053,500	—	684,500	—	1,369,000
5,000,000	Stock	–	6% – 1968/78	2,550,430	—	—	—	2,550,430
12,000,000	Stock	–	6% – 1982/87	6,086,549	—	—	—	6,086,549
16,500,000	Stock	–	6% – 1984/89	9,403,441	—	751,957	—	8,651,484
13,000,000	Stock	–	7% – 1986/91	9,335,630	—	—	—	9,335,630
7,000,000	Stock	–	7¼% – 1988/93	5,593,936	—	358,896	—	5,235,040
9,250,000	Stock	–	9½% – 1985/90	8,003,413	—	181,311	—	7,822,102
12,000,000	Stock	–	9% – 1992/95	10,310,367	—	656,974	—	9,653,393
11,300,000	Stock	–	13% – 1983/85	5,399,007	5,800,000	391,499	—	10,807,508
2,800,000	Stock	–	6 % – Premium (20%) 1976	2,324,197	—	2,324,197	—	—
10,750,000	Stock	–	10% – Premium (20%) 1980	10,580,000	—	300,000	—	10,280,000
6,000,000	Stock	–	9½% – Premium (20%) 1981	—	6,000,000	405,601	—	5,594,399
5,879,965	Project Finance	–	British Banks/Suppliers	1,125,570	1,409,897	268,360	—	2,267,107
				134,834,749	13,209,897	8,341,502	—	139,703,144
	Other Currencies:							
30,000,000 $	Revolving Credit	–	Banking Syndicate 1980/84	16,042,781	—	—	1,404,151	17,446,932
40,000,000 $	Revolving Credit	–	Banking Syndicate 1978/82	21,390,375	—	—	1,872,202	23,262,577
30,000,000 $	Revolving Credit	–	Banking Syndicate 1978/80	16,042,781	—	—	1,404,151	17,446,932
40,000,000 $	Revolving Credit	–	Banking Syndicate 1977/84	—	23,315,174	—	(–) 52,597	23,262,577
14,500,000 $	Project Finance	–	International Bank for Reconstruction and Development 6½% – 1974/94	8,264,349	—	287,668	961,796	8,938,477
20,000,000 $	Project Finance	–	International Bank for Reconstruction and Development 7¼% – 1976/87	9,919,927	792,926	534,146	1,068,966	11,247,673
15,000,000 $	Project Finance	–	International Bank for Reconstruction and Development 7¼% – 1977/88	5,073,059	2,965,801	—	565,094	8,603,954
2,000,000 $	Project Finance	–	Irish Bank – 1976/81	—	1,085,306	238,746	83,942	930,502
30,000,000 $	Registered Notes	–	Japanese Banks 7¾% – 1973/92	13,636,364	—	765,358	1,086,540	13,957,546
15,000,000UA	Bearer Bonds	–	Units of Account 8¼% – 1971/86	9,377,428	—	784,618	673,177	9,265,987
50,000,000Sw.Fr.	Bearer Notes	–	Swiss Banks 7% – 1980	10,531,859	—	—	883,666	11,415,525
1,338,080Sw.Fr.	Project Finance	–	Swiss Bank – 6½% – 1975/81	241,585	—	45,129	21,756	218,212
1,000,000,000B.Fr.	Registered Bonds	–	Belgian Banks 7½% – 1983	13,020,833	—	—	2,839,595	15,860,428
700,000,000B.Fr.	Registered Bonds	–	Belgian Banks 7½% – 1983	9,114,583	—	—	1,987,717	11,102,300
1,000,000,000B.Fr.	Registered Bonds	–	Belgian Banks 8¾% – 1980/89	13,020,833	—	—	2,839,595	15,860,428
132,742,895F.Fr.	Project Finance	–	French Banks	3,416,290	1,794,449	—	52,318	5,263,057
				149,093,047	29,953,656	2,655,665	17,692,069	194,083,107
	TOTAL			£283,927,796	£43,163,553	£10,997,167	£17,692,069	£333,786,251

Schedule H Statement of Interest and Amortisation of Borrowings

1975/1976 £		£	1976/1977 £
	Interest on:		
	Advances from Minister for Finance	2,225,509	
	Other Irish pound and sterling borrowings	7,481,627	
	Borrowings in other currencies	11,936,576	
		21,643,712	
	Less interest from temporary cash deposits	2,213,102	
16,728,616			19,430,610
	Amortisation of Borrowings:		
	Redemptions:		
	Minister for Finance	1,233,923	
	Others	6,277,572	
		7,511,495	
	Investments for sinking funds	7,962,139	
10,106,549			15,473,634
£26,835,165			£34,904,244
	Allocated as follows:		
	Interest:		
	Income and Expenditure Account	16,958,923	
	Trading Account	207,400	
	Fisheries	6,188	
	Capital Works	2,258,099	
16,728,616			19,430,610
	Amortisation:		
	Income and Expenditure Account	15,470,907	
	Fisheries	2,727	
10,106,549			15,473,634
£26,835,165			£34,904,244

Statement of Capital Reserves

Schedule I

	£	£	£
Non-Repayable Supply Contributions:			
Contributions from Minister for Finance under Electricity (Supply) Acts towards capital cost of supplying rural areas – as at 31st March, 1976	23,939,826		
Received in year	1,300,000	25,239,826	
Other contributions – as at 31st March, 1976	5,764,946		
Received in year	1,401,161	7,166,107	
			32,405,933
Repaid Capital Reserve:			
Amortisation of Borrowings, less write-off of intangible assets, adjustment for changes in currency parities and discounts on stock issues – as at 31st March, 1976		22,394,495	
Movements in year:			
Amortisation of Borrowings	8,420,525		
Adjustment for changes in currency parities	(17,692,069)	(9,271,544)	
			13,122,951
Total as at 31st March, 1977			**£45,528,884**

See Note 8, Schedule L re changes in currency parities.

