



Annual Report 1997



# RED ELECTRICA DE ESPAÑA, S.A.

RED ELECTRICA is a company which specialises in the transmission of electric power. Its transmission network, with more than 18,500 kilometres of high voltage power lines and 127 substations, including interconnections with France, Portugal, Morocco and Andorra, guarantees the transmission of electric power between the sources of generation and the consumer markets.

This central position is reinforced by its responsibility as the power system operator. RED ELECTRICA is responsible for ensuring a constant balance between the production and the consumption of electricity; for programming and dispatching the power plants in accordance with the order of economic precedence governed by the Market Operator and the system's technical restrictions; for managing the complementary services market which is needed to guarantee the stability and safety of the system; and for developing and operating the power transmission network.

RED ELECTRICA has a team of more than 1,000 people who are experts in the necessary technologies and who have a wide and varied experience in managing power systems and in planning, design, construction, operation and maintenance of power transmission networks. Our goal is to put these capabilities at the disposal of the electric power markets.

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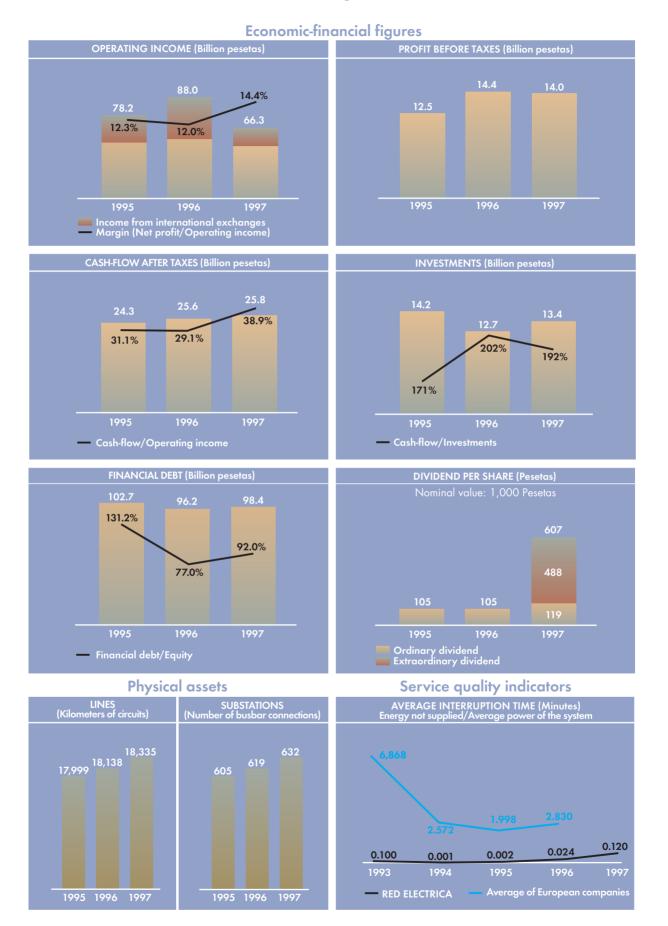


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### The chairman's report

To the shareholders:

For RED ELECTRICA, 1997 has been a remarkable year. The past year saw the start of an unprecedented process of change in the electricity sector which is opening the doors to developments whose consequences are still difficult to foresee but which are certainly of great significance. These developments will define the future of the sector and, especially, of RED ELECTRICA. I will refer to these later.

RED ELECTRICA's management has therefore focussed not only on consolidating its business and financial figures but also on adapting to the new legislative framework in order to assume the role which has been defined for it by the Electricity Act, and on facing new responsibilities.

Economic performance was characterised by an improvement in results compared to the figures projected at the beginning of the year. Profit before tax was 14,003 million pesetas which, although 3% less than 1966, was 27.4% higher than the forecast at the start of the year. The efforts to generate new income and a strict policy of cost control have almost compensated the reduction in income, with respect to 1996, which was imposed by the 1997 tariff and the increase in depreciation which resulted from the revaluation of the RED ELECTRICA balance sheet at December 31st, 1996.

Cash-flow before tax came to 30,240 million pesetas, which was 2.6% greater than the previous year and represented 44% of RED ELECTRICA's gross income. This was sufficient to finance the company's investment program, which came to 13,423 million pesetas, and put the ratio of net self-financing of investments at 153%.

During the past year an extraordinary dividend of 22,000 million pesetas was paid from the distributable voluntary reserves in addition to an interim dividend of 3,000 million pesetas paid against the year's results.



Pedro Mielgo Álvarez Chairman of RED ELECTRICA

In June 1997 the Board of Directors of the company agreed the early retirement of debt arising at incorporation from the acquisition of fixed assets and owed to the utility companies. This amount of 26,834 million pesetas was repaid in two instalments, the last on February 2nd, 1998.

The income generated from the ordinary operations of RED ELECTRICA and from the contract covering leasing of excess capacity of the fibre-optic telecommunications network helped to finance the extraordinary dividend. The reduction in equity required an increase in financial leveraging of the company which, however, still maintains an acceptable ratio. The retirement of the debt created at incorporation with the utility companies meant that this had to be replaced by money market funds and has resulted in an increase in the average cost of funding. However, the total cost of RED ELECTRICA's borrowing is expected to fall in 1998 due to the continued reduction in interest rates which has been noted during the last two years and an expected reduction in indebtedness.

In 1997 income from RED ELECTRICA's ordinary activities reached 67,000 million pesetas of which 49,624 million pesetas was income from transmission activities and from operation of the power system. Total expenses before tax came to 54,774 million pesetas which was 1.7% less than the preceding year if expenses related to the contract with EDF for the import of electric power are taken out of both years.

Additions to fixed assets in use, which came to more than 13,000 million pesetas, reflected the completion of 34 km of overhead power lines and 15 km of submarine and underground cable, two transformers, two busbar connections and 717 km of fibre-optic cable.

The most significant new facility is, without doubt, the underwater power interconnection with Morocco across the Strait of Gibraltar. Its construction was finished in June 1997 and electrical trials were satisfactorily completed on November 3rd. At the current time, preparations are being completed for the provisional acceptance of the facility which will allow it to be commissioned and mean the start of the power supply contract with the Moroccan national power company.

Moreover, the new Electricity Control Centre was inaugurated in May. It is one of RED ELECTRICA's most outstanding facilities and its control system, which is also installed at the Regional Centres, is based on the most advanced technologies in the fields of information technology and telecommunications for real-time management of power systems.

RED ELECTRICA's commitment to the preservation of the environment in which it carries out its activities included the following significant projects in 1997: studies of the environmental impact of the new installations in Catalonia, Galicia and Navarre and the completion of a study on the effects of electromagnetic fields on cellular and molecular mechanisms which was carried out by the Medical Faculty of the Valladolid University.

The average workforce in 1997 was 1,102 persons. This figure is similar to previous years and indicates the stability of human resources after the period of growth which ended in 1994. The objectives of the training policy include the constant updating of technical skills and abilities of the workforce in order to handle new transmission technologies and to match the demands of the services which are provided by RED ELECTRICA.

The legislative changes to which I referred at the beginning of this report are part of a deregulating process which started in a determined way with the signing of the Electric Power Protocol at the end of 1996. This protocol was confirmed by the new Electricity Act which was approved in November as Law 54/1997. Subsequently, the Government has published the corresponding regulations marking the start of its application.

The foregoing defines the legal framework under which the power generation market commenced operation on January 1st, 1998. The creation of this power market is generally perceived as a notable success. In a very short space of time a competitive market –without precedent in our country and practically without any references in the rest of the world– was put into operation.

RED ELECTRICA contributed to this success in a notable way. By express legal mandate it had the task and responsibility of creating the Compañía Operadora del Mercado Español de la Electricidad, S.A. (Spanish Power Market Operating Company) and equipping it with the human, technical and financial resources needed to ensure its operation. The contribution of RED ELECTRICA's professional staff and its co-operation with the rest of the utility companies, the Administration and the CNSE, was decisive in the development of the information, reconciliation and payment systems needed to guarantee the functioning of the market, the operational feasibility and the transparency of the transactions between the different agents of the new power market.

In addition, RED ELECTRICA –as the entity responsible for technical control of the power system– has developed the procedures and computer systems needed to ensure that the procedures for generation scheduling and real-time operation will respond to market criteria and, at the same time, to guarantee the safety and reliability of the power system.

One of the concrete provisions of the Electricity Act which clearly affects RED ELECTRICA refers to the need to make its share capital available to new shareholders. With regard to this requirement, the Law establishes that any holding in RED ELECTRICA is limited to a maximum of 10% except in the case of the Sociedad Estatal de Participaciones Industriales (the State Investment Company) which will own at least 25% until the year 2003. The Law allows a period of six months for the adjustment of holdings in the way defined. In October, an operation took place involving the sale of shares of the ENDESA group to SEPI and, as a consequence, the latter is now the majority shareholder in the company. The Law also fixes a limitation of 40% on the total holdings of all entities related to the power sector.

SEPI has stated its interest in placing part of its holding in RED ELECTRICA on the stock market in the near future. The ability of the current shareholders to realise potential capital gains on their holdings in RED ELECTRICA and the need to offer the new shareholders an attractive value, provides RED ELECTRICA with a clear opportunity to put its infrastructure, financial resources and technical capabilities to the test.

The recognition of the incentives related to the efficient cost management of those technical restrictions and complementary services which increase the price of electricity; the possibility of connecting new generation and consumer facilities to the transmission network, encouraged by the new competitive market and the freedom of access to the grid; and the restructuring of power systems all over the world, which creates a growing demand for technology, management and capital in the field of electric power transmission, constitute opportunities for growth of RED ELECTRICA which are additional to its current activities in the fields of transmission and management of the system.

The priorities of RED ELECTRICA's management in 1998 and subsequent years will be the ability to respond with efficiency, flexibility and competitively to the new challenges which the new power market poses and the creation of shareholder value, taking into consideration the future listing of the shares on the stock exchange.

### The Board of Directors and Management

### **Board of Directors**

The composition of the Board of Directors at December 31st, 1997, was as follows:

CHAIRMAN

**BOARD MEMBERS** 

Pedro Mielgo Álvarez

Jaime Carrasco Belmonte Pedro Rivero Torre Rafael Miranda Robredo Carlos Vázquez Fernández-Victorio **Ricardo Rueda Forníes** Francisco García Sánchez María Luisa Huidobro y Arreba Victoriano Reinoso Reino Luis Felipe Castresana Sánchez Luis Daniel Sanz Suárez Enrique García Álvarez Javier Herrero Sorriqueta **Miguel Vila Despujol Rufino Parra Terrón** José Damián Bogas Gálvez **Carmen Becerril Martínez** Francisco Javier Pinedo Cabezudo Antonio Tuñón Álvarez

SECRETARY OF THE BOARD OF DIRECTORS (NON-BOARD MEMBER) AND LEGAL ADVISOR

Rafael García de Diego Barber

During 1998 Jaime Carrasco Belmonte, Carlos Vázquez Fernández-Victorio and Ricardo Rueda Forníes resigned as board members. These vacancies were filled at the General Shareholders Meeting with the appointment of Antonio Gomis Sáez, Juan Gurbindo Gutierrez and Miquel Nadal Segalà.

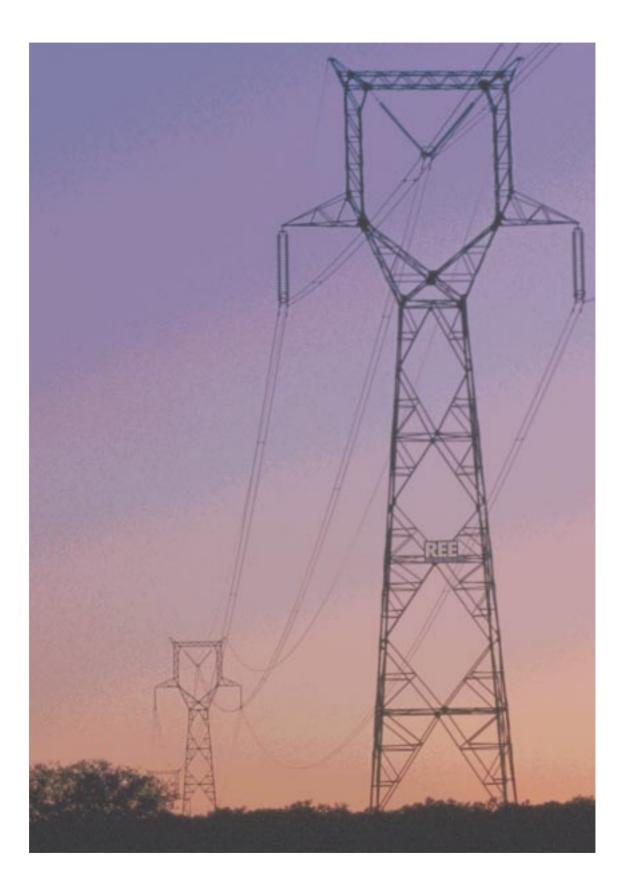
Management

CHIEF EXECUTIVE Pedro Mielgo Álvarez

**GENERAL MANAGERS** 

**Agustín Fernández Herrero** Administration and Finance Victoriano Casajús Díaz Transmission **Ángel Landa López de Ocáriz** System Operation

# Development of the transmission network



### Transmission network planning

Activities in 1997 related to the planning of strategic and operational issues in the transmission network included:

- Development of a new methodology to handle the studies corresponding to the Horizon 2008 Plan which incorporates the new control criteria for the power system and which takes into account the greater degree of uncertainty derived from the absence of overall development plans for the sector.
- A planning study corresponding to the horizon for the year 2020 in the Catalan Region as part of the group of guideline plans associated with the various autonomous regions to optimise the co-ordinated development of regional infrastructures.
- Studies associated with the evolution of new sources of generation in order to evaluate future requirements of the transmission grid related to right-ofways and to determine the economic indicators which will guide the development of the power plants.
- An analysis of the potential features of the existing and of the planned network in the Levant area and in Catalonia to establish the optimum power factor for these markets, determine the supply capacities of the zones and to identify limitations. An operational plan for the areas of Tarragona and the Penedés was also prepared.
- A review of the capacity of the interconnection with France, a preliminary analysis of the 2004 Horizon for the interconnections with Portugal and a technical and financial analysis of the interconnection with Morocco.



- A general study of the power supply connections for new substations related to the Madrid-Valladolid and the Zaragoza-Lérida sections of the high-speed rail links.
- Studies and modelling were commenced on the impact of the wind-driven generation planned in various autonomous regions, especially in Galicia, covering transmission capacity, dynamic stability of the network, secondary regulations, wave quality and voltage control.
- Critical network studies on the conditions for eliminating defects (in terms of time and selectivity) at the substations with the object of avoiding significant repercussions affecting generation and/or the market. These were carried out by seven area work groups in which ENDESA, IBERDROLA, UNIÓN FENOSA, FECSA, HIDROCANTÁBRICO, the ENHER-HEC group, SEVILLANA, VIESGO and ERZ participated apart from RED ELECTRICA.
- The philosophy for the protection of the transmission network was updated.

 Development and installation of a new software application program for the support and handling of information related to the analysis of disturbances. This program is an improvement on the previous one due to its structure and the query interface for the end users and it includes the automatic loading of disturbances detected at the Control Centre, integration with the inventory of protection equipment and mechanisms for the automatic generation of reports and evaluations.

### Transmission facilities under construction

The main projects in progress at the end of 1997 were:

 In the Northern Area: construction of the Soto-Penagos line and the studies for the installation of the Penagos-Güeñes and Güeñes-Itxaso lines, continue. The Soto-Penagos-Güeñes-Itxaso axis will improve transmission between Asturias, Cantabria and the Basque Country, reinforce power supply to this area and will notably improve the overall performance of the Spanish power transmission system.  In the south of Andalusia, construction is being completed on the line between Pinar del Rey and Tajo de la Encantada, which will increase the reliability of supply in the area and will reduce transmission losses.

In the east of Andalusia, completion of the Litoral-Rocamora line is expected in the first half of 1998. This will connect the Centre and the Southeast of peninsular Spain and strengthen supply to the latter area and to the Levant area.

 In Aragon, engineering is being finalised to join the Aragon-French Frontier line with the Sallente-Sentmenat, (Graus-Isona), line in order to improve power supply capacity in Aragon and Catalonia.

		Table 1.a
Lines, under construction		
	No. of	Length
	circuits	(km)
400 kV LINES		
Pinar-Tajo	(*) ]	110
Litoral-Rocamora	(*) ]	186
Fuencarral-Línea Galapagar-San		
Sebastián de los Reyes	2	9
Lada-Velilla	1	96
Soto-Penagos	1	175
La Secuita-Línea Vandellós-Begues	2	1
Xistral-Línea Aluminio-Puentes		
de García Rodriguez	2	14
Sentmenat-Bescanó	2	77
Penagos-Güeñes	2	70
Graus-Línea Sallente-Sentmenat	2	41
Aragón-Frontera Francesa	2	187
TOTAL CIRCUITS DE KM		1,365
220 kV LINES		
Cartelle-Línea Pazos-Castrelo	2	8
TOTAL CIRCUITS DE KM		16
(*) Structures prepared for double circuit altho single circuit is installed.	ugh provisio	nally a

	Table 1.b
Substation	ns, work in progress
Facility	Work
Cartelle	Extension of the 400 kV compound New 220 kV compound 400/220 kV transformer
Balboa	Extension of the 400 kV compound New 220 kV compound 400/220 kV transformer
Aguayo	New 400 kV circuit end at Velilla New 400 kV circuit end at Penagos
Fuencarral	New 400 kV compound 400/132 kV transformer
La Secuita	New 400 kV substation 400/220 kV transformer



- In Catalonia, work continues on the installation and engineering for the future Sentmenat-Bescanó line and the La Secuita substation. These facilities will reinforce supply to the Gerona and Tarragona areas, respectively.
- In Galicia, engineering work is underway for extending the Cartelle substation with a new transformer module of 400/220 kV and installing a new 220 kV compound connected to the Pazos-Castrelo line. This will facilitate the transfer of hydraulic and wind-driven generation and cogeneration out of the south of Galicia. Work is also being carried out on the layout and preliminary studies for the future substation at Xistral and its connection to the Aluminio-Puentes de García Rodríguez line, to reinforce the network capacity for shifting power from the wind farms in the area.
- In the Central Area, engineering work is being finalised on the installation of the future 400 kV compound at the Fuencarral substation and its connection to the Galapagar-San Sebastián de los Reyes line. These facilities will improve the supply of power in the north of Madrid.