Schedule J

Statement of Generation Costs

Generation	Fuel	Operation	Maintenance	Local Charges	WORKS COST 1976/1977	Per Unit Sent Out	WORKS COST 1975/1976	Per Unit Sent Out	Depreciation	TOTAL COST 1976/1977	TOTAL COST 1975/1976
	£	£	£	£	**£**	Pence	£	Pence	£	**£**	£
Coal/Oil											
Marina	4,493,788	481,220	688,998	108,307	**5,772,313**	1.639	4,717,972	1.143	267,624	**6,039,937**	4,987,901
Ringsend	11,140,550	1,080,491	1,318,182	177,802	**13,717,025**	1.689	11,636,265	1.145	632,447	**14,349,472**	12,275,037
Arigna	1,039,305	203,070	139,444	32,167	**1,413,986**	2.172	1,307,111	1.783	45,849	**1,459,835**	1,353,466
Great Island	10,655,961	492,011	871,753	129,930	**12,149,655**	1.350	8,283,464	1.009	707,953	**12,857,608**	8,997,382
Tarbert	14,683,737	625,521	480,936	140,493	**15,930,687**	1.237	7,170,373	.901	1,606,382	**17,537,069**	7,604,290
Poolbeg	17,881,552	609,405	521,768	113,422	**19,126,147**	1.067	12,981,514	.752	981,691	**20,107,838**	13,956,235
Sod Peat (Machine)											
Portarlington	1,277,855	380,981	291,489	54,983	**2,005,308**	1.618	2,011,430	1.373	77,708	**2,083,016**	2,090,061
Allenwood	1,740,949	440,985	334,935	63,000	**2,579,869**	1.333	1,858,021	1.383	117,875	**2,697,744**	1,977,229
Lanesborough	706,627	212,129	135,466	31,009	**1,085,231**	1.207	1,030,808	1.068	48,861	**1,134,092**	1,080,183
Milled Peat											
Ferbane	3,839,261	616,722	627,648	97,323	**5,180,954**	1.086	4,814,910	.981	277,757	**5,458,711**	5,095,982
Rhode	2,472,145	451,115	766,669	97,287	**3,787,216**	1.088	3,080,405	.921	219,886	**4,007,102**	3,302,090
Bellacorick	1,564,528	344,733	364,252	60,832	**2,334,345**	1.091	2,120,546	1.043	123,670	**2,458,015**	2,245,883
Shannonbridge	1,380,185	298,869	408,590	84,502	**2,172,146**	.960	1,259,333	1.069	301,535	**2,473,681**	1,398,361
Lanesborough	1,525,923	211,878	254,996	38,874	**2,031,671**	.789	1,728,192	.664	134,971	**2,166,642**	1,864,343
Sod Peat (Hand-Won)											
Four 5MW Stations	423,617	278,139	227,169	35,315	**964,240**	3.639	884,163	2.729	68,240	**1,032,480**	952,958
Peak Station											
North Wall	1,158,865	246,868	111,797	49,173	**1,566,703**	—	1,209,472	—	124,678	**1,691,381**	1,335,540
Stand-by											
Pigeon House*	—	—	—	—	—	—	230,564	—	—	—	312,835
Total – Fuel Stations	75,984,848	6,974,137	7,544,092	1,314,419	**91,817,496**	1.269	66,324,543	.985	5,737,127	**97,554,623**	70,829,776
Hydro											
Shannon	—	250,190	400,521	80,474	**731,185**	.267	622,545	.270	138,452	**869,637**	762,344
Erne	—	139,012	186,016	61,985	**387,013**	.162	325,807	.199	197,359	**584,372**	525,285
Liffey	—	25,731	84,831	15,061	**125,623**	.295	106,273	.392	49,181	**174,804**	154,935
Lee	—	73,576	81,852	23,806	**179,234**	.201	168,970	.311	123,093	**302,327**	293,423
Clady	—	19,812	14,225	1,797	**35,834**	.317	40,782	.300	27,023	**62,857**	68,121
Pumped Storage											
Turlough Hill	—	173,039	151,679	51,618	**376,336**	—	329,645	—	584,377	**960,713**	906,161
Total – Hydro Stations	—	681,360	919,124	234,741	**1,835,225**	.386	1,594,022	.432	1,119,485	**2,954,710**	2,710,269
Total – All Stations	75,984,848	7,655,497	8,463,216	1,549,160	**93,652,721**	1.214	67,918,565	.956	6,856,612	**100,509,333**	73,540,045
Electricity Purchased in bulk (net)										**38,420**	422,184
Central Transport and Stores										**36,330**	25,626
General Charges										**4,300,524**	3,492,974
Fisheries (Net Cost)										**164,947**	178,387
TOTAL COST										**£105,049,554**	£77,659,216

*Retired previous year

Fisheries — Commercial and Conservation Operations

Schedule K

Total Cost 1975/1976 £		£	Total Cost 1976/1977 £	Analysis of Commercial and Conservation Operations: Commercial £	Conservation £
244,866	Direct Costs		**239,420**	91,901	147,519
	Overheads and General Charges:				
53,060	Payroll expenses and charges	61,012			
7,000	Depreciation	7,000			
8,915	Interest and Amortisation of Borrowings	8,915	**76,927**	24,438	52,489
313,841			**316,347**	116,339	200,008
	Less:				
135,454	Sales of fish, letting of fishing rights and miscellaneous income		**151,400**	142,792	8,608
£178,387	**Net Cost as per Electricity Income and Expenditure Account**		**£164,947**	(£26,453)	£191,400

Schedule L

NOTES ON AND FORMING PART OF THE FINANCIAL ACCOUNTS AND SCHEDULES

The Accounts are prepared in accordance with the Electricity (Supply) Acts. Section 21 (2) of the 1927 Act reads:

"All charges made by the Board after the appointed day for electricity (whether derived from the Shannon works or otherwise) sold by it in bulk or direct to consumers and for goods sold and services rendered by it shall be fixed at such rates and on such scales that the revenue derived in any year by the Board from such sales and services together with its revenue (if any) in such year from other sources will be sufficient and only sufficient (as nearly as may be) to pay all salaries, working expenses and other outgoings of the Board properly chargeable to income in that year (including the payments falling to be made in such year by the Board to the Minister for Finance in respect of interest and sinking fund payments on advances out of the Central Fund) and such sums as the Board may think proper to set aside in that year for reserve fund, extensions, renewals, depreciation, loans and other like purposes."

Accounting Policies

1. **Capital Assets:**
   Capital Assets are valued at cost. Cost includes prime cost, overheads and interest costs during construction.

2. **Depreciation of Capital Assets:**
   Assets are grouped and allotted lifespans in line with international practice. Depreciation is provided on the straight line method on all assets in commission on 1st April each year (other than on new generation stations) even where they have exceeded their allotted lifespans. In the case of new generation stations depreciation commences from the date of commissioning if prior to 31st December.
   Assets when retired from service are charged against, and proceeds of disposal or stores value are credited to, Accumulated Depreciation.

3. **Materials:**
   Stocks of materials and fuel are valued at average cost.

4. **Repayable Work-in-Progress:**
   Installations Contracts are valued at direct cost together with appropriate overheads; sundry works at direct cost.

5. **Accounts Receivable:**
   The figure for Accounts Receivable in the Statement of Current Assets and Current Liabilities is net of a provision for doubtful debts, considered adequate in relation to the size and nature of the business. Bad debts are written off as they arise.

6. **Amortisation of Borrowings Charge:**
   Stock Issues and Long Term Borrowings (15 years and over) – Charge is in line with the contractual agreements.
   Other Borrowings – Charge, within the lifetime of the borrowing, is determined in line with a policy of achieving:
   : Maturity term of 10-15 years – full retirement at maturity.
   : Maturity term of less than 10 years – at least half retirement at maturity.
   Where Borrowings are drawn down in full, for a period in excess of six months, proportionate amortisation is charged in the year.

7. **Capital Borrowings:**
   The Statement of Borrowings includes borrowings initially contracted for a period in excess of twelve months, irrespective of phased repayment arrangements, and of the lapsed portion of repayment period.
   Discounts on Stock Issues have been charged against the Repaid Capital Reserve. Other borrowing costs are charged against Profit and Loss Account.

8. **Borrowings in Foreign Currencies:**
   Irish Pound Equivalent is at exchange rates ruling at year end. Changes are reflected in the Capital Reserve.

9. **Non-Repayable Supply Contributions:**
   Non-Repayable Supply Contributions are credited to Capital Reserves (Schedule I) via the Profit and Loss Account (Account No. 1).

10. **Hire Purchase Transactions:**
    Profit on Hire Purchase sales is taken in the year of sale. Credit for interest is taken in equal instalments over the Hire Purchase term.

11. Apportionments:

(a) Capital Expenditure bears interest on the average value of (1) work-in-progress, (2) stocks held and (3) advances made to suppliers in respect of capital works, at the rates appropriate to the financing of individual projects, and a proportion of general overhead expenses calculated at a percentage rate on the prime cost of work paid for during the year.

(b) Appliance Sales, Installations Contracts and Fisheries bear their relevant proportion of general overhead expenses and interest.

(c) The proportion of Appliance Sales and Installations Contracts overhead expenses related to the promotion of sales of electricity is included in the overhead expenses charged to Electricity Income and Expenditure Account.