 In Extremadura, engineering work is underway on the extension of the Balboa substation involving a new 400/220 kV transformer module, the construction of a new 220 kV compound and its connection to the Balboa-Badajoz line to strengthen and increase the reliability of power in south area of Badajoz.

Figures 1a and 1b give details of the installations under construction at December 31st, 1997.

### **Facilities completed**

During 1997 construction of the following facilities was completed:

### Lines

- Pinar del Rey-Estrecho, single circuit 400 kV line, 34.1 km long with structures prepared for double circuit.
- The Spain-Morocco interconnection between Estrecho and Ferdioua, by means of four underwater and underground cables of 400 kV, 26.2 km and 2.2 km respectively. This includes the terminal stations for the cables on both sides of the Straits.

These installations will allow the exchange of electrical power between Spain and Morocco and will also lead to an increase in technical, industrial and commercial co-operation with countries in North Africa.

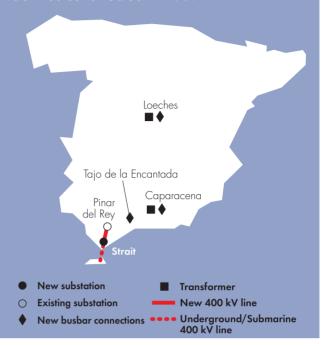
#### New facilities in existing substations

- Caparacena: New 400/220 kV, 600 MVA transformer bank which reinforces power supply to the area of Granada.
- Loeches: New busbar connection and new 400/220 kV, 600 MVA transformer bank which will allow more power to be injected into the Madrid ring.

- Pinar del Rey: Connection of the Mellousa busbar connection which is part of the new facilities for the exchange of power with Morocco and the preparation of the Tajo de la Encantada circuit end for its connection to the new Pinar del Rey-Tajo de la Encantada line.
- Sabiñánigo: A new connection bay which will facilitate improvements in the safety and reliability of the facility.
- Tajo de la Encantada: A new Pinar del Rey busbar connection which will allow power supply to the Malaga market to be reinforced by means of the Pinar-Tajo line which is soon to be commissioned.

Figure 2 shows the facilities in operation which were owned by RED ELECTRICA on December 31st, 1997.

RED	ELE	CTRIC	A ne	two	r <b>k</b>
facil	ities	const	ructe	d in	1997



### **Communications systems**

During 1997, the following activities were carried out:

- Communication circuits: Commissioning of 981 circuits for telephone, remote control, remote protection, management, etc., bringing the total number of circuits used by RED ELECTRICA to 4,318.
- Mobile radio systems: Installation of 14 new repeater stations under the Adjustment and Improvement Plan for Mobile Communications, bringing the total at the end of the year to 106 mobile radio repeater stations. The notable improvement in coverage has increased the usefulness of the mobile radio system for line maintenance activities.
- Fibre-optic systems: Installation of compound earth-optic cable (a fibre-optic cable attached to the earth wire), underground cabling on 563 km of existing lines plus 154 km of new lines and the commissioning of 13 fibre-optic tie-lines during the year. This brings the total cable laid to 8,245 km and the fibre-optic tie-lines to 134. Installation was also completed on the Synchronous Digital Hierarchy (SDH) loop running at 622 Mbps between Madrid and Barcelona consisting of 19 nodes and the corresponding management system, with automatic restore capability for traffic in the case of failures.

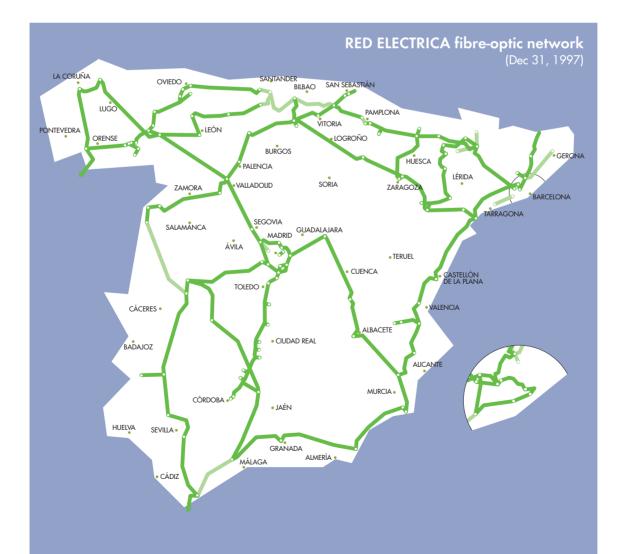
	Table 2
Facilities in use owned by RED ELECTRICA (Dec 31, 1997) Aerial lines (km)	4
400 kV 220 kV 1 10 kV & less TOTAL	13,969 4,276 75 18,320
Underground lines (km) 400 kV	2
Underwater lines (km) 400 kV	13
Busbar connections           400 kV           220 kV           1 10 kV & less           TOTAL	455 174 3 632
Substations TOTAL	127
Auto-transformers Number Total power (MVA)	34 17,051
Reactor units Number Total power (MVA)	28 3,410

- Carrier and Remote Protection Systems: Installation and commissioning of 10 carrier wave links and 31 remote protection links. Eight high frequency remote protection links have been disconnected and this means that there is a total of 506 carrier wave links and 725 remote protection links.
- Switching systems: Installation and commissioning of one digital exchange and 13 remote exchange modules, thus improving the quality of connection at 14 network centres. This brings the total number of digital exchanges and remote modules to 52 and 32, respectively.
- **Cross-connects**: Installation of 10 cross-connect units for the network, providing flexibility for the communications network and improving operating capacity.
- Management of the communication network: Installation and commissioning of the Supervision System for the Communication Network which includes access by the regional centres to data on the network status in their respective areas.

### **Energy control systems**

At the end of 1997 there were 124 substations adapted for operation by means of the remote control systems. The remote control includes not only the substations and compounds owned by RED ELECTRICA but also the installations of those utility companies which have signed a specific remote control agreement.

1997 saw the commissioning of the new energy control systems at the Power Control Centre (CECOEL) and at the five Regional Operation Centres of RED ELECTRICA (CEORE). These systems, which have a client-server architecture, use RISC technology computers and software with advanced features based





on UNIX, relational databases, standard communication protocols and user interfaces of the «full-graphic» type. Their modular character and their open architecture design will facilitate development and adaptation to future technical advances. Spare capacity of the elements covers the simple failure of any item and the system permits access to the information from any remote workstation.

In addition, at the CECOEL, the control room was rearranged and fitted with a real-time display comprising an 8 x 3 panel of video back projectors using LCD. The display is a complementary tool for the control system, it provides a global image of the power system and allows changes in status or invalid parameter values to be rapidly detected. It also allows the grid status to be checked or the extent of an incident to be determined, without the need to access specific parts of the network available on the system. Moreover, it contains multiple general schemes which make it possible to identify any zone where service has to be restored, down to the level of circuit breakers, and allows any important aspect in the operation to be highlighted at any time with great flexibility of use.

# Renewal and improvement of the Installations

The priorities for the Renewal and Improvement Program for the installations and equipment are established based on an analysis of their real condition and taking into account the overall criteria of safety, quality, cost and external factors. This analysis is supported in a systematic way in the case of substations by the computer tool known as Decision Aid for Renewal of Substations and which, at the current time, is being adapted for application to the power lines.

The most important activities related to the modification, adjustment and rearrangement of equipment and facilities, were:

### Lines

- Replacement of the transmission towers on the Sangüesa-Sabiñánigo, Mudarra-Montearenas y Siero-Puente de San Miguel 1 lines.
- Replacement of the earth wire on the Aluminio-Puentes de García Rodríguez 1 and 2 lines.
- Change of wires on the Montearenas-Mudarra and Sabiñánigo-Escalona lines.
- Completion of operations to increase the transmission capacity of the Vic-Baixas, Biescas-Sabiñánigo and Biescas-Pragneres lines in order to maintain adequate capacity for the power exchange with France.

### Substations

- Replacement of 155 high voltage items: 14 circuit breakers, 41 isolators, 36 current transformers, 52 voltage transformers, 7 line traps and 5 lightning conductors.
- Replacement of various items of low voltage equipment in the substations at Begues, Vandellós, Vic and Villanueva de Gállego.

- Transfer of the control panel from the centre to the compound at the Ribarroja and Mediano substations.
- Remodelling of the compressed air installations at the La Lomba and Montearenas substations.

### Protections

- Complete renewal of the protection systems at 26 busbar line connection, 2 busbars connections and 3 busbar transformer connection and partial renewal of those at another 63 busbar connections on the transmission network.
- Completion of renovation work at the Pont de Suert substation which affected the Mediano, Pobla, Rubí, Auto 1 and Auto 2 busbar connection.



- Renovation of the protections on the Vic-Baixas interconnection (including a change in the layout), and the Biescas-Pragneres, Arkale-Mouguerre and Cedillo-Pego lines.
- Commissioning of the protection system for the underwater cable between Estrecho and Ferdioua on the Spain-Morocco interconnection.

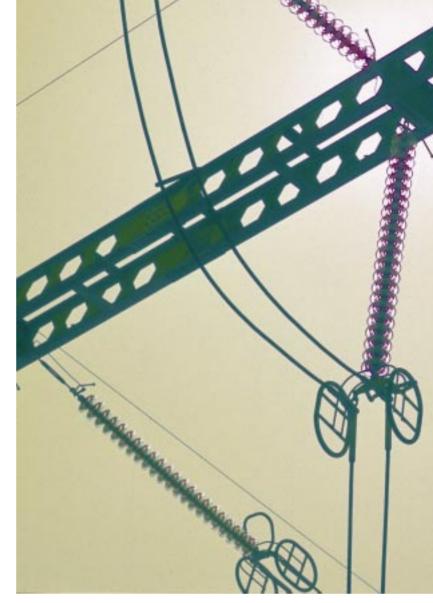
### Remote control

- Adaptation of three compounds of RED ELECTRICA at Almaraz CN, Trillo and Cofrentes, under the Substation Remote Control Adaptation Program. In addition the 400 kV compound at Compostilla has been adapted to the RED ELECTRICA remote control specification.
- Installation of the bi-directional remote monitoring system on the Spain-Morocco link with equipment installed at the terminals in Tarifa and Ferdioua. Four new remote control stations entered service. The one installed at the Mellousa (Tetuan) substation forms part of the remote control system for the link between power systems of Spain and Morocco.
- Fitting of remote monitoring facilities to 25 digital control systems and remote control stations which brings the total number of units fitted with this function to 119 at the end of the year. Remote data loading, which allows the databases to be remotely updated, was fitted to 25 digital control systems and remote control stations - making a total of 103 remote control units which are fitted with this option. This function has allowed 187 engineering and maintenance operations to be carried out at the remote stations.

- Installation of the communication alarm distribution system at 9 units with their databases at the remote control stations and in the regional offices. At the end of 1997 a total of 99 substations had been fitted with the communication alarm distribution system.
- Synchronisation of disturbance recorders at 19 compounds of the transmission network equipped with digital control systems, based on the time synchronising unit installed in the digital control systems. At the end of 1997, 43 substations had been fitted with the disturbance recorder synchronising system. Purchase and installation of 50 new time synchronising units for remote control equipment was completed, bringing the number of items equipped with time synchronising units to 95.
- Preparation of a plan to fit hardware terminals for local operations at eight new remote control stations and their installation.

# Documentation of the installations

The use of the Computer-Based Management System for Technical Documents, which was implemented in 1996, was extended to practically all the potential users during 1997 and, consequently, the number of terminals from which the program is accessible has doubled. At year end the system already covered the complete documentation of the substations and work will continue during 1998 on the inclusion of the drawings.



The standards for the preparation of drawings of the electrical installations have been adapted and entered in the CAD program. This facilitates their application by RED ELECTRICA personnel as well as by external engineers and results in unified technical documentation of a high quality.

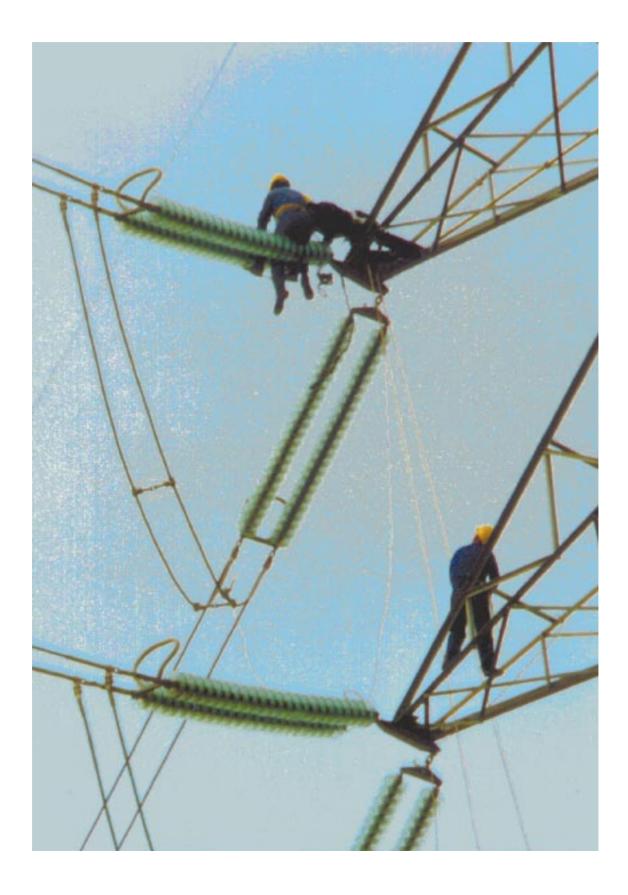
In 1998 a new system will be developed which will integrate the current system with the documentation and details of the RED ELECTRICA power lines.

### Quality assurance items

Apart from activities related to the design and construction of power lines, which were certified in 1996, RED ELECTRICA has implemented quality assurance systems for activities related to the design, installation and maintenance of fibre-optic lines and for the design and construction of substations. These are currently undergoing certification for the ISO 9001 standard.



### Maintenance of the transmission network facilities



### Lines maintenance

The periodic inspections carried out on foot were supplemented by 510 hours of helicopter inspection. They resulted in preventive or corrective maintenance actions.

Urgent improvements were carried out on 203 towers following the checking of earth wires at 3,815 towers and a study of the resistance to earth at another 240 towers.



With the object of reducing line faults due to fires and the potential danger of contact with trees, work was carried out on more than 250 hectares of forest, which represents 0.6% of the area under the power lines.

The use of helicopters for cleaning insulators was extended to 1,639 strings, which represents 38% of the 4,312 strings involved.

Other important preventive maintenance operations included the application of anti-corrosion protection to 114,000 square metres of transmission towers with significant corrosion problems, resurfacing of tower bases, re-tensioning of wires and replacement of insulator strings, in order to improve the reliability of the lines.

Corrective maintenance included the replacement of towers on the D. Rodrigo-Pinar, Caparacena-Litoral, Badajoz-Elvas and Siero-Puente de San Miguel 2 lines due to problems caused by the terrain.

Public works were the basic reason for 14 modification projects (changing the layout or increasing the height of structures) which were carried out at the request of third parties. Moreover, reports were prepared on 123 requests for the clarification of technical restrictions and areas of influence, made by official and private organisations.

### Substations maintenance

Following evaluation of the results of 186 analysis of oil carried out on power equipment, oil was filtered at 7 units and other minor defects were identified which did not require any action. The insulation was measured at 37 items of equipment and potential problems were detected at 5 terminals. This triggered continuous monitoring of their status. Frequency response analysis techniques were used in the diagnosis of 16 units.

The accuracy monitoring program for the measurement transformers included 209 comparisons carried out on capacitance transformers.

With regard to the program for the prevention of breakage failures in current transformers, 246 partial discharge measurements, 43 oil analyses and 12 insulation measurements were carried out. These, together with the thermovision inspection of all the units, helped to detect 8 defective units which have been decommissioned in order to avoid risks to personnel and the installations.

The remote diagnosis of 196 circuit breakers and the thermovision inspection of 124 substations detected a total of 167 hot spots.

Routine preventive inspections carried out on all the installations resulted in 587 complementary disturbances reports and the correction of 67 potential disturbances.

Synchronised closing relays for the reactor circuit breakers were installed at the Mudarra and Olmedilla substations, as a continuation of the corresponding program.

As part of the scheduled operations for complying with regulations, the resistance of the earth wire at 29 substations was checked and the compressed air tanks at 12 busbar connections were adjusted to conform with the applicable standards.



### Maintenance of protection and measurement systems

Following a programmed review of the protection equipment at 194 busbar connections of 400 kV and 77 of 220 kV, operating defects were detected and corrected at 32 busbar connections. In addition, 194 defects in the protection and measurement systems were corrected.

The integrated measurement equipment fitted at 107 circuit ends of the Spanish Mainland Joint Regulation System was verified. Seventeen of these correspond to international interconnections.

Scheduling, testing and commissioning of the protection systems at 98 busbar connections were carried out. Of these, 4 are new busbar connections, 31 are complete renewals and 63 are partial renewals.

The verification of 250 measurement converters improved the quality of the measurement figures transmitted to the regional operation centres and has increased the number of measurements falling inside the expected range from 92.2% to 96%.

Remote management of protection equipment has reached a total of 525 items which are connected to the protection management control post. A new Digital Protections Information Management software application was installed which handles automatic recovery and the querying of the records of the recording oscilloscopes and digital protection operations.

Field monitoring and evaluation testing was carried out on the prototype of the Integrated Control and Protection System installed in the right of way at the Villaviciosa de Odón substation.