12. Taxation:

The Board is liable for Corporation Tax at the reduced rate specified in Section 79 of the Corporation Tax Act 1976. Because of large continuing capital expenditure, liability to tax will not arise in the foreseeable future and a tax equalisation reserve is not deemed necessary (unutilised capital allowances at 31st March, 1977 are estimated at £117m.). Had a Tax Equalisation Reserve been provided, the accumulated figure would now be an estimated £20.4m.

13. Exceptional Expenditure:

Essential maintenance and repairs are charged to the Electricity Income and Expenditure Account in the year in which the liability arises, on an estimated basis if necessary. Costs incurred to improve system efficiency are charged to the Electricity Income and Expenditure Account over the number of years corresponding to the benefits secured; similar treatment is applied to the revenue element of lump sum payments to achieve future benefits under productivity agreements.

14. Accounting Year:

From 1975/76 Income and Expenditure are aligned on a 52 or 53 week year as appropriate. The year 1976/77 is a 52 week year.

Auditors' Report

As Auditors appointed by the Minister for Transport and Power, with the consent of the Minister for Finance, we have examined the Profit and Loss Account, Balance Sheet, and attached Schedules A to L of the Electricity Supply Board.

In our opinion, the Profit and Loss Account and Balance Sheet together with the Statement of Source and Application of Funds, (Schedule C), when read in conjunction with the other Schedules and the Notes appearing thereon, give, under the historical cost convention, a true and fair view of the results of the Board for the year ended 31st March 1977 and of the state of the Board's affairs as at that date.

STOKES KENNEDY CROWLEY & CO.
Chartered Accountants

Harcourt House,
Harcourt Street,
Dublin 2.

24th June, 1977

Appendix 1 Number of Customers and Electricity Sales

District	No. of Customers at 31st March		Electricity Sales Units sold in year ended 31st March	
	1977	1976	1977 (millions)	1976 (millions)
Athlone	53,791	52,369	245.4	224.9
Cork	107,962	104,816	863.2	780.4
Dublin City	140,184	138,645	1,100.3	1,068.8
Dublin North West	107,614	101,451	878.3	805.7
Dublin South	60,804	59,045	449.3	415.5
Dundalk	74,203	72,045	596.5	528.7
Galway	55,267	53,106	293.1	269.1
Limerick	87,275	84,855	724.7	673.6
Portlaoise	64,215	62,585	420.4	391.4
Sligo	86,446	84,210	338.4	300.9
Tralee	45,561	44,247	228.8	203.9
Waterford	76,106	74,095	644.8	596.1
Total	959,428	931,469	6,783.2	6,259.0

Growth of Electricity Sales and Number of Customers

Appendix 2

Year Ended 31st March	Units Generated (and Purchased)* Millions	Units Sold to Customers Millions	Revenue from Electricity Sales Thousands	Average Price per Unit Sold Pence	Total Customers
			£		
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
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
1973	6,749.1	5,705.1	60,321	1.057	845,119
1974	7,253.1	6,152.0	73,063	1.188	873,764
1975	7,298.7	6,153.1	111,261	1.808	901,000
1976	7,534.6	6,259.0	136,277	2.177	931,469
1977	8,160.5	6,783.2	173,429	2.557	959,428

The above table shows, quinquennially from 1930 to 1965, and for each year since, the number of units generated and sold, the revenue, the average price per unit, and the number of customers.

*Excluding units absorbed by storage pumping.

Appendix 3

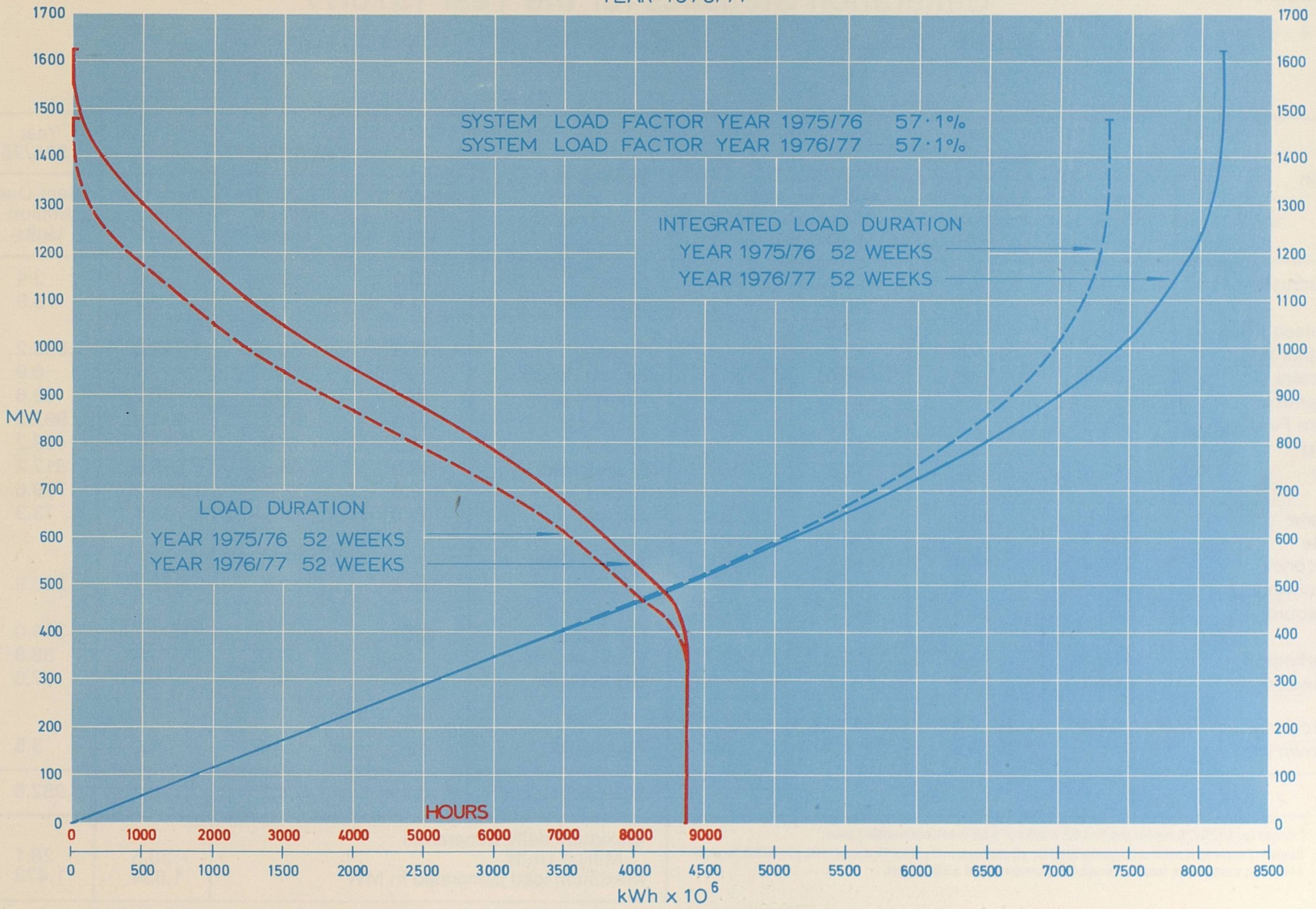
Analysis of Units Sold

Class of Supply	Year ended 31st March 1977 (Millions)	Year ended 31st March 1976 (Millions)	Increase (Millions)	Percentage Increase
DOMESTIC				
General Supply	2,690.7	2,496.3	194.4	7.8
Night Space Heating	215.0	209.7	5.3	2.5
	2,905.7	2,706.0	199.7	7.4
COMMERCIAL				
Lighting	232.6	233.4	– 0.8	– 0.3
Heating, Cooking and Waterheating	323.7	316.2	7.5	2.4
Motive Power	230.0	226.3	3.7	1.6
Night Space Heating	211.8	203.6	8.2	4.0
Public Lighting	88.6	84.5	4.1	4.9
Maximum Demand	84.4	32.9	51.5	156.5*
Miscellaneous	213.6	212.0	1.6	0.8
	1,384.7	1,308.9	75.8	5.8
INDUSTRIAL				
Maximum Demand				
High Tension	1,772.6	1,555.1	217.5	14.0
Low Tension	576.6	540.7	35.9	6.6
Miscellaneous	143.6	148.3	– 4.7	– 3.2
	2,492.8	2,244.1	248.7	11.1
TOTAL	6,783.2	6,259.0	524.2	8.4

*The increase arises mainly from the transfer to maximum demand of customers, whose consumption was recorded in previous years under other headings; and from the connection of new customers on maximum demand.

Note: Figures for 1975/76 are for a 369 day accounting year; those for 1976/77 are for a 364 day accounting year.
If the 1976/77 figures are compared with figures for 364 days of the 1975/76 accounting year the rate of increase in units sold was 10%.

SYSTEM LOAD DURATION AND INTEGRATED LOAD DURATION CURVES
YEAR 1976/77



Appendix 5

Generation Statistics for the Year 1976/77

Station	Year 1976/77			Year 1975/76	Station	Year 1976/77			Year 1975/76
	Generated Million Units	Station Use Million Units	Sent Out Million Units	Sent Out Million Units		Generated Million Units	Station Use Million Units	Sent Out Million Units	Sent Out Million Units
Ardnacrusha	276.4	2.7	273.7	222.9	Screeb	3.0	0.4	2.6	3.4
Cliff	69.8	1.1	68.7	44.9	Gweedore	11.0	1.3	9.7	13.9
Cathaleen's Fall	172.1	2.2	169.9	112.3					
Carrigadrohid	24.0	0.5	23.5	14.6	Poolbeg	1,871.3	78.3	1,793.0	1,688.2
Inniscarra	66.4	0.8	65.6	38.8	Pigeon House	—	—	—	−0.9
Pollaphuca	22.2	0.7	21.5	13.4	North Wall	76.2	6.0	70.2	69.6
Golden Falls	8.2	0.1	8.1	5.4	Ringsend	864.1	52.2	811.9	992.3
Leixlip	13.2	0.2	13.0	7.9	Marina	369.7	17.5	352.2	403.2
Clady	11.4	0.1	11.3	13.2	Great Island	948.2	48.3	899.9	812.2
					Tarbert	1,366.6	78.4	1,288.2	779.6
Ferbane	516.6	39.6	477.0	479.3	Arigna	70.0	4.9	65.1	73.3
Rhode	375.3	27.1	348.2	326.6					
Bellacorick	230.4	16.4	214.0	198.5	Turlough Hill				
Shannonbridge	244.0	17.8	226.2	112.2	(generation)	316.4	3.7	312.7	226.8
Lanesboro	368.7	21.4	347.3	350.5	Turlough Hill				
					(pumping)	492.1		492.1	344.0
Portarlington	133.4	9.5	123.9	143.5	E.S.B. Import	—	—	—	68.8
Allenwood	204.8	11.2	193.6	131.6	E.S.B. Export	—	—	—	37.5
Cahirciveen	14.3	1.4	12.9	12.2					
Milltown Malbay	1.7	0.4	1.3	2.4	Purchased	3.2	—	3.2	3.5
					System Demand	8,160.5	444.2	7,716.3	6,982.6
					Maximum daily Generation Million Units			30.5	28.1
					Maximum load Generated in MW			1,634	1,478