The corresponding specification was prepared and a real-time digital simulator was purchased for tests on protection systems and other equipment in the laboratory.

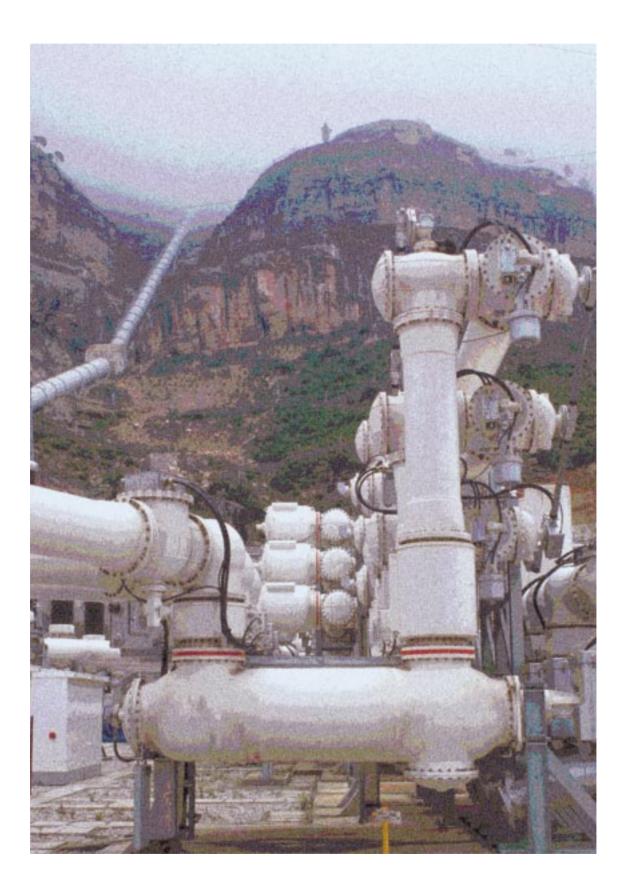
### Maintenance of remote control systems

Specialised maintenance on the remote control systems generated more than 100 databases related to remote control stations and digital control systems.

### Quality assurance items

Towards the end of the year the AENOR Certificate under the ISO 9000 standard was granted for the maintenance of lines (ISO 9001) and substations (ISO 9002) and the latter includes the maintenance of remote control systems. During 1998 a quality assurance system is going to be implemented for operations at our installations and the certificate is expected in 1999.

### Operation of the transmission network



# Performance of the transmission network

Losses in power transmission in the RED ELECTRICA network during 1997 were 1.04%, an identical figure to the previous year. Hydraulic generation was less than the preceding year but there was a greater increase compared to other years in gas-fuelled generation although it was not as close to the centres of consumption.

Voltages were maintained inside normal limits and only momentarily low values were recorded. The majority of 400 kV measurements were between 399 and 433 kV while those of 220 kV ranged between 224 and 243 kV. These figures are very similar to 1996.

The average load at the transformers fell compared to the previous year except in Aragon, Galicia and the Basque Country. The area with the heaviest load continued to be Madrid, which reached an average of 45% while the average in the other areas was not greater than 40%.

The average load on the 400 kV lines was greater than the previous year while the figures for the 220 kV lines were similar. There was a greater number of 400 kV lines which recorded maximum loads of 70% although this situation occurred during a much smaller number of hours than the previous year. The number of 220 kV lines with excess loads was also greater-although this occurred during much less time and without exceeding the maximum load recorded in 1996.

During 1997 the number of outages decreased both programmed and forced. In RED ELECTRICA lines, the total number of 400 kV outages increased. This was due to programmed outages-as the forced outages decreased. Performance indices for RED ELECTRICA's network compared with the average figures for the transmission grids of France, Portugal, UK, Sweden and Spain

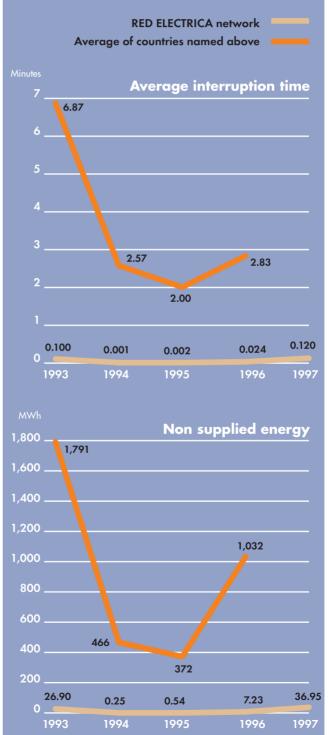


	Table 3
Unavailability rates	%
Preventive maintenance	1.10
Fortuitous	0.04
Causes other than	
maintenance	2.42
TOTAL	3.56

### Service quality indicators

The movements of the indicators of quality of the transmission service were as follows:

### Not supplied energy

The annual electric power not supplied due to disturbances in the RED ELECTRICA transmission network was 36.95 MWh.

#### Average interruption time

Since 1986 this indicator, which relates the power not supplied due to disturbances in RED ELECTRICA network to the average power in the system, has recorded figures of less than one minute. This reflects the high level of the quality of service provided. In 1997 the figure was 0.12 minutes.

#### Unavailability rate

The unavailability rate measures the average time which each line has been out of service due to outages for preventive maintenance, due to accidental unavailability caused by temporary or permanent failures and that due to other causes, unconnected with maintenance, such as the construction of new facilities or factors external to the network. The value and composition of this index, which reflects the quality and continuity of the service provided by the power system, is shown in Table 3.

In 1997 the overall availability was 96.44% and this means the overall unavailability due to maintenance (preventive and accidental) was slightly less than previous years.

#### Evolution of the unavailability rate

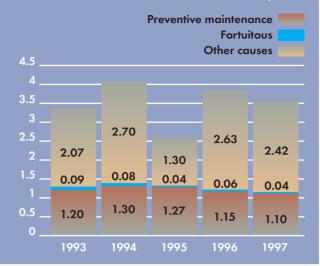




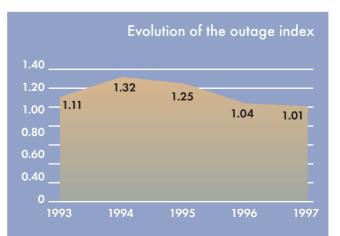
			Table 4
10 KV	220 KV	400 KV	TOTAL
1	92	143	236
16.5	110.19	84.89	94.47
	10 KV 1 16.5	<u>10 KV 220 KV</u> 1 92 16.5 110.19	1 92 143

				Table 5
Forced outages				
	110 KV	220 KV	400 KV	TOTAL
Number				
With automatic re-closing	0	151	274	425
Duration under 5 minutes.	1	76	52	129
Duration from 5 min. to 5 hr	4	64	111	179
Duration over 5 hours	]	5	22	28
TOTAL	6	296	459	761
Average unavailable time per circuit				
due to accidental causes (hours)	5.73	2.19	4.69	3.76
Average duration of interruptions				
over 5 minutes (hours)	3.41	2.51	5.06	4.17

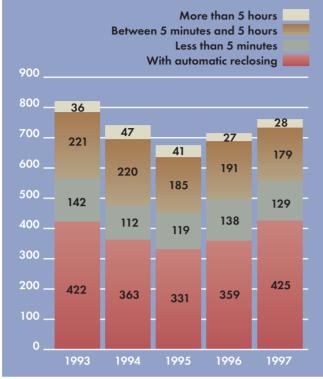
	Table 6
Causes of forced outages	%
Fire under the lines	5.1
Weather	49.5
Line material faults	1.5
Substation equipment faults	1.2
Protection device faults	1.6
Other causes	15.0
Unknown	26.1
TOTAL	100.0

#### Maintenance outages

The scheduling of maintenance work, based on criteria of maximum grouping, together with the growing use of predictive techniques and live-line working, resulted in a significant reduction in the number of outages per network circuit. The outage index in 1997 was 1.01 compared to 1.04 in 1996. Table 4 shows the number of outages and their average duration according to the voltage level.



### Evolution of events involving protection mechanisms



### Forced outages and disturbances

During 1997 there were 761 forced outages in the transmission lines which caused them to open suddenly. These were basically due to thunderstorms and fog in the summer and winter months.

Tables 5 shows the classification of these outages according to their duration and Table 6 shows the distribution of the causes which provoked them.

# Equipment and system performance

### Lines and substations

The rate of breakdowns in RED ELECTRICA's transmission lines causing temporary unavailability, was 0.027 breakdowns per 100 km of circuit in 1997, compared with 0.038 in 1996. The average unavailability due to accidental causes per circuit was also less, 3.76 hours against 4.27 hours in 1996.

In the case of substations, the average unavailability time per busbar connection with circuit breaker was 0.69 hours in 1997, compared to 0.79 in 1996, Table 7 shows the number of breakdowns for each type of equipment and its failure rate (the failures of a given type of equipment expressed as a percentage of the total for these items).

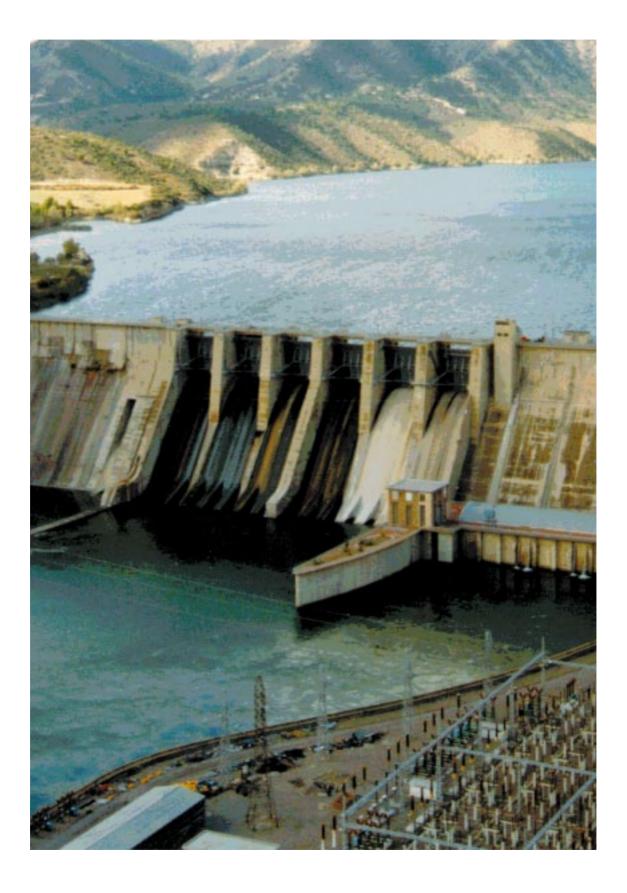
The performance index for the protection devices also improved to 95.7% compared to 94.2% in 1996. The devices were activated 2,480 times and 2,374 of these were correct.

#### Remote control systems

During 1997 the operation of 31 digital control systems and 63 remote control stations was analysed and the results obtained show availability rates of 99.98% and 99.89%, respectively. These figures are practically identical to 1996.

		Table 7
Equipment	No. of Faults	Failure rate
Reactance equipment	4	1.50
Power transformers	0	0.00
Circuit breakers	17	2.68
Isolators	37	2.19
Current transformers	5	0.30
Voltage transformers	14	0.83

# Operation of the electric power system



### The new regulatory framework

The Electricity Act, approved in November 1997, means an important step in the deregulation of the power sector. It creates a market for the electricity generation based on competition.

RED ELECTRICA played a notable role in the creation of the different operational instruments which made it possible to initiate the electricity market on January 1, 1998. This was a process which commenced in December 1996 with the signing of the Electricity Protocol and it has been carried further with the approval of the new law and the complementary regulations.

#### The market operator

The law creates a new figure, the market operator, in the form of a commercial company which is to manage the system of buying-selling offers of power between generators, distributors, brokers and qualified consumers. This company, Compañía Operadora del Mercado Español de Electricidad, S.A., incorporated in December 1997 with a share capital of 300 million pesetas fully subscribed by RED ELECTRICA, assumed the commercial management of the system from January 1st, 1998.

The incorporation of this company was preceded by intense activity at RED ELECTRICA in which the utility companies, CNSE, the Ministry of Industry and Energy and consultants, participated. During the last quarter of 1997, RED ELECTRICA provided this company with computer systems and the resources necessary to guarantee operational feasibility and the transparency of the transactions which are carried out in the electricity generation market.

#### The system operator

The law confirms RED ELECTRICA as the company in charge of electricity transmission and entrusts it with the responsability of handling the technical management of the power system, which is the function associated with the system operator, and also with the management of the transmission grid.

RED ELECTRICA developed the procedures and computer systems needed to ensure that the operation of the system, apart from guaranteeing the reliability and continuity of the electricity supply, would reflect the criteria for the successful operation of the electricity market.

In particular, standards and computer systems were implemented to manage the technical restrictions of the transmission grid and of the system (which have to respond to market criteria) and to manage the market for complementary services (which will also be governed by a system of offers) as well as the computer, communication and co-ordination systems between the Operator Company and the market brokers.

### **Operation data**

The representative data of the operation of the electricity system during 1997 were as follows:

### Demand

Annual demand for electric power reached a cumulative total of 162,180 GWh at the power plant busbars. This was an increase of 3.80% over the previous year. If the effect of the leap year is taken into account the increase is 4.12%. After correction for labour effects and temperature, the increase in demand is calculated at 5.40%.

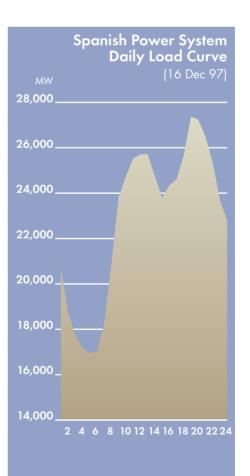


		Table 8
Breakdown of ge	eneration	in 1997
		% of
POWER	GWh	total
Hydroelectric	33,168	21
Nuclear	55,298	35
Coal	62,098	40
Oil+Gas	6,843	4
TOTAL	157,407	100

The values for monthly, daily and hourly demand reached historic maximums. The monthly maximum occurred in December with 14,837 GWh; the daily maximum was recorded on December 16th at 559.4 GWh and the maximum hourly average power demand reached 27,369 MW at 19.00 hours on the same day.

#### Generation

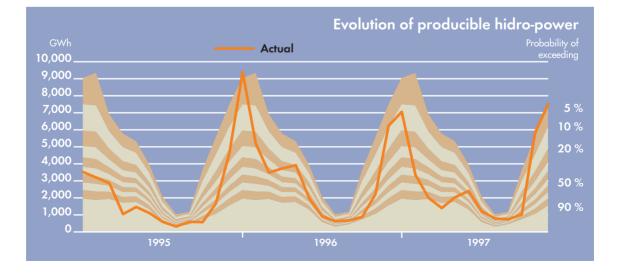
The total power generated by the mainland system increased by 5.95% compared to the previous year. The distribution of generation was affected by the increase in production using gas and Spanish coal, to reduce coal stocks and cover the minimum gas quota, and by the high hydroelectric producibility index of 1.20. Hydraulic reserves reached historic maximums at the end of the year with 75% of storage capacity at the dams used by hydroelectric stations, 20% more than the previous year.

Hydroelectric power generation was 21% of total, 4% less than the previous year. Nuclear power generation was also down by 3% to 35% of total. Generation from coal was 40%, which was an increase of 5% on the previous year. Gas generation represented 4% of total generation, 3% higher than last year. Lastly, generation from oil-fired plants which was 1% in the preceding year, came to practically zero.

Self-generation supplied 15,958 GWh to the system, up 17% on the previous year. There was a sharp drop in the rate of growth compared to 1996 when self-generation grew 42% over 1995.

The coal-fired stations produced 62,098 GWh with an increase of 19% over the preceding year. This increase was due to the high use of Spanish coal which recorded a historic maximum of 59,266 GWh, 27% up on 1996. The availability of generating plants reached 93% including scheduled outages and the connected equipment usage factor was 90%.

Hydroelectric power generated from new natural flows and reserves was 32,035 GWh. Power generated from closed cycle pumped storage reached 1,133 GWh and total hydroelectric generation was therefore 33,168 GWh. This figure is 10% higher than the output which would occur in a year of average hydraulic activity.



Nuclear generation was 55,298 GWh. The overall availability of nuclear power plants, including the reloading of fuel and programmed inspections, reached 87%, 1% more than the previous year, and the utilisation factor of the connected equipment was 95%, 2% less than in 1996.

Oil-fired and gas-fired power stations supplied 4% of total generation at 6,843 GWh. This was fundamentally due to gas-fired stations which produced a historic maximum of 6,597 GWh. Total availability was 83% and the utilisation factor of the connected equipment came to 64%.

### Regulation

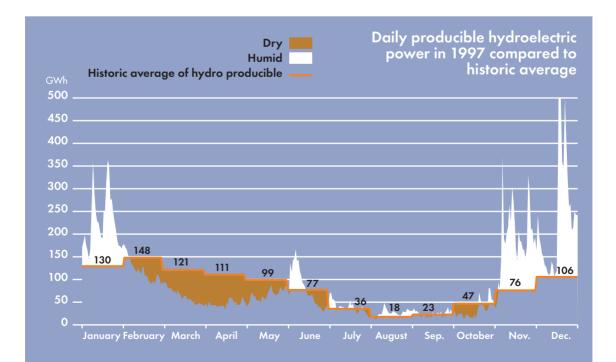
A smaller number of deviations was recorded than in 1996 related to the scheduling of the interconnection with France. There were 40 deviations of more than 500 MW, compared to 108 in the preceding year, and their duration was shorter although the maximum recorded values were greater than 1996. Only in the last quarter there were more deviations than in the same period in the previous year, due to greater hydraulic activity, mainly in december. Most of the deviations were recorded during the hours around midnight and in the early hours of the morning when the load comes on. Those related to power exports predominated (58%).

#### Variable cost of generation

The variable cost of net generation (fuel plus variable operating and maintenance costs) in the power system in 1997 came to 387,790 million pesetas. This figure is 21% higher than that of the preceding year (at constant fuel prices) compared to a net increase in generation of 6%. The more expensive generation was attributable to the lower hydroelectric generation during the year.

The export balance of the international power exchanges reduced the cost of power available in the market by 11,132 million pesetas to 377,327 million pesetas after taking into account the 669 million pesetas from pumping consumption.

The average variable cost of net generation during the year was 0.33 pesetas per kWh greater than the previous year (at constant fuel prices) and came to 2.58 pesetas per kWh.



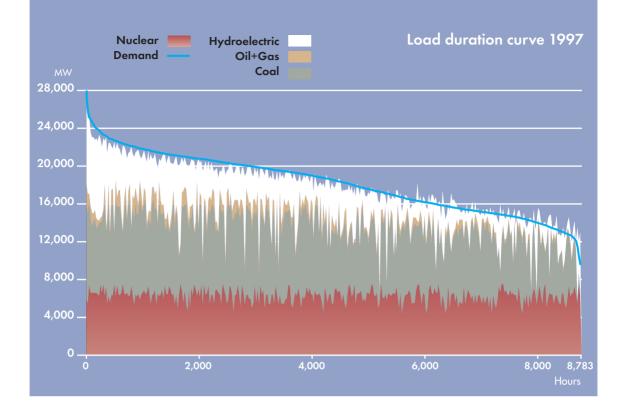


			Table 9
Programmed exchanges (G		al	
			Net
COUNTRY	Imports	Exports	Exporter
France	1,404	1,258	-146
Portugal	13	2,910	2,897
Andorra	1	125	124
Switzerland	0	64	64
Belgium	0	3	3
Morocco	2	133	131
TOTAL	1,420	4,493	3,073

			Table 10
Power flow-throug		ational	
interconnections (C	GWh)		Total
COUNTRY	In-flow	Out-flow	Volume
France	2,114	2,054	4,168
Portugal	2,481	5,378	7,858
Andorra	0	105	105
Morocco	2	133	135
TOTAL	4,597	7,670	12,266

#### International power exchanges

The total amount of power passing through the international interconnections in 1997 (total of inflows and outflows) was 12,266 GWh, 1% less than the previous year.

With regard to scheduled power transfers related to international agreements, the electric power exported in 1997 surpassed historic maximums reaching 4,493 GWh. That, together with the 61% drop in imports compared to the preceding year, resulted in a net export balance of international exchanges of 3,073 GWh, which was also a historic record.

The total of these exchanges resulted in a profit for the electricity system estimated at 3,369 million pesetas.

During the month of October and in the first few days of November full-scale trials were carried out on the power interconnection between Morocco and Spain during which 133 GWh were exported and 2 GWh imported.

# New tools for the system operation

The operation of the electricity system was managed from the Electricity Control Centre (CECOEL) with support from the Regional Operation Centres (CEORE) of RED ELECTRICA and the Control Centres of the utility companies with the object of ensuring the continuity and quality of the power supply at all times and with a minimum cost of generated power in accordance with guidelines of the energy policy.

In May the new Control Centre of RED ELECTRICA was opened and the new Control System was commissioned. The old system was kept in operation and run in parallel until October to ensure a totally reliable transition between the two systems.

The new Control System needed an intensive training plan for the operators aimed at getting the most out of the features of the new tool. The Operator Training Simulator (OTS) of the new system has also been used since January in the training program for the CECOEL and CEORE operators, which covers the implementation of plans for power restore procedures. So far there has been a total of 120 sessions with an average of 30 hours per operator.

In order to carry out the functions assigned to RED ELECTRICA, as operator of the electricity system in the new regulatory framework, it was necessary to redefine the scheduling and real time operation procedures and to develop a provisional computer system for scheduling generation, for the management of complementary services for secondary and tertiary regulation and for the compensation of deviations between programmed generation and demand. This system, known as the Operator Management System, was developed by RED ELECTRICA during the months of November and December in accordance with the specifications agreed between the market operator and the utility companies for the reception and processing of offers and the exchange of information.

New support tools were added to the Control System to help the operators. These included:

- The Expert System for the Planning of Outages which has greatly enhanced functionality compared to its predecessor.
- The Expert System for Network Status Prediction, also installed in the CEORE.

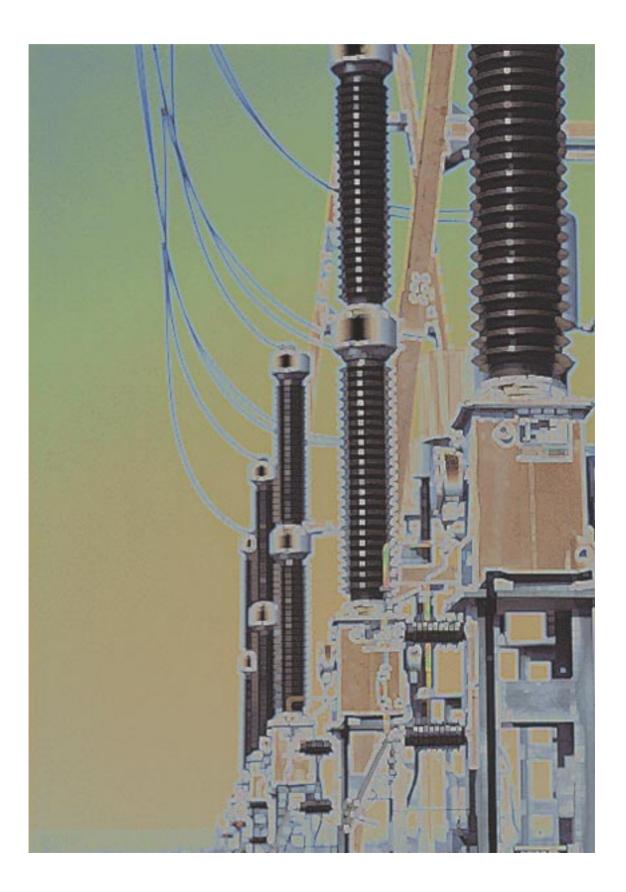
The activities aimed at guaranteeing the safety of the electricity system included the following:

- The revision of current procedures for restoring supply in the Galicia-Leon and the East- outh regions, and updating of those for the Duero and the Asturias-Cantabria regions.
- Three simulations were carried out for the restoration of supply in the East, South and Centre areas using the OTS for the reconstruction of the network. These simulations were co-ordinated by the CECOEL and the CEORE and the utility companies took part. Moreover, full scale tests were carried out on the independent start-up of generating equipment, powering up the system, etc., to ensure that this equipment will be available in the event of a real restore operation.

### Quality assurance items

During 1997 the System Operation Quality Plan (according to the ISO 9002 standard) was commenced. The Quality and Quality Procedure Manuals were produced and the Operation Manual was adapted to the quality standards. The system has been formally commissioned and successfully passed an internal audit. This will make it possible to apply for the quality certificate once procedures are adapted to the new regulatory framework.

# Technological research and development





# Resources and the R&D institutional framework

R&D activities were represented by a portfolio of 31 active projects which directly involved more than 3,200 million pesetas of RED ELECTRICA's resources. Close co-operation continued with other utility companies or companies in sectors which are directly related. Their participation in 70% of the projects results in the investment of additional resources of the same order of magnitude as those employed by RED ELECTRICA. As a consequence, the total resources dedicated to these projects are considerably greater than 7,000 million pesetas.

Although the PIE Program has ceased to be the main framework for R&D activity it still covers 65% of the on-going projects. The remainder are exclusively in-house projects or come under the programs of the European Union. Of the company's total R&D budget, 20% is earmarked for the latter projects.

### **Projects completed**

Projects completed in 1997 include:

- Research, basic design and specification of flexible power control systems for the Spanish electricity system: A guideline model was achieved for network planning related to behaviour analysis of the different FACTS devices in electric power systems. This model makes it possible to design, dimension and analyse the features of the power control devices (active and reactive) which add flexibility to the power system.
- Extension of the Expert System for Programming Outages (SEDPES): This system, which has been in use since 1993, has been improved by adding features such as analysis modules for multiple contingencies, cost and service quality optimisation, integration with Oracle, graphic user interfaces and connection to the Power System Status Prediction System.

### **Projects underway**

Projects in hand which were still in progress at the end of the year included:

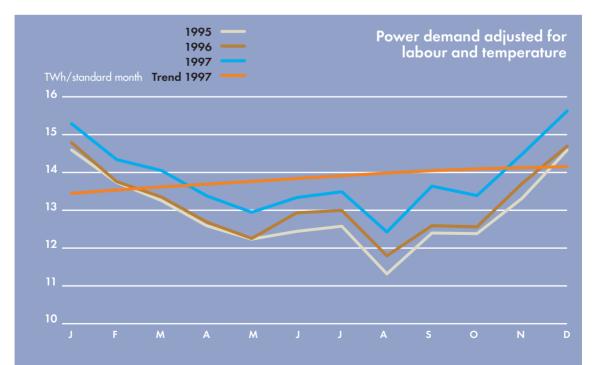
- Prototype of a 1 MJ magnetic superconductor storage device for stabilising the network: Construction of a 1 MJ device has been completed and various trials have been carried out with the 25 kJ prototype in the test network. This has demonstrated that its performance is suitable for moderating voltage fluctuations and correcting load imbalances, leading to significant improvements in the quality of service.
- A system for recording and analysing the dynamic response of the power system to disturbances: A dynamic analysis system was developed for the power system in a disturbed state. Its features are very competitive compared to those of other products in the international market. Up until the end of 1997, two prototypes for the remote recording equipment (ERR) were designed, built and installed in the field for verification under real service conditions. The first fullyfunctioning version of the central control station (PCG) was also delivered. In 1998 verification of the ERRs and debugging of all the software related to the PCG will be completed.

• Research on electricity demand: During the year preparations were made for a book which will be published in 1998 and which will contain the conclusions reached on the most significant factors affecting mainland electricity demand, the load curve and the uses of power, broken down into residential and commercial sectors, tourism, services and industry. Work continues on the creation of new panels to identify additional factors which explain the behaviour of the different sectors.

## New projects commenced

New projects started in 1997 include the following:

- Photonic devices based on high critical temperature superconducting materials: The object of this project is to develop the necessary technology to manufacture optical-electronic devices which will enable very high transmission speeds over fibre-optic lines (in the order of 100 Gb) using an external Match-Zender modulator based on electro-optical materials and high critical temperature superconductors. The PIRELLI company is participating in the project and provides experience in optical-electrical components and conventional materials (optic fibres, modulators, etc.) which are needed in the testing stage.
- General system for restoring service: The basic objective of this project, in which the utility companies, FECSA, SEVILLANA and UNIÓN FENOSA, are participating, is a system to aid in restoring supply in transmission and distribution networks. The tool will be based on previous developments in systems for restoring supply in transmission networks and new developments in secondary networks.
- Complementary activities in the MIDAS project for «development and manufacture of power devices based on superconductors»: This project aims at evaluating the industrial potential of a hybrid fault current inductive limiter (secondary mixed metal-superconductor) which was a result of the final work in the previous MIDAS project and involves the same research team. Two demonstration models are being manufactured at different scales (220V-100A and 100V-5A) to study their capability to comply with the operating requirements of the protection system of the transmission network.



## **European Union programs**

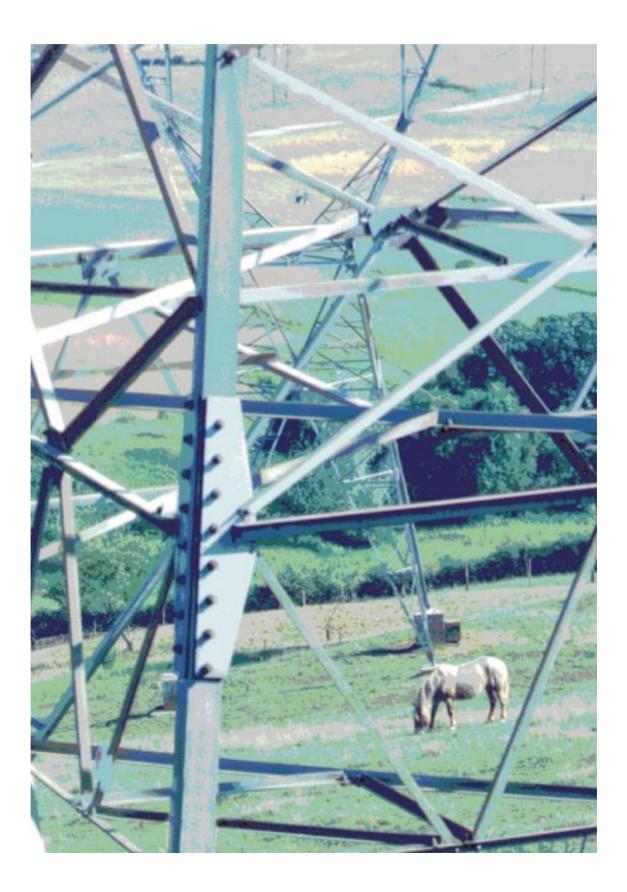
The following project is still underway::

 High voltage electrical network information exchange for planning and analysis: This project, also known as ELECTRONET, is part of the ESPRIT program of the European Union. Work was started in October 1996 and the planned duration is 36 months. RED ELECTRICA is joined in this project by IBERDROLA, LABEIN and ten other European companies. The objective is to establish a standard format for database representation for generation and transmission electric power systems which can be used in planning and in operation activities and will facilitate the exchange of data between different companies.

The following projects have been commenced:

- The EFICOM Project-efficiency in the commercial retail sector: This project is financed by the SAVE Program. Apart from RED ELECTRICA, the Portuguese Energy Conservation Centre and the Joint Research Centre, a research organisation belonging to the European Community, are also involved. The goal is to evaluate the efficiency of electrical equipment in small shops under real conditions of use and the possibilities for improvements.
- The minimisation of transmission losses in regional power systems: the project, which was started at the end of the year, falls under the THERMIE Program and it is carried out in co-operation with ENEL, ENDESA and the University of Strathclyde (Scotland). The aim is to demonstrate the industrial feasibility of an automatic and distributed system for control of voltage and reactive power management which will significantly reduce transmission losses and guarantee continuity of service. The design of the system was carried out under the «Integrated multi-level power network voltage control project» (ESPRIT III), which finished in 1996.
- Voltage measurement transformer based on active ceramic materials: This project comes under the framework of the European BRITE/EURAM III Program and it is organised by RED ELECTRICA. It consists of the design, construction and field trials of a voltage measurement transformer based on ceramic piezoelectric sensors-instead of electric components (capacitor dividers, windings and magnetic core) and the associated insulation, which are currently used.

## The environment





## **Environmental management**

RED ELECTRICA has developed an Environmental Management System in accordance with the UNE-EN-ISO-14000 series of standards, whose certificate issued by AENOR is expected in 1998.

During 1997, apart from identifying the RED ELECTRICA activities which should be integrated in the system, the corresponding documentation (manual, procedures, instructions, records, etc.) was defined and prepared. A training program covering environmental management and audits was developed as required by the UNE-EN-ISO-14001 standard.

## **Electromagnetic fields**

The most important activities in this area were:

- Completion of the study on the level of cellular calcium and experiments with chicken embryos in the biological research program Effects of low frequency electromagnetic fields on cellular and molecular mechanisms which control cellular proliferation and differentiation. This project was started in 1995 and it is conducted in co-operation with the Institute of Biology and Molecular Genetics of the Faculty of Medicine of the University of Valladolid and the Association for Medicine and Safety in the Workplace. In 1998 the methodology and experiments will be extended to mammal embryos.
- The organisation of the summer course on Electromagnetic fields, health and the environment with the Castile and Leon regional government, the University of Valladolid and the Supreme Council for Scientific Research. This course included the participation of notable Spanish and foreign speakers, experts on electromagnetic theory, on epidemiology, biological laboratory studies, standards and on the international situation, among other subjects dealt with.
- Preparation of a bi-monthly bulletin on new events related to electric and magnetic fields which collects international information on research into the possible effects of electric and magnetic fields on human health, on publications, on legislation and other important items.
- Co-operation on the editing of an informative leaflet entitled **Electromagnetic fields in our environment**, published by the UNESA working group on electromagnetic fields, whose objective is the spread of information on the basic concepts of this subject and the conclusions of numerous scientific organisations. At the current time, another leaflet with a more technical content is in preparation.
- Preparation of an Action Plan for Electric and Magnetic Fields and Audible Noise related to the lines and substations of RED ELECTRICA proving that the international recommendations on exposure of the public and employees are complied with.
- Attendance and participation in various national and international meetings including the seminar on Perception and communication regarding risk and its application to exposure to electrical and magnetic fields sponsored by the World Health Organisation (WHO).

## **Protection of birdlife**

During 1997 the following studies and projects were carried out:

- Monitoring of operations with environmental implications on the 400 kV Pinar-Estrecho line. Effect on birdlife. A study was made of the effect of the line on the bird population in the Alcornocales Park, in the south of Cadiz province, which is of great ornithological value as one of the main routes between Europe and Africa for migratory birds. It was found that, in line with the studies made prior to the construction and commissioning of the facility, the effect has been minimum.
- Design and testing of methods of discouraging the nesting of storks in the towers of the transmission lines. This project is part of the extensive studies which are being carried out on the effect of bird nesting on transmission lines. With the object of finding a way to accommodate both the nesting habits of the white stork and the normal operation of the facilities, a group of measures to discourage nesting was designed for testing in towers which have been expressly erected near the existing nesting colonies, thus creating the first «natural laboratory» for the study of interactions between birdlife and the power lines.
- A study of the incidence of collision of the partridge eagle with the power lines. This study was carried out with the Faculty of Biology of the University of Barcelona.

Co-operation is also being maintained with associations related to the study and preservation of birdlife. There is co-operation with the Spanish Ornithological Society (SEO/Birdlife) in a study on the great bustard in the Madrid region and also with the Aragon Nature Association where RED ELECTRICA has made some towers available as supports for stork nests transferred from buildings.