Note: Figures for 1975/76 are for the first 52 weeks of a 53 week accounting year.
System Demand is total units generated by all stations including Turlough Hill plus ESB Import and units purchased, less Turlough Hill pumping and ESB Export.

Particulars and Performance of Generating Plant

Hydro Stations

Station	Location	Average annual generation million units	Plant Particulars		Plant Performance for year ended 31/3/'77		
			Generating Sets		Units sent out millions	Plant load factor %	Works cost per unit sent out (pence)
			No.	Capacity (MW)			
Ardnacrusha	Shannon	310	4	85	273.7	36.9	0.267
Pollaphuca	Liffey	45	2	30		8.5	0.295
Golden Falls			1	4	42.6	15.0	
Leixlip			1	4		37.8	
Cliff	Erne	275	2	20	238.6	39.1	0.162
Cathaleen's Fall			2	45		43.2	
Carrigadrohid	Lee	77	1	8	89.1	32.6	0.201
Inniscarra			2	19		39.6	
Clady	Clady	13	1	4	11.3	33.1	0.317
Turlough Hill – Pumped Storage	Co. Wicklow	—	4	292	312.7	12.4	—

Appendix 6 contd.

Particulars and Performance of Generating Plant

Steam Stations

Station	Location	Plant Particulars					Plant Performance for year ended 31/3/'77			
		Generating Sets		Boilers			Units sent out millions	Plant load factor %	Fuel cost per unit sent out (pence)	Works cost per unit sent out (pence)
		No.	Total Capacity MW	No.	Total Capacity Tonne/hour	Fuel Type				
Arigna	Co. Roscommon	1	15	1	75	Coal	65.1	53.5	1.596	2.172
Lanesborough	Co. Longford	2	60	1 1	100 173	Sod Peat Milled Peat	89.9 257.4	54.1 78.5	0.786 0.593	1.207 0.789
Rhode	Co. Offaly	3	80	3	364	Milled Peat	348.2	53.7	0.710	1.088
Bellacorick	Co. Mayo	2	40	2	191	Milled Peat	214.0	65.9	0.731	1.091
Shannonbridge Shannonbridge	Co. Offaly	1 1	40 40 80	1 1	173 173	Milled Peat Milled Peat	226.2	63.7	0.610	0.960
Great Island	Co. Wexford	3	240	3	853	Oil	899.9	45.2	1.184	1.350
Tarbert Tarbert	Co. Kerry	2 2	120 * 500 620	2 2	473 1600	Oil Oil	1288.2	75.1	1.141	1.237
Poolbeg	Dublin City	2	240	2	760	Oil	1793.0	88.8	0.990	1.067
		2	28	Gas Turbine Sets						

*250 MW under construction.