## Vegetation

In order to optimise maintenance in the right of ways, preserve the present vegetation in the best way possible and to reduce long term costs of maintenance labour, work has continued on the project known generically as the Proposal for the environmental management of the rights of way of RED ELECTRICA's lines, carried out with the Polytechnic University of Madrid. The aim is to classify the existing forest types along the right of ways and to design the actions which will allow the lines and the vegetation to co-exist. It is hoped that this will lead to an increase in the interval between two maintenance operations in the same area and reduce their impact.



Moreover, the publication, **Inventory of Iberian Flora Compatible with HV Lines**, in co-operation with the Polytechnic University of Madrid, was designed, edited and distributed.

The project known as **Computerised Prevention and Detection of Forest Fires Using HV Lines was completed**. This project demonstrated that the transmission infrastructure can be used to install fire detection systems in areas of special interest to forestry and to transmit images and alarms to the control and watch centres. The tested equipment will shortly be available for installation.

## **Environmental impact studies**

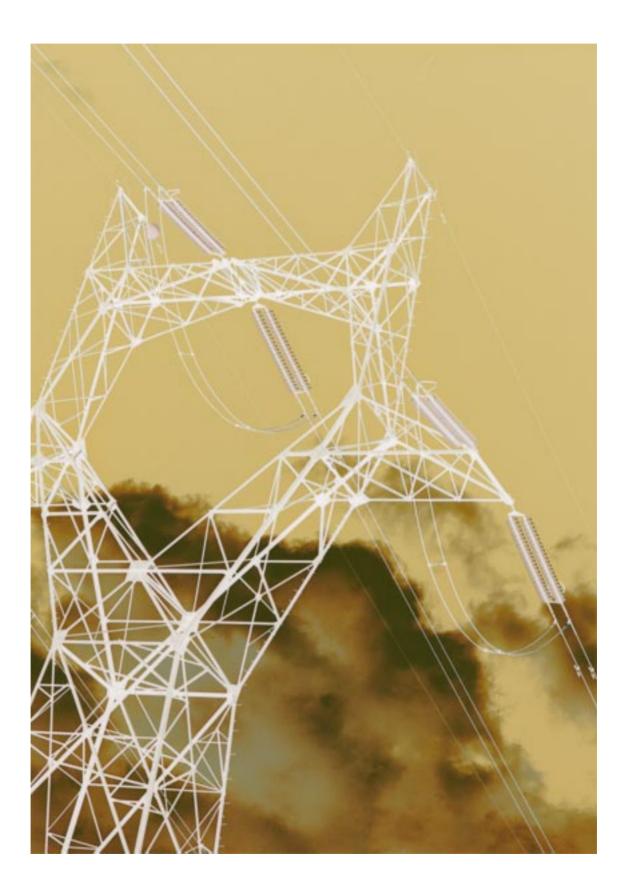
During 1997 the following were completed: The Environmental Impact Study (EIS) on the 400 kV Sentmenat-Bescanó line, the EIS on the 220 kV Cartelle-L/Castrelo-Pazos and Cartelle-Castrelo-Velles lines (which form part of the infrastructure needed for development of the Wind Power Project of the Galician Regional Government) and the simplified EIS for the conversion of the Cordovilla-Orcoyen I and II lines to double circuit and the Almazán substation. Work is currently underway on the EIS for 12 lines and 4 substations.

## Other activities

A book was published containing the Lectures and Discussions of the II Working Sessions on Power Lines and the Environment. May 1996.

RED ELECTRICA also continues to sponsor various activities related to environmental awareness, such as the School of Ecology at the Menéndez Pelayo International University and the Enviromental Awareness Class in cooperation with the Madrid Regional Government and the Boadilla Town Hall.

International co-operation



# Participation in international organisations

In line with previous years, the active participation of RED ELECTRICA technical staff and management continued in various international organisations. These included:

- EURELECTRIC (European Grouping of the Electricity Supply Industry-EEIG)/UNIPEDE (International Union of Producers and distributors of Electrical Energy): In 1997, a complete restructuring of both institutions took place and this has meant, apart from a new organisation and the simplification of the working aroups, the creation of a unified secretariat for both organisations with its headquarters at Brussels. RED ELECTRICA as a founder member is part of the Executive Committee of EURELECTRIC. It chairs one of the four sections of the new organisation (Market Structure and Regulation).
- UCPTE (Union for the Coordination of Production and Transmission of Electricity): This organisation is composed of 15 countries of Continental Europe which have power interconnections. RED ELECTRICA holds the office of Chairman and Secretary of the Spanish Committee.
- IESOE (Interconnexion électrique du Sud-ouest de l'Europe): This consists of Electricité de France, Electricidade de Portugal and the Spanish utility companies. RED ELECTRICA is the Secretary and chairs the Spanish Delegation.
- CIGRE (International Conference on Large Power Networks): this consists of utility companies and manufacturers of electrical capital goods world-wide. In June 1997 the Spanish National Committee was reorganised and RED ELECTRICA assumed the role of Permanent Secretary.

• OME (Observatoire Mediterranéen de l'Energie): This organisation was created in 1991 and comprises the utilities companies and gas and oil companies from the Mediterranean rim. It sponsors and promotes cooperation in power matters between Mediterranean countries.



## Participation in international projects

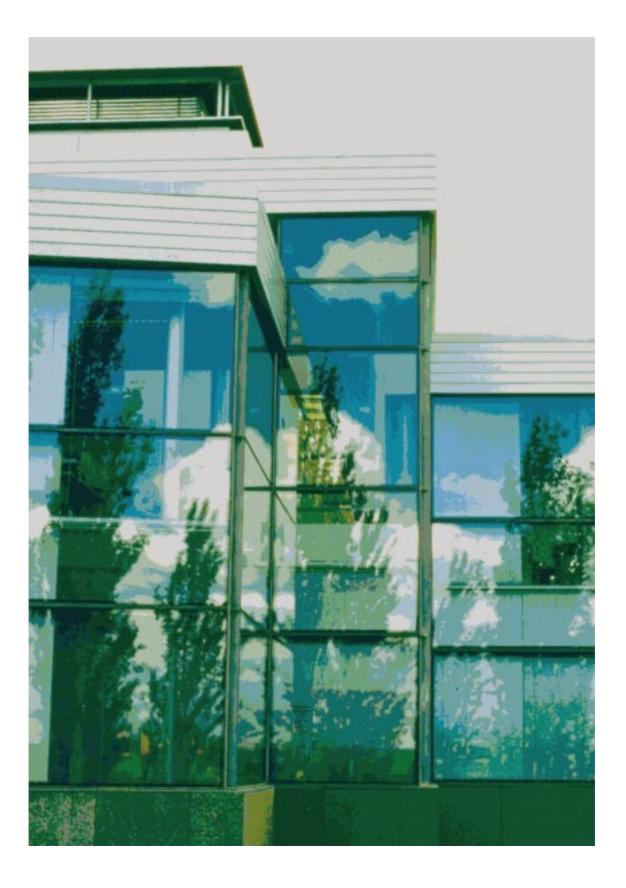
During 1997 RED ELECTRICA participated in the following projects:

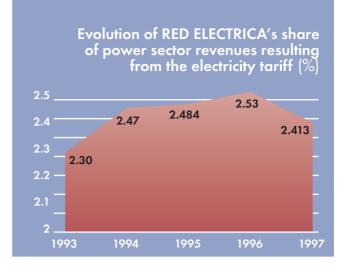
- Consulting project for the creation of a power transmission company in the Ukraine: The consulting project, which was awarded to RED ELECTRICA by the European Commission under the TACIS Program in 1995 for the creation of the Ukraine National Electricity Company for high voltage transmission, was completed in January 1997.
- Study of the consequences of a controlled shut-down • of the Chernobyl units on the Ukraine transmission grid: The European Union Commission awarded (also under the TACIS Program) RED ELECTRICA this study in May 1997. RED ELECTRICA created a model of the transmission network and the principal units of generation in the Ukraine in order to study the behaviour of the generation-transmission system in various operating scenarios. These were based on different generation and demand schemes, loading, international exchanges and strategies for modifying the network. If, as a result of the study, the power system is found to be inadequate, RED ELECTRICA will propose technical solutions which could include specific instructions for the generation dispatch and proposals for new transmission installations. The project will end in April 1998.
- Institutional and economic aspects of the power sector development of the Magreb countries: The EU Commission-under the SYNERGY Program for international co-operation in the power sector, asked RED ELECTRICA in October 1997 to prepare a study on the institutional and economic reforms needed for development of the power sector in general and the power exchanges in particular in the countries of the Magreb: Morocco, Algeria and Tunisia. This study will be conducted in co-operation with the OME and will take eighteen months to complete.
- South American power interconnection in the framework of market integration needed to optimise the use of possible synergies in the energy sectors of the region: This study is being carried out by the Wholesale Markets Working Group of CIER (an organisation which groups the utility companies of South America). RED ELECTRICA will furnish its experience and knowledge of the more useful aspects of regional power integration in Europe, the internal power market in Europe, the European Energy Charter, the role of the UCPTE and the promotion of Trans-European Networks.

## International analysis of electricity transmission efficiency

The systematic co-operation of RED ELECTRICA with utility companies from other countries in this field started in 1991. The company currently participates in the following projects: Definition and comparison of indicators of power transmission efficiency and Analysis of costs and operation and maintenance techniques for transmission facilities. These projects allow RED ELECTRICA to compare its activities with those of the 18 companies worldwide which are specialised in transmission or are vertically integrated.

## Administration and financial management





## Results

In 1997 profit before tax reached 14,003 million pesetas which was close to the previous year. The figure illustrates the efforts in the management of income and costs which were made to compensate the drop of 2,500 million pesetas, compared to 1996, in the company's income caused by the new electricity tariff and the increase in depreciation which resulted from the revaluation of the balance sheet.

The after tax profit was 9,540 million pesetas - 9.5% less than 1996. The figures of the last three years are shown in Table 11.

#### Income

Turnover in 1997 came to 63,107 million pesetas. The decrease compared to the preceding year was essentially due to the lower volume of international exchanges under the supply contract signed with EDF. The principal items are as follows:

- Income from transmission and system operation services of the power system came to 49,624 million pesetas. This income is the company's share of the total sales of electricity to end users on the Spanish mainland.
- Income derived from the sale of power related to the contracts with EDF was 11,173 million pesetas, 63.9% less than 1996 and this was mainly due to the lower volume of energy supplied and the agreement to modify the supply contract.
- Income from short term international power exchange operations was 1,055 million pesetas, the result of efforts by management to run the power system in a way which would facilitate compliance with energy policy instructions.

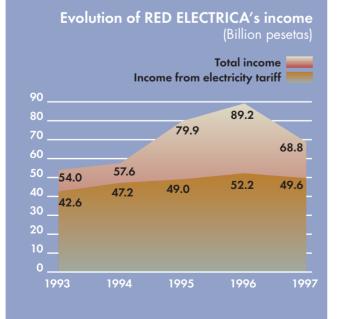
				Table 11
Profits (Million pesetas)				
	1997	1996	1995	97/96 (%)
Profit before tax	14,003	14,434	12,548	(3.0)
Profit after tax	9,540	10,547	9,636	(9.5)

			Т	able 12
Total income (Mi	llion pe	setas)		
	1997	1996	1995	97/96 (%)
TURNOVER	63,107	84,401	75,010	(25.2)
Other income	3,240	3,607	3,226	(10.2)
INCOME				
FROM OPERATIONS		88,008	78,236	(24,6)
Financial income	653	350	463	86.6
ORDINARY				
INCOME	67,000	88,358	78,699	(24.2)
Extraordinary				
Income	1,777	842	1.157	111.0
TOTAL INCOME	68,777	89,200	79,856	(22.9)

 Income from other activities was 1,255 million pesetas. Important contributions to this came from: the income attributable to the contract related to leasing and maintenance of the excess capacity of the telecommunications network (656 million pesetas), transmission network modifications requested by private parties or public administrations (287 million pesetas) and maintenance services for electric installations (174 million pesetas).

Other Income, which came to 3,240 million pesetas, included the following:

• The work carried out by the company on its fixed assets which included 1,496 million pesetas of



capitalised interest, 712 million pesetas of work, carried out directly by the company, which could be capitalised and 119 million pesetas of stock materials destined for investments.

- R&D expense of 219 million pesetas capitalised as intangible fixed assets.
- Additional operating income of 694 million pesetas related to indemnities and operating subsidies.

The above income was supplemented by 653 million pesetas of Financial Income and 1,777 million pesetas of Extraordinary Income.

Table 12 shows the evolution of income in recent years.

## **Expenses**

Total expenses before tax, included in the Profit and Loss Account, came to 54,774 million pesetas. The breakdown of expenses is as follows:

- Salaries and wages in 1997 came to 8,521 million pesetas.
- Purchases and external services came to 20,666 million pesetas. This includes 10,397 million pesetas for power purchases under the EDF contracts.
- Depreciation came to 15,720 million pesetas, 14.9% more than the preceding year. This was fundamentally due to the revaluation of the balance sheet carried out in December 1996.

• Financial expenses related to external financing came to 8,577 million pesetas for all concepts and this includes capitalised interest corresponding to the current investments mentioned under Income.

The above figures do not include 485 million pesetas for Other Operating Expenses and 805 million pesetas for Extraordinary Expenses.

Table 13 shows the details of expenses.

## Financing

Cash flow before tax was 30,240 million pesetas which was 2.6% higher than the previous year and represented 44.0% of RED ELECTRICA's income.

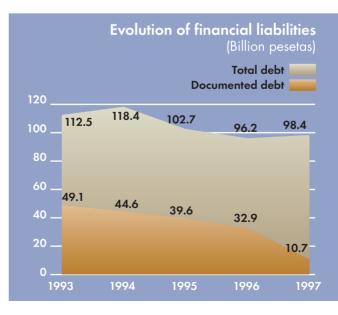
The total volume of debt was similar to the previous year despite the distribution of an extraordinary dividend of 22,000 million pesetas which was paid at the end of June. However, the composition of the debt changed. The financing needs reflected a trend towards short-term finance through the Promissory Note Program and short-term loans, plus long-term financing-especially to cover the replacement of debt with similar characteristics.

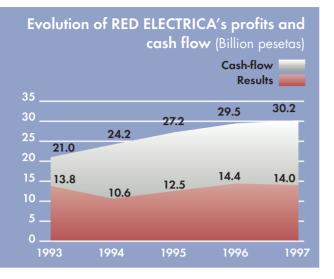
In line with previous years, use was again made of the bond market in September 1997 and an issue was arranged for 7,500 million pesetas. This issue, aimed at the retail market, incorporated a novel tax aspect for mixed returns, an explicit dividend warrant of 3.65% and a structure involving derivatives, which resulted in a final cost of MIBOR less 0.16%.

## **Expenses (Million pesetas)**

		·		97/96	
	1997	1996	1995	(%)	
Personnel expenses	8,521	8,141	7,734	4.7	
Purchases (*)	11,875	31,363	25,174	(62.1)	
Outside services	8,791	9,835	8,258	(10.6)	
Fixed assets					
depreciation	15,720	13,676	13,579	14.9	
Other expenses	485	341	232	42.2	
OPERATING					
EXPENSES	45,392	63,356	54,977	(28.4)	
Financial expenses	8,577	9,600	11,032	(10.7)	
ORDINARY					
EXPENSES	53,969	72.956	66,009	(26.0)	
Extraordinary expenses	805	1,810	1,299	(55.5)	
TOTAL EXPENSES	54,774	74,766	67,308	(26.7)	
(*) Includes the variation in trading provisions.					

A loan of 4,000 million pesetas was also arranged with the European Investment Bank (EIB). Half the total was arranged at variable interest and the other half at 5.63%, renegotiable after five years. It should also be noted that in February 1997 a bilateral loan operation was renewed with Caja Madrid which matures in 1999 at an interest rate related to MIBOR.





Outside	financing	(Million	pesetas)	
				97/96

	1997	1996	1995	(%)
Debt on acquisition				
of fixed assets	8,974	27,022	32,865	(66.8)
Credit facilities				
and loans	27,859	24,696	29,253	12.8
Debentures and other	10 517	04400	04.501	10 1 01
negot, securities	18,51/	24,432	24,501	(24.2)
LONG TERM		7/150		107.01
FUNDS	55,350	/6,150	86,619	(27.3)
SHORT TERM	40.004	00.00/	14.040	1161
FUNDS			16,043	
TOTAL FUNDS	98,444	96,186	102,662	2.3
long term				
CREDITORS	6,911	6,404	5,788	7.9
SHORT TERM				
CREDITORS	29,355	33,182	28,991	(11.5)
TOTAL EXTERNAL				
FUNDS	134,710	135,772	137,441	(0.8)

			To	able 15
Shareholders' Equ	uity (M	illion pe	setas)	
	1997	1996	1995	97/96
Share capital	45,090	45,090	45,090	—
Revaluation reserve	41,101	41,101	—	—
Reserves	14,272	30,565	25,778	(53.3)
Net profit for the year	9,540	10,547	9,636	(9.5)
Interim dividend	(3,000)	(2,367)	(2,255)	26.7
TOTAL1	07,003	124,936	78,249	(14.4)

Continuing the policy of using more flexible sources of finance, in September 1997 the renewal of the 20,000 million peseta Syndicated Credit was signed which reduced costs by half. In addition, and with the object of maintaining a stable relationship with the EIB which is an important source of finance for investment projects, in November 1997 the Bank approved a new line of finance («the Spain-Morocco Interconnection») of 8,500 million pesetas. A novel aspect of this loan was the greater duration (up to 18 years) and the absence of the need for a bank guarantee.

Lastly, it should be noted that the requirements related to the long-term supply contract signed with EDF and the underlying development of financing needs, have led to significant use of the Promissory Note Program, as mentioned at the beginning of this section. The program has recorded an average balance of 17,200 million pesetas. The use of this source of finance and others with variable interest rates has allowed the company to benefit from the important fall in the latter during the year and reduced the average cost of bank debt by 1.16%.

## Investments

Investments by RED ELECTRICA during 1997 came to 13,423 million pesetas. Of this amount, 90.2% corresponds to investments in the transmission network. Of the total investment figure, 12,994 million pesetas can be attributed to tangible fixed assets and the remaining 429 million pesetas, to intangible assets, mainly R&D projects. Investment in power lines amounted to 10,140 million pesetas and in substations to 1,974 million pesetas. The figure for the power lines includes 6,174 million pesetas for the investment related to the Spain-Morocco Interconnection.

The Regional Offices carried out equipment and infrastructure projects with a value of 581 million pesetas.

The remaining amount (728 million pesetas) was invested in various equipment and R&D projects.

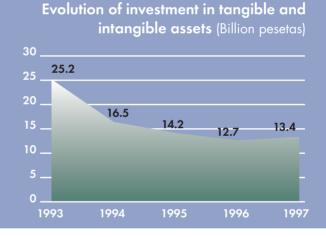
The breakdown of these investments by their principal components is shown in Table 16.

In December the company, Compañía Operadora del Mercado Español de la Electricidad, S.A, was incorporated and the share capital of 300 million pesetas was wholly subscribed by RED ELECTRICA. This holding should be disposed of in the first half of 1998, in accordance with the provisions of the Electricity Act.

## Integrated management Information system

This year the question of adapting all the systems and software related to the business and financial management and to the control of resources, was dealt with under an ambitious project aimed at implementing an Integrated Management Information System. The new system will be gradually implemented during the first half of 1998 until it is fully functional.

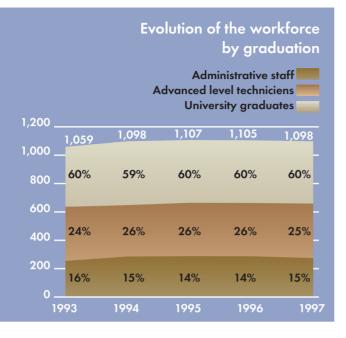
			Table 16			
Investments (Million pesetas)						
	1997	1996	1995			
Transmission lines	10,140	6,785	8,270			
Substations	1,974	4,610	4,917			
SUBTOTAL NETWORK						
INVESTMENT	12,114	11,395	13,187			
Regional Offices	581	567	301			
R&D projects	219	288	389			
Other projects	509	437	314			
	1,309	1,292	1,004			
TOTAL	13,423	12,687	14,191			



## Staff evolution

The staff of RED ELECTRICA at the end of 1997 was composed of 1098 employees, slightly less than the figure at the end of 1996. The average age was 39 years and the average seniority, eight years. This reflects the stability of the workforce over the last four years.

Table 17 shows the distribution of personnel by organisational units.



## Staff training and development

The training policy of RED ELECTRICA continues to reinforce the abilities of its staff and keep their technical level up-to-date with regard to the continuously changing demands of the services which the company provides, its organisation, the new technologies and the people themselves.

Training activities during 1997 focussed mainly on supporting the implementation of new operation control and information management systems, which are basic to the development and innovation of technological activities and to the management of the company.

## Evolution and breakdown of personnel by organisational units

by organisational offis			
			Variation
		% of	over
	1997	staff	1996
Head office			
Chairman's office (*)	39	3.6	4
Operation	142	12.9	-6
Transmission	292	26.6	1
Administration & Finance	143	13.0	-3
Decentralised offices			
Regional offices	482	43.9	3
TOTAL	1,098	100.0	_7
(*) Includes the Studies and Strategic	Plannina	Department a	ind lead

(\*) Includes the Studies and Strategic Planning Department and Legal Department The greatest effort was focussed on the training of technical personnel connected with the new systems related to remote control, telecommunications, protection equipment and systems as well as training for the start up of the new Integrated Management Information Systems. At the same time, efforts continue to be aimed at extensive knowledge of computer tools, environmental aspects and business management techniques.

The investment in training in 1997 was 3.8% of personnel cost and involved 71,500 hours of training in which 88.2% of personnel participated with an average of 65 hours per employee of which 61% took place outside regular working hours, indicating the level of interest demonstrated by staff in their own development.

# Co-operative educational programs

Since 1987, RED ELECTRICA has been engaged in a program of educational co-operation with various institutions related to its business activities and, in particular with the colleges of technical engineers and graduate schools of Industrial Engineering. These provide nearly 75% of the 159 people who participated in these programs during 1997.

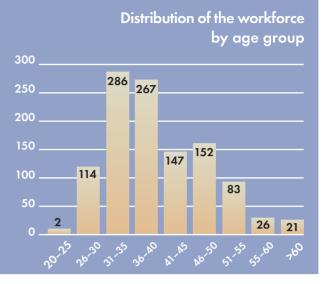
The majority of people who accumulate working experience at RED ELECTRICA under the above programs are final year students. This benefits the company due to the excellent work done by these students and the students themselves who experience their first contact with the workplace. Currently, RED ELECTRICA is involved in co-operation programs with the polytechnic universities of Madrid, Barcelona and Valencia, the Pontifical University of Comillas (ICAHCADE), the Autonomous University and the Carlos III University, both of Madrid, the universities of La Coruña, the Basque Country and Seville, the Public Company Foundation, the School of Industrial Organisation, the Spanish Institute of Energy, the Ortega y Gasset University Institute and the Business Administration University Institute.

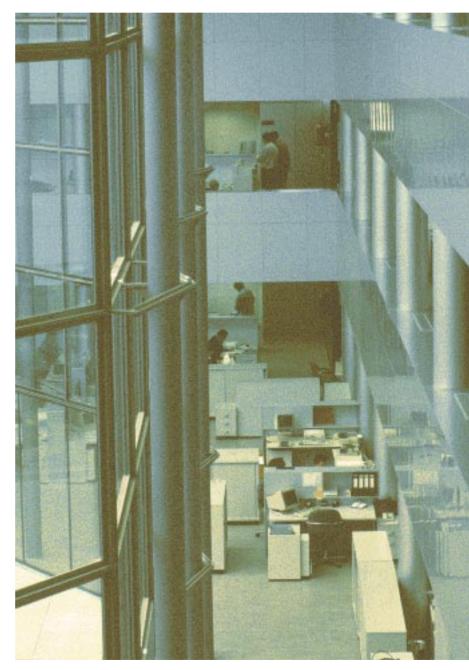
## Labour relations

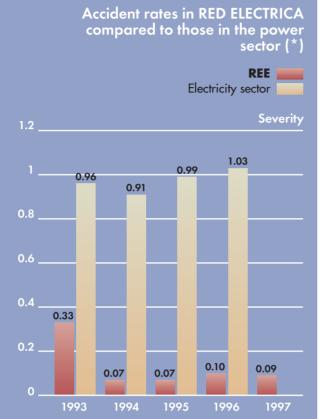
During 1997 various articles of the Fifth Collective Wage Agreement of RED ELECTRICA were revised with the aim of adapting them to the new law on the Prevention of Risk in the Workplace. Moreover, at the beginning of the year, the Labour Safety and Health Committee was created with 12 persons. Subsequently, training of the delegates assigned to prevention was commenced in accordance with the Law.

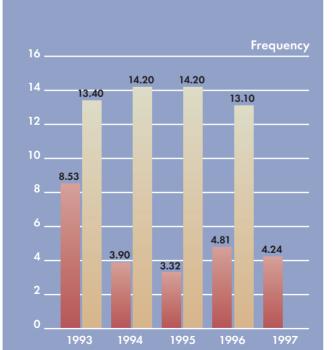
Initial steps were taken for the negotiation of the next Collective Wage Agreement, proposals were prepared and the members of the negotiating committee were appointed. In this Sixth Wage Agreement, the company hopes to maintain the previously established line of moderation in salary growth and extend the idea of variable remuneration based on the degree of achievement of objectives by the employees' work unit and the individual evaluation of each employee.

The Wage Agreement will also continue to set the social benefits which include the Pension Plan. This Plan provides for fixed and voluntary contributions and currently covers 62% of the workforce.









Severity: Days lost per thousand man-hours.

Frequency: Accidents involving absence per million hours worked.

(\*) Source: AMYS.

A new social audit was carried out to determine the employees' perception of RED ELECTRICA. This tends to become a regular event and it is hoped that it will contribute to reinforce the climate of confidence and credibility by means of a flow of truthful information, coming directly from those involved. This survey covered more than 72% of the employees and the results reflect the expectations and needs of the employees. This makes it possible to adopt a strategic approach to human resources and achieve greater satisfaction of those involved and, at the same time, to encourage them to identify with the company's objectives.

## Employee safety and health

The subject of medical attention in the workplace included periodic information and preventive campaigns aimed at encouraging healthy habits and general and specific first aid training, apart from regular medical check-ups which are available to all employees. These activities included a campaign for the prevention of backaches and flu, and tetanus vaccinations. The first aid program included specific training on heart and lung related resuscitation.

On the question of safety in the workplace, more than 100 inspections were carried out in 1997, checking that in all cases the «life-line» is systematically used for all high level work, for both company and subcontractor crews.

Development was completed of the alarm and emergency graphic management system. This system is composed of more than 160 safety centres and covers all the safety, firefighting and access control installations which exist in RED ELECTRICA. Total absenteeism in 1997 was 3.02 and absenteeism due to common illnesses was 1.88. These figures are slightly less than the preceding year and well below the national average. The accident rate continues to be low at 4.2 accidents (involving absence from work) per million hours of work and 0.09 days lost per thousand hours of work.

# Internal information and communications

During 1997, the In-House Communications Bulletin, which is wellestablished as a medium for communication and information, reflected the multiple activities carried out by RED ELECTRICA and the changes which occurred in the company and in the Spanish power sector.

In order to help the employees as much as possible in their daily tasks, to provide more flexible information and to keep it up-to-date at less cost, all the workstations have access to all the standards and procedures of the company as well as relevant corporate information. During 1997 the Employee Manual, which serves as a guide to administrative and functional aspects and also includes the safety procedures and the current records of safety materials, among others, were converted to this electronic format.

## **Resolutions of the Board of Directors**

The Board of Directors drew up the following documents which it submitted to the General Assembly of shareholders for approval:

## 1997 Annual accounts - 59

INDEPENDENT AUDITOR'S REPORT - 61 BALANCE SHEETS - 62 PROFIT & LOSS ACCOUNTS - 64 NOTES TO THE ANNUAL ACCOUNTS - 66

Management report - 92

Proposed distribution of profits - 96

1997 Annual accounts



KPMG Peat Marwick Auditores, S. L.

Edificio Torre Europa Paseo de la Castellana, 95 28046 Madrid

## Auditors' Report on the Annual Accounts

(Translation from the original in Spanish)

To the shareholders of Red Eléctrica de España, S.A.

We have audited the annual accounts of Red Eléctrica de España, S.A. (the Company) which comprise the balance sheets at 31 December 1997 and 1996, the related statements of profit and loss for the years then ended and the notes thereto, the preparation of which is the responsibility of the Company's Board of Directors. Our responsibility is to express an opinion on the annual accounts taken as a whole, based on our examination which was conducted in accordance with generally accepted auditing standards, which require examining, on a test basis, evidence supporting the amounts in the annual accounts and assessing the appropriateness of their presentation, of the accounting principles applied and of the estimates employed.

In our opinion, these annual accounts present fairly, in all material respects, the shareholders' equity and financial position of Red Eléctrica de España, S.A. at 31 December 1997 and 1996 and the results of its operations and source and application of funds for the years then ended, and contain sufficient information necessary for their adequate interpretation and understanding, in accordance with generally accepted accounting principles in Spain applied on a consistent basis.

The accompanying directors' report for 1997 contains such explanations as the directors consider relevant to the situation of the Company, the evolution of its business and other matters, and is not an integral part of the annual accounts. We have verified that the accounting information contained therein is consistent with that disclosed in the annual accounts for 1997. Our work as auditors is limited to the verification of the directors' report within the scope described in this paragraph and does not include a review of information other than that obtained from the Company's audited accounting

Valeriano Pérez Lozano

11 March 1998



Assets	1997	1996
INTANGIBLE ASSETS Research and development expenses Software Accumulated amortisation	2,801,044,768 595,010,383 -1,636,978,378	2,592,014,766 384,610,528 -1,371,512,755
TANGIBLE ASSETS Land and buildings Plant and machinery Other installations, equipment and furniture Assets under construction Other tangible assets Provisions Accumulated depreciation	5,814,631,753 335,425,047,354 4,243,034,396 21,049,768,418 7,125,331,197 -2,956,799,447 -126,960,840,397	5,541,670,502 315,753,104,494 4,036,914,172 30,010,243,658 5,479,551,752 -2,621,286,285 -111,614,694,064
INVESTMENTS Long-term investment portfolio Other loans Long-term guarantee deposits Long-term balances due from public entities	5,658,553 1,459,213,104 9,802,866 535,138,633	5,658,553 1,544,531,298 10,102,866 582,537,214
long-term trade debtors	6,352,700,000	
TOTAL FIXED ASSETS	253,861,763,203	250,333,446,699
DEFERRED EXPENSES	960,502,625	935,393,091
Stocks Raw materials and other supplies Provisions for obsolescence	1,258,246,586 -589,513,693	1,281,804,866 -456,463,421
Debtors Sundry debtors Personnel Public entities	16,024,066,306 283,714,371 1,064,734,332	16,579,489,946 264,306,330 284,982,600
Short-term investments Interests in group companies Short-term investment portfolio Other loans Short-term guarantee deposits	82,500,000 347,500 653,652,835	- 427,500 1,035,823,173 31,280
CASH AND BANKS	40,154,314	106,217,329
PREPAID EXPENSES	611,326,118	332,155,399
TOTAL CURRENT ASSETS	19,429,228,669	19,428,775,002
TOTAL ASSETS	274,251,494,497	270,697,614,792

## RED ELECTRICA DE ESPAÑIA, S.A.

## **BALANCE SHEETS**

31 December 1997 and 1996

(Expressed in pesetas)

Shareholders' equity and liabilities	1997	1996
SHARE CAPITAL REVALUATION RESERVE	45,090,000,000 41,100,991,320	45,090,000,000 41,100,991,320
RESERVES Legal reserve Other reserves	9,018,000,000 5,254,165,885	8,312,157,514 22,252,671,077
PROFIT FOR THE YEAR INTERIM DIVIDEND	9,539,777,762 -3,000,000,000	10,547,361,645 -2,367,225,000
TOTAL SHAREHOLDER'S EQUITY	107,002,934,967	124,935,956,556
Capital grants Other deferred income	6,683,503,211 25,101,749,004	6,644,997,836 2,772,408,377
TOTAL DEFERRED INCOME	31,785,252,215	9,417,406,213
Provisions for pensions and other liabilities Other provisions	93,303,912 659,983,301	84,528,445 487,411,067
PROVISIONS	753,287,213	571,939,512
BONDS	18,517,500,000	24,432,500,000
LOANS	36,675,919,386	37,780,158,848
OTHER CREDITORS	7,067,639,704	20,341,754,320
TOTAL LONG-TERM LIABILITIES	62,261,059,090	82,554,413,168
BONDS Non-convertible bonds Interest payable	14,432,500,000 996,823,512	927,439,944
LOANS Loans and other debt Interest payable	28,632,273,406 2,054,117,109	16,079,283,018 2,386,643,991
TRADE CREDITORS Purchases and services received	7,801,723,342	11,183,553,128
OTHER CREDITORS Public entities Others Wages and salaries Short-term guarantee deposits ACCRUED EXPENSES		4,433,097,849 14,879,673,910 1,300,336 351,994,254 2,974,912,913
CURRENT LIABILITIES	72,448,961,012	53,217,899,343
TOTAL SHAREHOLDERS' EQUITY AND LIABILITIES	274,251,494,497	270,697,614,792