Particulars and Performance of Generating Plant

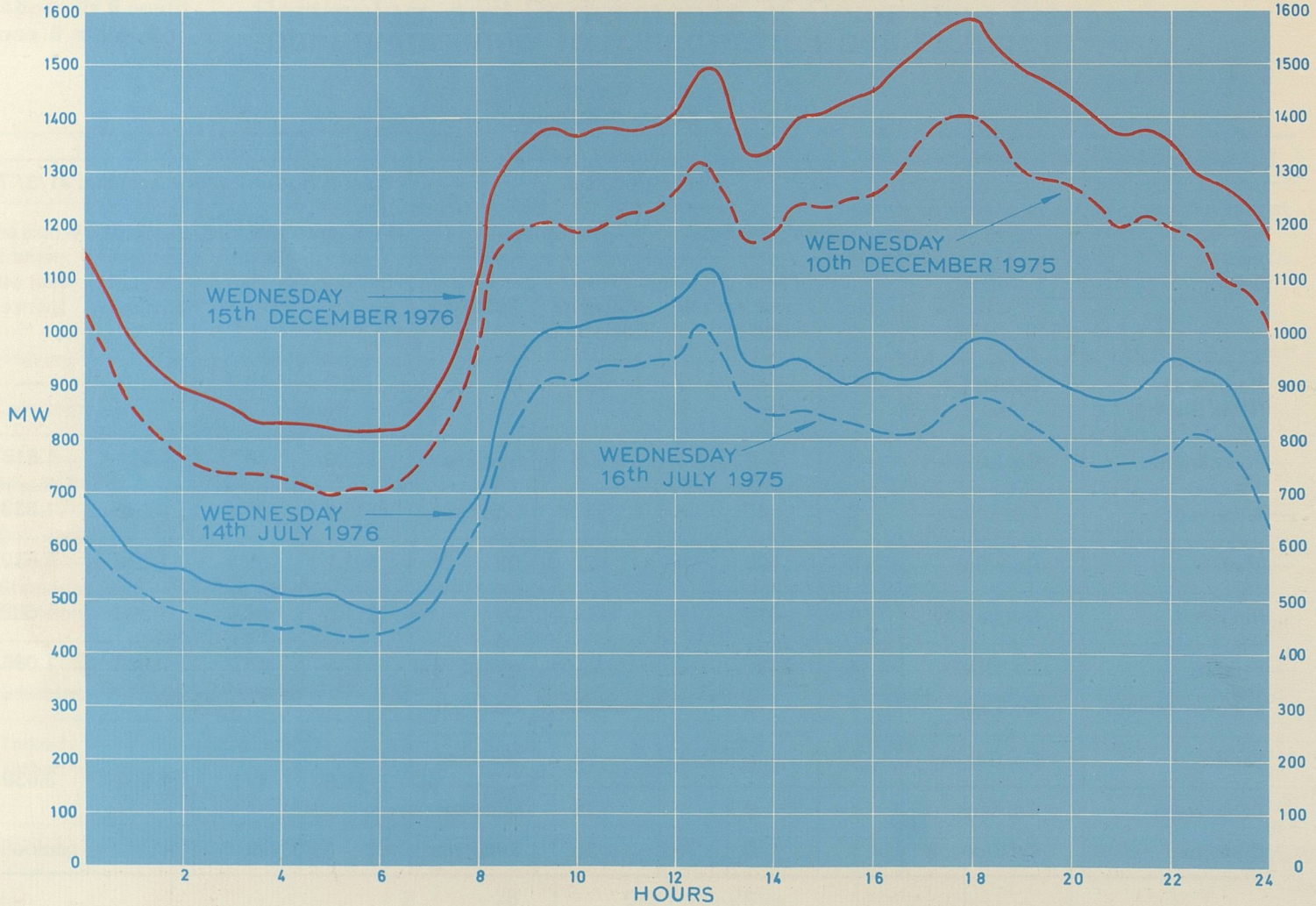
Appendix 6 contd.

Steam Stations

Station	Location	Plant Particulars					Plant Performance for year ended 31/3/'77			
		Generating Sets		Boilers			Units sent out millions	Plant load factor %	Fuel cost per unit sent out (pence)	Works cost per unit sent out (pence)
		No.	Total Capacity MW	No.	Total Capacity Tonne/hour	Fuel Type				
North Wall (Peak Station)	Dublin City	3	48	3	225	Oil	70.2	18.2	1.652	—
Portarlington	Co. Laoise	3	37.5	3	205	Sod Peat	123.9	40.7	1.031	1.618
Allenwood	Co. Kildare	2	40	4	273	Sod Peat	193.6	58.6	0.899	1.333
Marina	Cork City	3	120	4	522	Oil	352.2	35.3	1.276	1.639
Ringsend	Dublin City	6	270	7	1114	Oil	811.9	36.6	1.372	1.689
Ferbane	Co. Offaly	4	90	4	430	Milled Peat	477.0	65.7	0.806	1.086
Miltown-Malbay	Co. Clare	1	5	1	28	Sod Peat	26.5	17.2	1.592	3.639
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 1976/77



Transmission System at 31st March, 1977

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	10	Nil	600,000 at 275/220 kV	Nil
			2,253,000 at 220/110 kV	Nil
			560,000 at 20/220 kV	+560,000
			420,000 at 13/220 kV	Nil
			397,000 at 10/220 kV	Nil
			357,000 at 10/110 kV	+ 47,000
			20,000 at 110/ 6 kV	Nil
110 kV Stations	67	2	2,768,500 at 110/ 38 kV	+126,000
			59,000 at 110/ 10 kV	Nil
			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	25.8	+0.7	6 x 600 sq. mm. double circuit SCA
220 kV lines	587.3	+42.5	3 x 600 sq. mm. single circuit SCA
220 kV lines	276.8	Nil	3 x 425 sq. mm. single circuit SCA
220 kV lines	3.9	Nil	3 x 425 sq. mm. twin, SCA
110 kV lines	1.8	Nil	6 x 95 sq. mm. double circuit copper
110 kV lines	158.9	– 68.4	3 x 95 sq. mm. single circuit copper
110 kV lines	100.4	+1.5	6 x 200 and 6 x 300 sq. mm. double circuit SCA
110 kV lines	3054.9	+182.9	3 x 200 to 3 x 425 sq. mm. single circuit SCA
220 kV cables	30.6	Nil	3 single core oil filled
110 kV cables	22.9	+0.4	3 single core oil filled
110 kV cables	17.9	Nil	3 core oil filled
110 kV cables	25.6	Nil	3 core pipe compression

Appendix 9 Distribution System in Commission at 31st March, 1977

A. Distribution System (Excluding Rural Networks)

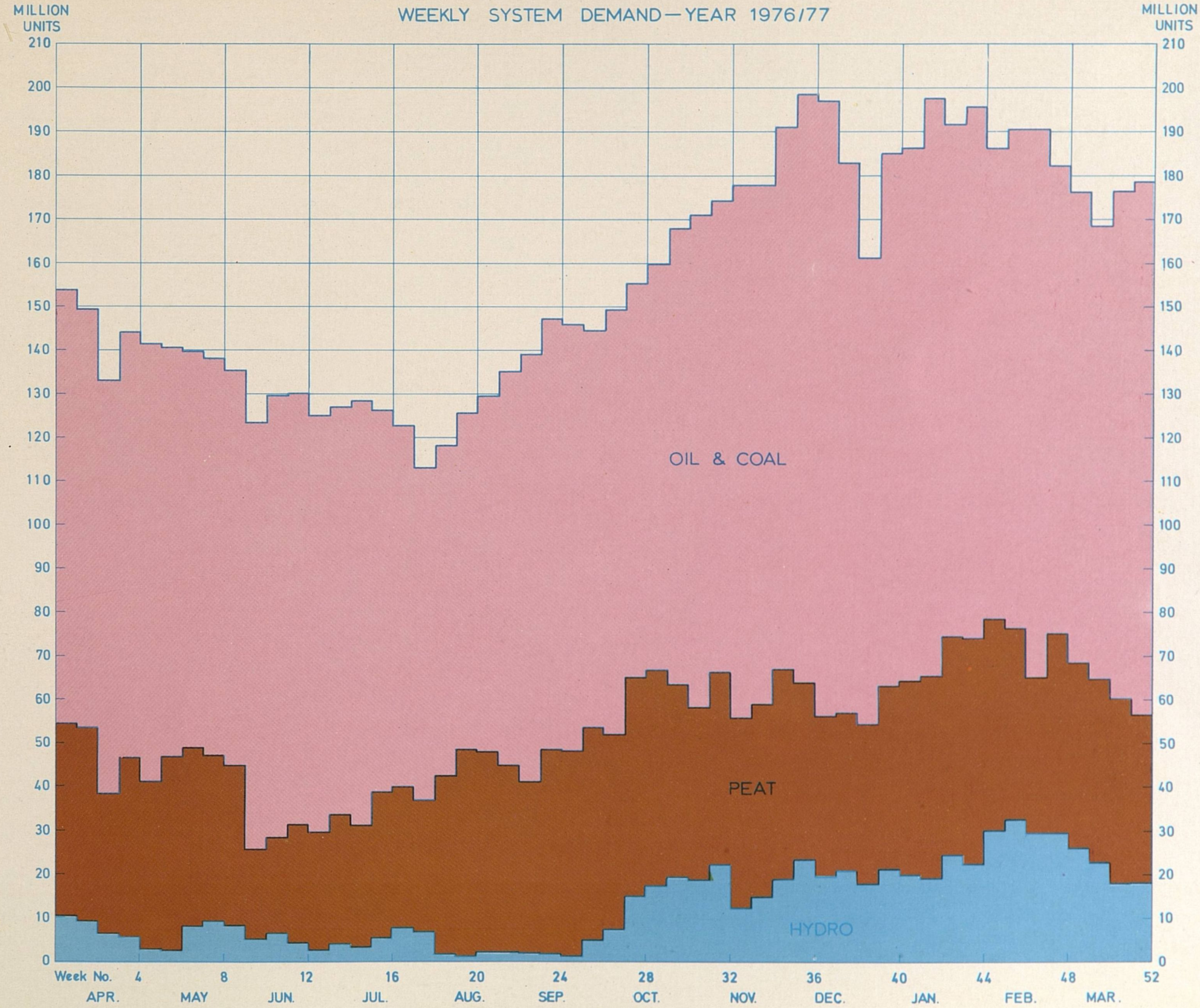
Transformer Station	No. in commission	Increase (+) or Decrease (—) for year	Total Capacity in kVA	Increase (+) or decrease (—) for year in kVA
38kV Stations	327	+4	2,202,300	+42,600
10kV Stations (excl. U.R.D.)	9,131	+330	2,053,247	+101,793
10kV Stations U.R.D.	1,768	+98	101,414	+6,240
5kV Stations	53	Nil	32,590	Nil

Distribution lines and cables	Length kM	Increase (+) or Decrease (—) for year kM	Description
38kV Lines	5040.9	+40.9	3 x 25 to 3 x 300 sq. mm. Cu. and SCA.
38kV Cables	247.8	+1.1	3 x 95 to 3 x 680 sq. mm. copper and aluminium.
10kV Lines	6507.0	+113.2	Single and three phase
10kV and 5kV Cables	2359.4	+119.4	2 x 16 to 3 x 240 sq. mm. copper and aluminium
3.3kV Cables	3.7	Nil	3 x 185 sq. mm.

B. Rural Networks (approximate extent)

Length of 10kV lines Single and Three phase kM	10kV Stations No. in Commission	10kV Stations Single and Three phase Total Capacity in kVA
61,590	91,200	1,094,400

WEEKLY SYSTEM DEMAND — YEAR 1976/77



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