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Maintenance and repair material         1,345,575,241         1,559,542,742           PERSONNEL EXPENSES         Wages and salaries         6,220,788,611         2,138,090,054           DEPRECIATION AND AMORTISATION         15,719,774,468         13,676,265,338           VARIATION IN TRADE PROVISIONS         133,050,272         186,043,269           OTHER OPERATING EXPENSES         8,790,722,842         9,835,230,964           Local taxes         8,0548,900         119,234,170           Other administrative expenses         8,790,722,842         9,835,230,964           Icacl taxes         8,0548,900         119,234,170           Other administrative expenses         143,926,626         172,423,766           Provision for liabilities         261,000,000         50,000,000           TOTAL OPERATING EXPENSES         45,392,310,394         63,356,785,050           OPERATING PROFIT         20,954,709,314         24,651,911,526           FINANCIAL AND RELATED EXPENSES         1,268,263,219         66,06,06,401           TOTAL FINARCIAL EXPENSES         13,031,144,258         15,402,446,135           VARIATION IN PROVISIONS         7,309,345,673         8,933,432,258           PROFIT ON ORDINARY ACTIVITIES         13,031,144,258         15,402,446,135           VARIATION IN PROVISIONS		1997	1996
Purchase of electrical power         10,396,969,569         29,617,366,987           Maintenance and repair material         1,345,575,241         1,559,542,742           PERSONNEL EXPENSES         6,220,788,611         6,002,587,760           Social benefits         2,299,953,865         2,138,090,054           DEPRECIATION AND AMORTISATION         15,719,774,468         13,676,265,338           VARIATION IN TRADE PROVISIONS         133,050,272         186,043,269           OTHER OPERATING EXPENSES         8,790,722,842         9,835,230,964           External services         8,0548,900         119,234,170           Other odministrative expenses         143,926,626         172,423,766           Provision for liabilities         20,954,709,314         24,651,911,526           OPERATING PROFIT         20,954,709,314         24,651,911,526           On debt with third parties         7,309,345,673         8,933,432,258           On debt with third parties         7,309,345,673         8,933,432,258           Oral LOPERATING EXPENSES         13,031,144,258         15,402,446,135           VARIATION IN PROVISIONS         335,513,162         1,514,286,229           ION ORDINARY ACTIVITIES         13,031,144,258         15,402,446,135           VARIATION IN PROVISIONS         335,513,162	Expenses		
Maintenance and repair material         1,345,575,241         1,559,542,742           PERSONNEL EXPENSES         Wages and salaries         6,220,788,611         6,002,587,760           Social benefits         2,299,953,865         2,138,090,054           DEPRECIATION AND AMORTISATION         15,719,774,468         13,676,265,338           VARIATION IN TRADE PROVISIONS         133,050,272         186,043,269           OTHER OPERATING EXPENSES         8,790,722,842         9,835,230,964           Local taxes         8,790,222,842         9,835,230,964           Local taxes         8,790,222,842         9,835,230,964           Local taxes         8,790,222,842         9,835,230,964           Local taxes         8,790,222,842         9,835,230,964           Local taxes         143,926,626         172,423,766           Provision for liabilities         261,000,000         50,000,000           TOTAL OPERATING EXPENSES         45,392,310,394         63,356,785,050           OPERATING PROFIT         20,954,709,314         24,651,911,526           FINANCIAL AND RELATED EXPENSES         1,268,263,219         66,06,63,401           TOTAL FINANCIAL EXPENSES         1,3,031,144,258         15,402,446,135           VARIATION INI PROVISIONS         7,309,345,673         8,933,432,258 </td <td>COST OF MATERIALS CONSUMED</td> <td></td> <td></td>	COST OF MATERIALS CONSUMED		
Wages and salaries         6,220,788,611         6,002,587,760           Social benefits         2,299,953,865         2,138,090,054           DEPRECIATION AND AMORTISATION         15,719,774,468         13,676,265,338           VARIATION IN TRADE PROVISIONS         133,050,272         186,043,269           OTHER OPERATING EXPENSES         8,790,722,842         9,835,230,964           Local taxes         8,749,000         172,423,766           Provision for liabilities         261,000,000         50,000,000           TOTAL OPERATING EXPENSES         45,392,310,394         63,356,785,050           OPERATING PROFIT         20,954,709,314         24,651,911,526           On debt with third parties         7,309,345,673         8,933,432,258           On debt with third parties         7,309,345,673         8,933,432,258           EXCHANGE LOSSES         1,268,263,219         666,636,401           TOTAL FINANCIAL EXPENSES         8,577,608,892         9,600,068,659           PROFIT ON ORDINARY ACTIVITIES         13,031,144,258         15,402,446,135           VARIATION IN PROVISIONS         335,513,162         1,514,286,229           IOSSES ON TANGIBLE ASSETS         3,80,869         2,064,293           IOTAL EXTRAORDINARY EXPENSES         3,808,669         2,064,293			29,617,366,987 1,559,542,742
Social benefits.         2,299,953,865         2,138,090,054           DEPRECIATION AND AMORTISATION         15,719,774,468         13,676,265,338           VARIATION IN TRADE PROVISIONS         133,050,272         186,043,269           OTHER OPERATING EXPENSES         8,790,722,842         9,835,230,964           External services         8,790,722,842         9,835,230,964           Local taxes         143,926,626         119,234,170           Other administrative expenses         143,926,626         172,423,766           Provision for liabilities         261,000,000         50,000,000           TOTAL OPERATING EXPENSES         45,392,310,394         63,356,785,050           OPERATING PROFIT         20,954,709,314         24,651,911,526           PROFIT ON PROFIT         7,309,345,673         8,933,432,258           EXCHANGE LOSSES         1,268,263,219         666,636,401           TOTAL FINANCIAL EXPENSES         8,577,608,892         9,600,068,659           PROFIT ON ORDINARY ACTIVITIES         13,031,144,258         15,402,446,135           VARIATION IN PROVISIONS         335,513,162         1,514,286,229           IOSSES ON TANGIBLE ASSETS         48,222,771         19,030,919           EXTRAORDINARY EXPENSES         3,880,869         2,064,293	PERSONNEL EXPENSES		
VARIATION IN TRADE PROVISIONS.       133,050,272       186,043,269         OTHER OPERATING EXPENSES       8,790,722,842       9,835,230,964         External services       80,548,900       119,234,170         Other administrative expenses       143,926,626       172,423,766         Provision for liabilities       261,000,000       63,356,785,050         OPERATING PROFIT       20,954,709,314       24,651,911,526         FINANCIAL AND RELATED EXPENSES       7,309,345,673       8,933,432,258         On debt with third parties       7,309,345,673       8,933,432,258         EXCHANGE LOSSES       1,268,263,219       666,636,401         TOTAL FINANCIAL EXPENSES       8,577,608,892       9,600,068,659         PROFIT ON ORDINARY ACTIVITIES       13,031,144,258       15,402,446,135         VARIATION IN PROVISIONS       335,513,162       1,514,286,229         IOSSES ON TANGIBLE ASSETS       48,222,771       19,030,919         EXTRAORDINARY EXPENSES       418,151,343       275,126,535         TOTAL EXTRAORDINARY EXPENSES       805,768,145       1,810,507,976         NET EXTRAORDINARY INCOME       971,602,763       14,434,309,938         INCOME TAX.       4,462,969,259       3,886,948,293			6,002,587,760 2,138,090,054
OTHER OPERATING EXPENSES         8,790,722,842         9,835,230,964           Local taxes         80,548,900         119,234,170           Other administrative expenses         143,926,626         172,423,766           Provision for liabilities         261,000,000         50,000,000           TOTAL OPERATING EXPENSES         45,392,310,394         63,356,785,050           OPERATING PROFIT         20,954,709,314         24,651,911,526           FINANCIAL AND RELATED EXPENSES         7,309,345,673         8,933,432,258           On debt with third parties         7,309,345,673         8,933,432,258           EXCHANGE LOSSES         1,268,263,219         666,636,401           TOTAL FINANCIAL EXPENSES         8,577,608,892         9,600,068,659           PROFIT ON ORDINARY ACTIVITIES         13,031,144,258         15,402,446,135           VARIATION IN PROVISIONS         335,513,162         1,514,286,229           IOSSES ON TANGIBLE ASSETS         48,222,771         19,030,919           EXTRAORDINARY EXPENSES         3,880,869         2,064,293           PRIOR YEARS' EXPENSES         418,151,343         275,126,535           TOTAL EXTRAORDINARY INCOME         971,602,763         14,434,309,938           INCOME TAX.         4,462,969,259         3,886,948,293	DEPRECIATION AND AMORTISATION	15,719,774,468	13,676,265,338
External services       8,790,722,842       9,835,230,964         Local taxes       80,548,900       119,234,170         Other administrative expenses       143,926,626       172,423,766         Provision for liabilities       261,000,000       50,000,000         TOTAL OPERATING EXPENSES       45,392,310,394       63,356,785,050         OPERATING PROFIT       20,954,709,314       24,651,911,526         FINANCIAL AND RELATED EXPENSES       7,309,345,673       8,933,432,258         EXCHANGE LOSSES       1,268,263,219       666,636,401         TOTAL FINANCIAL EXPENSES       8,577,608,892       9,600,068,659         PROFIT ON ORDINARY ACTIVITIES       13,031,144,258       15,402,446,135         VARIATION IN PROVISIONS       335,513,162       1,514,286,229         IOSSES ON TANGIBLE ASSETS       3,880,869       2,064,293         PROR YEARS' EXPENSES       418,151,343       275,126,535         TOTAL EXTRAORDINARY EXPENSES       805,768,145       1,810,507,976         NET EXTRAORDINARY INCOME       971,602,763       9         PROFIT BEFORE TAX       14,002,747,021       14,434,309,938         INCOME TAX       4,462,969,259       3,886,948,293	VARIATION IN TRADE PROVISIONS	133,050,272	186,043,269
Local taxes         80,548,900         119,234,170           Other administrative expenses         143,926,626         172,423,766           Provision for liabilities         261,000,000         50,000,000           TOTAL OPERATING EXPENSES         45,392,310,394         63,356,785,050           OPERATING PROFIT         20,954,709,314         24,651,911,526           FINANCIAL AND RELATED EXPENSES         7,309,345,673         8,933,432,258           EXCHANGE LOSSES         1,268,263,219         666,636,401           TOTAL FINANCIAL EXPENSES         8,577,608,892         9,600,068,659           PROFIT ON ORDINARY ACTIVITIES         13,031,144,258         15,402,446,135           VARIATION IN PROVISIONS         335,513,162         1,514,286,229           LOSSES ON TANGIBLE ASSETS         3,880,869         2,064,293           PRORT ANGIBLE ASSETS         3,880,869         2,064,293           PROR YEARS' EXPENSES         418,151,343         275,126,535           TOTAL EXTRAORDINARY EXPENSES         805,768,145         1,810,507,976           NET EXTRAORDINARY INCOME         971,602,763         14,434,309,938           INCOME TAX         4,462,969,259         3,886,948,293	OTHER OPERATING EXPENSES		
OPERATING PROFIT         20,954,709,314         24,651,911,526           FINANCIAL AND RELATED EXPENSES         7,309,345,673         8,933,432,258           On debt with third parties         7,309,345,673         8,933,432,258           EXCHANGE LOSSES         1,268,263,219         666,636,401           TOTAL FINANCIAL EXPENSES         8,577,608,892         9,600,068,659           PROFIT ON ORDINARY ACTIVITIES         13,031,144,258         15,402,446,135           VARIATION IN PROVISIONS         335,513,162         1,514,286,229           LOSSES ON TANGIBLE ASSETS         48,222,771         19,030,919           EXTRAORDINARY EXPENSES         3,880,869         2,064,293           PRIOR YEARS' EXPENSES         805,768,145         1,810,507,976           NET EXTRAORDINARY INCOME         971,602,763         971,602,763           PROFIT BEFORE TAX         14,002,747,021         14,434,309,938           INCOME TAX.         4,462,969,259         3,886,948,293	Local taxes Other administrative expenses	80,548,900 143,926,626	9,835,230,964 119,234,170 172,423,766 50,000,000
FINANCIAL AND RELATED EXPENSES         On debt with third parties       7,309,345,673         BXCHANGE LOSSES       1,268,263,219         COMPARISON       666,636,401         TOTAL FINANCIAL EXPENSES       8,577,608,892         PROFIT ON ORDINARY ACTIVITIES       13,031,144,258         VARIATION IN PROVISIONS       13,031,144,258         FOR TANGIBLE ASSETS       335,513,162         LOSSES ON TANGIBLE ASSETS       48,222,771         LOSSES ON TANGIBLE ASSETS       3,880,869         PRIOR YEARS' EXPENSES       3,880,869         PROFIT BEFORE TAX       14,002,747,021         INCOME TAX       4,462,969,259         3,886,948,293       3,886,948,293	TOTAL OPERATING EXPENSES	45,392,310,394	63,356,785,050
FINANCIAL AND RELATED EXPENSES         On debt with third parties       7,309,345,673         EXCHANGE LOSSES       1,268,263,219         666,636,401         TOTAL FINANCIAL EXPENSES       8,577,608,892         PROFIT ON ORDINARY ACTIVITIES       13,031,144,258         15,402,446,135         VARIATION IN PROVISIONS         FOR TANGIBLE ASSETS       335,513,162         LOSSES ON TANGIBLE ASSETS       48,222,771         19,030,919         EXTRAORDINARY EXPENSES       3,880,869         2,064,293         PROFIT BEFORE TAX       14,002,747,021         14,434,309,938         INCOME TAX       4,462,969,259	OPERATING PROFIT	20,954,709,314	24,651,911,526
PROFIT ON ORDINARY ACTIVITIES       13,031,144,258       15,402,446,135         VARIATION IN PROVISIONS       335,513,162       1,514,286,229         LOSSES ON TANGIBLE ASSETS       48,222,771       19,030,919         EXTRAORDINARY EXPENSES       3,880,869       2,064,293         PRIOR YEARS' EXPENSES       418,151,343       275,126,535         TOTAL EXTRAORDINARY EXPENSES       805,768,145       1,810,507,976         NET EXTRAORDINARY INCOME       971,602,763       14,434,309,938         INCOME TAX       4,462,969,259       3,886,948,293	On debt with third parties EXCHANGE LOSSES	1,268,263,219	
VARIATION IN PROVISIONS         FOR TANGIBLE ASSETS         FOR TANGIBLE ASSETS         LOSSES ON TANGIBLE ASSETS         48,222,771         19,030,919         EXTRAORDINARY EXPENSES         3,880,869         2,064,293         PRIOR YEARS' EXPENSES         418,151,343         275,126,535         TOTAL EXTRAORDINARY EXPENSES         805,768,145         1,810,507,976         NET EXTRAORDINARY INCOME         971,602,763         INCOME TAX         4,462,969,259         3,886,948,293	-	; <u>    ;          ;</u>	
FOR TANGIBLE ASSETS       335,513,162       1,514,286,229         LOSSES ON TANGIBLE ASSETS       48,222,771       19,030,919         EXTRAORDINARY EXPENSES       3,880,869       2,064,293         PRIOR YEARS' EXPENSES       418,151,343       275,126,535         TOTAL EXTRAORDINARY EXPENSES       805,768,145       1,810,507,976         NET EXTRAORDINARY INCOME       971,602,763       14,434,309,938         INCOME TAX       4,462,969,259       3,886,948,293	VAPIATION IN PROVISIONIS	· · · ·	
EXTRAORDINARY EXPENSES       3,880,869       2,064,293         PRIOR YEARS' EXPENSES       418,151,343       275,126,535         TOTAL EXTRAORDINARY EXPENSES       805,768,145       1,810,507,976         NET EXTRAORDINARY INCOME       971,602,763       14,434,309,938         INCOME TAX       4,462,969,259       3,886,948,293		335,513,162	1,514,286,229
PRIOR YEARS' EXPENSES       418,151,343       275,126,535         TOTAL EXTRAORDINARY EXPENSES       805,768,145       1,810,507,976         NET EXTRAORDINARY INCOME       971,602,763       14,434,309,938         PROFIT BEFORE TAX       4,462,969,259       3,886,948,293	losses on tangible assets	48,222,771	19,030,919
TOTAL EXTRAORDINARY EXPENSES       805,768,145       1,810,507,976         NET EXTRAORDINARY INCOME       971,602,763       -         PROFIT BEFORE TAX       14,002,747,021       14,434,309,938         INCOME TAX       4,462,969,259       3,886,948,293	EXTRAORDINARY EXPENSES	3,880,869	2,064,293
NET EXTRAORDINARY INCOME         971,602,763           PROFIT BEFORE TAX         14,002,747,021         14,434,309,938           INCOME TAX         4,462,969,259         3,886,948,293	PRIOR YEARS' EXPENSES	418,151,343	275,126,535
PROFIT BEFORE TAX         14,002,747,021         14,434,309,938           INCOME TAX         4,462,969,259         3,886,948,293	TOTAL EXTRAORDINARY EXPENSES	805,768,145	1,810,507,976
INCOME TAX	NET EXTRAORDINARY INCOME	971,602,763	
	PROFIT BEFORE TAX	14,002,747,021	14,434,309,938
NET PROFIT FOR THE YEAR	INCOME TAX	4,462,969,259	3,886,948,293
	NET PROFIT FOR THE YEAR	9,539,777,762	10,547,361,645

## RED ELECTRICA DE ESPAÑA, S.A.

(Expressed in pesetas)

## PROFIT & LOSS ACCOUNTS

31 December 1997 and 1996

	1997	1996
Income		
NET SALES Sales of electrical power Sale of by-products Income on international power exchange Services rendered	11,173,487,067 44,692,898 1,055,188,106 50,833,675,100	30,958,002,546 34,713,400 571,398,122 52,837,379,280
self-constructed assets	2,546,477,087	2,791,212,322
OTHER OPERATING INCOME Other administrative income Capital grants	633,053,536 60,445,914	759,104,159 56,886,747

TOTAL OPERATING INCOME	66,347,019,708	88,008,696,576
INVESTMENT INCOME	130,248,428	21,183,728
OTHER INTEREST AND SIMILAR INCOME Other interest Profit on investments	356,846,024 99,448,694	228,725,859
EXCHANGE GAINS	67,500,690	100,693,681
TOTAL FINANCIAL INCOME	654,043,836	350,603,268
NET FINANCIAL EXPENSE	7,923,565,056	9,249,465,391

PROFIT ON TANGIBLE ASSETS	1,482,196	573,855
CAPITAL GRANTS TAKEN TO INCOME	512,118,508	451,757,619
EXTRAORDINARY INCOME	430,389,250	114,402,984
PRIOR YEARS' INCOME	833,380,954	275,637,321
TOTAL EXTRAORDINARY INCOME	1,777,370,908	842,371,779
NET EXTRAORDINARY EXPENSE	-	968,136,197

## RED ELECTRICA DE ESPAÑA, S.A.

# NOTES TO THE ANNUAL ACCOUNTS 31 DECEMBER 1997 AND 1996

## (1) Nature and principal activities

Red Eléctrica de España, S.A. (hereinafter «the Company») was incorporated on 29 January 1985. The Company took over part of the assets forming the high voltage grid network which was in service at 15 February 1984. Other assets in service at that date were simultaneously transferred by the shareholders to the Company and recorded as debt arising from the acquisition of fixed assets upon incorporation (see note 13).

During 1997 and 1996 the Company carried out activities related to the joint operation of the public electric power system, the transmission of power and the international exchange of power, in accordance with Law 40 date 30 December 1994 governing the Spanish electricity sector.

Towards the end of 1997 new legislation governing the electricity sector (Law 54 dated 27 November 1997) was enacted, as a result of which Law 40/1994 was repealed. This legislation represents a significant step towards the deregulation of the sector as it provides for the creation of a free market for electricity generating. Law 54/1997 also establishes two new agents of the sector in the form of a Market Operator and System Operator to be responsible for the financial and technical administration of the grid, respectively. Accordingly, it has been necessary to create a new trading company, the market operator, to match orders for the purchase and sale of power between generators, distributors, electricity traders and qualifying consumers. As required by the new Law, Red Eléctrica de España, S.A. has incorporated the new company and subscribed 100% of its share capital, as explained in note 6.

The Company will carry out the functions established by the new Law for the System Operator, which is responsible for guaranteeing the quality and safety of power supplies and the co-ordination of the production and transmission systems. The Company will also perform the functions of Manager of the Transmission Network, as required by the new Law. In this capacity, the Company will be responsible for the development and extension of the high voltage grid network and for ensuring that it is maintained and improved in accordance with uniform and coherent criteria. The Manager of the Transmission Network will also be responsible for the administration of power transmissions between external systems through the Spanish grid.

In addition to the above, the Company will continue to carry out its principal activity, which is the transmission of electricity.

The Company receives a consideration for the transmission of power which is based on the cost of investment, operation and maintenance of the installations, as well as other costs inherent in the activity. The remuneration of the system operation reflects the identifiable costs.

Access to the transmission network by third parties is guaranteed by Law. Accordingly, as Manager of the Transmission Network, the Company may only deny access for reasons of lack of capacity relating to security, frequency or quality of supply. The terms of access, including applicable tariffs, conditions for connecting new installations and restrictions on access, are established by Law. The interests in the capital of the Company owned by individual shareholders must be brought into line with the requirements of the new Law governing the electricity sector within six months and its articles of association modified to restrict the maximum permitted shareholding (see note 8).

In accordance with the new Law, the Company is authorised to carry out activities of all kinds related to the transmission of electricity, in particular planning, construction, operation and maintenance or modification of the transmission and auxiliary installations, as well as activities related to the Operation of the System and Management of the Transmission Network. The Company may also diversify activities in legally permitted areas such as those relating to telecommunications and the construction and maintenance of electrical installations. The Company will also continue to manage agreements entered into prior to the enactment of the new Electricity Sector Law for the long-term exchange of power between EU member States and other countries.

## (2) Basis of presentation

The accompanying annual accounts have been prepared by the board of directors of the Company in the format established by prevailing Spanish legislation to present fairly the shareholders' equity, financial position, results of operations and changes in financial position for 1996 and 1997, and the proposed distribution of profit for 1997.

The annual accounts have been prepared on the basis of the accounting records of the Company. The figures in the Balance Sheet and the Profit and Loss account are expressed in Pesetas, whereas the figures disclosed in the notes to the accounts are shown in millions of Pesetas. To facilitate comprehension of the information contained in the notes, a Balance Sheet and the Profit and Loss account expressed in millions of Pesetas have been included as Appendices I and II, and cross-referenced to the notes. The Board of Directors considers that the 1997 annual accounts will be approved without significant changes at the Annual General Meeting. The 1996 annual accounts were approved by the shareholders at their Annual General Meeting held on 27 May 1997.

Certain reclassifications have been made to the 1996 profit and loss account for the purposes of comparison with 1997. The effects of these reclassifications are not significant to the annual accounts taken as a whole.

#### (3) Distribution of profits

The board of directors propose that the 1997 profit be distributed as follows:

	Million pesetas
BASIS OF DISTRIBUTION Profit for the year	9,540
TOTAL	9,540
DISTRIBUTION Voluntary reserve Dividends:	4,173
Interim dividend Supplementary dividend	3,000 2,367
TOTAL	9,540

This proposal is pending approval by the shareholders at their annual general meeting.

At their Extraordinary General Meeting held on 4 June 1997 the shareholders authorised the Company to distribute an extraordinary dividend of Ptas. 22,000 million with a charge to voluntary reserves. At the same meeting the shareholders also authorised the distribution an interim dividend of Ptas. 3,000 million on account of 1997 profits, which was paid on 30 September 1997. This amount is less than the legal limit specified in article 216 section b) of the amended Spanish Companies Act.

The cash flow forecasts for the period from 30 April to 30 September 1997 showed that the Company had sufficient liquidity to distribute this dividend and, as required by article 216 section a) of the amended Companies Act, the following provisional statement of liquidity was prepared:

Funds available	Million pesetas
Long-term credit facilities available Short-term credit	27,000
facilities available Cash in hand and at banks	7,790 67
Forecast collections:	
Trading operations Financial operations	35,162 16,034
Forecast payments:	
Trading operations Financial operations Ordinary dividend for 1996. Extraordinary dividend	(35,654) (10,622) (2,367) (22,000)
Funds available at 30.09.97	15,410

The forecast of distributable profits at 30 April 1997 was as follows:

	Million pesetas
Profits before tax at 30-04-97	5,696
Estimated income tax charge	(1,970)
Profit after tax at 30-04-97	3,726
Maximum distributable earnings (Article 216 b) Companies Act)	3,726
Proposed dividend on account of 1997 profits	3,000

On the basis of the cash flow projection for the twelve months commencing 4 June 1997 no restrictions were expected on the funds available for distribution. Also, the earnings generated in 1997, as reflected in these annual accounts, were sufficient to permit the distribution of this interim dividend.

The distribution of the profit for the year ended 31 December 1996, carried out in 1997, is presented in the detail of shareholders' equity disclosed in Appendix III, which forms an integral part of note 8.

## (4) Accounting principles

The accompanying annual accounts have been prepared in accordance with accounting principles established in the Spanish Chart of Accounts, the most significant of which are as follows:

## (a) Intangible assets

Intangible assets principally comprise software and costs incurred in research and development projects which are expected to benefit the Company's operations over a number of years. Such assets are stated at cost of production or acquisition, less accumulated amortisation provided on a straight line basis over a period not exceeding five years, depending on the nature of the asset.

## (b) Tangible assets

Tangible assets are stated at the value assigned on contribution, or at the cost of acquisition or production (see section c) to this note), less accumulated depreciation.

In 1996 the Company revalued its tangible fixed assets as permitted by Royal Decree 7 dated 7 June 1996 and Royal Decree 2607 dated 20 December 1996. The revaluation was carried out on the basis of the maximum rates established by the legislation, reduced by 40% in order to take into consideration the structure of the Company's financing (see note 5).

The cost of tangible assets directly constructed by the Company is recorded in accordance with the policy explained in section c) below.

Repairs and maintenance costs of tangible assets are expensed when incurred.

Depreciation is provided on a straight line basis over the expected useful lives of the relevant assets, applying the following annual rates:

	Annual rate
Buildings	2%-5%
Plant and machinery:	
<ul> <li>In operation when acquired by the Company:</li> </ul>	
Power lines Substations Control and communication systems	5% 5%
(supervisory control centres)'	14.28%
<ul> <li>Built and put into operation by the Company:</li> </ul>	
Power lines Substations Control and communication systems	2.5% 2.5%
	7140/

Control and communication systems	
(supervisory control centres)	
Other installations, equipment	
and furniture	
Other tangible assets	

Net increases in value arising from the revaluation of fixed assets will be depreciated over the remaining useful lives of the related assets.

In 1997 the Company has re-estimated the useful lives of power lines and substations to bring them into line with those generally applied in the electricity sector and with applicable tax criteria. As a result, the estimated useful life of power lines and substations built and put into operation by the Company is now 40 years (38 and 30 years, respectively, in 1996). Accordingly, during 1997 the net book value of these assets at 31 December 1996 has been depreciated on a straight line basis over the new estimated useful lives. The effect on the depreciation charge for 1997 is approximately Ptas. 2,354 million.

## (c) Tangible assets under construction

The Company capitalises the following items during the period of construction of the related assets:

 Direct costs related to the construction of assets in projects directly controlled or supervised by the Company. In 1997 and 1996 the Company has capitalised Ptas. 831 and 868 million, respectively.  Financial expenses relating to specific and general financing obtained. Interest charges on general financing are calculated by applying the average effective rate of interest to the average accumulated cost of the investment for which no specific financing has been obtained. In 1997 and 1996 the Company has capitalised Ptas. 1,497 and 1,635 million, respectively.

Costs capitalised in this respect are credited to the Profit and Loss account under self-constructed assets.

In 1996 the Company voluntarily revalued the cost of tangible assets under construction as permitted by Royal Decree 7 dated 7 June 1996 and Royal Decree 2607 dated 20 December 1996. This revaluation was carried out on the basis of the maximum rates established by the legislation, reduced by 40% in order to take into consideration the structure of the Company's financing (see note 5).

Provision is made against the value of self-constructed tangible assets when there is evidence that their net book value may be affected by circumstances other than use, obsolescence or normal service. Such circumstances mainly relate to the capitalisation of financial expenses, when the accumulated total for a specific asset represents a significant portion of the cost of a project as a consequence of delays in bringing the asset into operation which are not attributable to the Company.

## (d) Stocks

Stocks of spare parts and other consumables are stated at cost of acquisition.

Provision is made where cost exceeds market value or when the recovery of items is doubtful.

## (e) Foreign exchange transactions

Foreign exchange transactions are translated into Pesetas at rates of exchange prevailing on the dates the transactions take place. Exchange gains or losses arising on settlement of these transactions are taken to income when incurred.

Until 31 December 1996, inclusive, net unrealised exchange losses at 31 December were expensed over the duration of the operation using the interest method. The portion relating to future years was taken to deferred expenses in the Balance Sheet.

Unrealised net exchange gains at 31 December were taken to income using the same criteria, the future portion being deferred as a liability on the balance sheet. Nevertheless, foreign exchange gains were taken to income each year only to the limit of net exchange losses expensed in that and prior years. As a consequence of changes in the legislation governing the electricity sector (see note 1), the special accounting principals permitting the deferral of net unrealised exchange losses are no longer applicable. Accordingly, at 31 December 1997 the Company has recognised net exchange losses of Ptas. 913 million.

The Company has contracted exchange rate insurance in respect of certain operations. The related amounts are stated at the insured rates of exchange.

## (f) Interest rate hedging operations

Profit or loss on over-the-counter operations to hedge interest rates on financial debt is calculated and taken to profit and loss simultaneously with the income and expense on the transactions covered. The income or expense recorded represents the net difference between the hedged and hedging operations. The average interest rates on financial debt are calculated by applying the same criteria (see note 24).

## (g) Bond issues

Bonds issued are stated at their face value. The redemption premium, representing the difference between face value and the value at which the bonds were issued, is deferred and charged to expenses over the periods to the maturity of the debt using the interest method.

When interest rate swaps are contracted to hedge the related interest rate risk and, where applicable, redemption premiums the amounts receivable by the Company in the long term in respect of the latter are recorded under deferred income and taken to income over the period to maturity using the interest method (see notes 7, 9 and 24).

## (h) Current/long-term

Assets and liabilities are classified as current if maturing within twelve months and long-term if maturing more than twelve months from the Balance Sheet date.

## (i) Compensation for termination of employment

In the absence of any foreseeable need for abnormal termination of employees' services and because indemnities are not payable to those employees who retire or voluntarily leave the Company, indemnities, if they arise, are expensed when the decision is taken.

## (j) Income tax

Income tax is calculated on the basis of the pre-tax accounting profit duly adjusted for permanent differences and taking into consideration any applicable credits and deductions. The effects of timing differences, where applicable, are included in deferred tax assets or liabilities.

As permitted by the transitional rules relating to the Spanish Chart of Accounts, the Company has not recorded the deferred tax liability related to timing differences which existed at 31 December 1989 (see note 8(e)). The effect of these timing differences is recognised as an increase in income tax expense in the year they crystallise.

## (k) Deferred income

Capital grants, permanent transfers of non-returnable tangible assets and other deferred income are stated at the amounts originally received or awarded, or at the replacement cost of the relevant assets, where applicable.

Grants and deferred income obtained to finance fixed assets (see note 25 a)) are recognised in proportion to the value of the assets financed over their estimated useful lives.

Deferred income generated on financial derivatives contracted for hedging purposes, agreements for the transfer of the rights to use fixed assets (see note 25 e)) and, in general, on any agreement or commitment with a duration of more than one year (see note 25 a)) are taken to income over the term of the related agreement or commitment.

## (l) Pension plan

The voluntary pension plan with defined contributions adopted by the Company on 31 December 1985 was integrated into a pension fund under current legislation with effect from 2 November 1990. Equal contributions are made by the Company and the participants by way of monthly instalments equivalent to 6% of the base salary established in the fund. The Company's contributions are recorded on an accruals basis.

## (5) Tangible assets

Tangible assets at 31 December 1997 and 1996 and movement during the years then ended are as follows:

(Expressed in million peseta:					ion pesetas)	
	December	Additions and	Disposals and		1996	December 31, 1996
	31, 1995	adjustments	adjustments	Transfers	Revaluation	(1)
Cost						
Land and buildings	4,639	20	-	377	507	5,543
Plant and machinery - Power lines - Substations - Control and communication systems	158,563 75,637	(133) 21	(27)	4,625 4,911	27,937 10,159	190,992 90,701
(supervisory control centres)	29,460	29	(1)	2,554	2,017	34,059
	263,660	(83)	(28)	12,090	40,113	315,752
Other installations, equipment and furniture	3,585	115	-	145	192	4,037
Advances and assets under construction	29,028	12,063	(11)	(12,612)	1,542	30,010
Other tangible assets	5,747	171	(457)	-	18	5,479
	306,659	12,286	(496)	-	42,372	360,821
Accumulated depreciation						
Land and buildings	(348)	(89)	-	-	-	(437)
Plant and machinery - Power lines - Substations - Control and communication systems	(59,682) (25,864)	(6,653) (3,678)	-	-	-	(66,335) (29,542)
(supervisory control centres)	(6,349)	(2,091)				(8,440)
	(91,895)	(12,422)	-	-	-	(104,317)
Other installations, equipment and furniture	(1,525)	(360)	-	-	-	(1,885)
Other tangible assets	(4,920)	(510)	454	-	-	(4,976)
	(98,688)	(13,381)	454			(111,615)
Provision for impairment (note 4(c))	(1,107)	(1,514)				(2,621)
	(1,107)	(1,314)				(2,021)
Net value	206,864	(2,609)	(42)		42,372	246,585

(1) See notes 4(b) and (c)

Transfers to plant and machinery during 1997 comprise two power lines, bays at two substations and communication and control systems amounting to Ptas. 19,384 million (Ptas. 12,090 million in 1996 relating to five lines, bays at nine substations and communication and control systems).

	(Expressed in million pesetas				
	Addition	Disposals		December	
December 31, 1996	and adjustments	and adjustments	Transfers	31, 1997 (1)	
	uulosimenis	uulusimenis	liunsiers	(1)	
Cost	(1.0)		<b>22</b> (	5 0 1 5	
Land and buildings 5,543	(12)	-	284	5,815	
Plant and machinery - Power lines	276	(2)	15,749	207,015	
<ul><li>Substations</li></ul>	191	(133)	1,273	92,032	
(supervisory control centres)	(43)	-	2,362	36,378	
315,752	424	(135)	19,384	335,425	
Other installations, equipment					
and furniture	94	(9)	121	4,243	
Advances and assets	10.070		(01,000)	01.050	
under construction	12,273	-	(21,233)	21,050	
Other tangible assets	215	(13)	1,444	7,125	
360,821	12,994	(157)	-	373,658	
Accumulated depreciation					
Land and buildings	(109)	-	-	(546)	
Plant and machinery					
- Power lines	(8,923)	1	-	(75,257)	
<ul> <li>Substations</li></ul>	(3,032)	89	-	(32,485)	
(supervisory control centres)	(2,532)	-	-	(10,972)	
(104,317)	(14,487)	90		(118,714)	
Other installations, equipment					
and furniture	(418)	6	-	(2,297)	
Other tangible assets	(441)	13	-	(5,404)	
(111,615)	(15,455)	109		(126,961)	
Provision for impairment					
(note 4(c))	(336)			(2,957)	
Net value	(2,797)	(48)		243,740	

As a result of the revaluation of assets carried out as permitted by Royal Decree 7 of 7 June 1996 and Royal Decree 2697 of 20 December 1996, the depreciation charge for 1997 amounts to approximately Ptas. 3,859 million. At 31 December 1997 the revaluation of tangible fixed assets, net of depreciation, amounts to Ptas. 38,513 million. The Company has contracted insurance policies to cover the replacement cost of tangible assets.

### (6) Investments

Details at 31 December 1997 are as follows:

-	Million pesetas			
	1997	1996		
Long-term investments: - Long-term				
guarantee deposits - Long-term	10	10		
public entities - Other investments	535 1,465	583 1,550		
Total investments	2,010	2,143		
Short-term investments:				
<ul> <li>Investments in group companies</li> <li>Uncalled portion</li> </ul>	300	-		
of investment in group companies - Other short-term	(218)	-		
investments	654	1,036		
Total short-term				
investments	736	1,036		

Long-term balances due from public entities reflect deferred tax assets (see note 19).

Other investments comprise mainly longterm loans extended by the Company to employees.

Investments in group companies reflect the share capital of Compañía Operadora del Mercado Español de Electricidad, S.A. subscribed by the Company for Ptas. 300 million. At 31 December 1997 the unpaid portion amounts to Ptas. 218 million.

Compañía Operadora del Mercado Español de Electricidad, S.A. was incorporated by the Company pursuant to Law 54 dated 27 November 1997 governing the Spanish electricity sector, which required that it create a new company to carry out the functions of Market Operator for the electricity market as defined by that legislation. The Company fully subscribed the initial share capital of Ptas. 300 million on the incorporation of this entity. In accordance with the Ninth Transitory Provision of Law 54/1997 the Company is required to divest itself of this investment within six months.

Other short-term investments comprise mainly interest earned during the year on operations involving financial derivatives. Interest accrues on these operations in line with the hedged operations (see note 24). In 1996 shortterm investments also included deposits made by the Company.

### (7) Debtors

Details of debtors at December 31 are as follows:

	Million pesetas		
	1997	1996	
	4 9 5 9		
Long-term trade debtors	6,353		
Total (long-term)	6,353		
	Millio	n pesetas	
	1997	1996	
Sundry debtors:			
Domestic electricity companies	4,333	14,803	
Foreign electricity companies	4,523	108	
Other debtors	7,168	1,669	
	16,024	16,580	
Personnel	284	264	
Tax authorities:			
VAT receivable	821	-	
Transitory VAT receivable	-	76	
Withholdings	4	-	
Deferred tax assets (note 19)	240	209	
	1,065	285	
Debtors (short-term)	17,373	17,129	

Long-term trade debtors at 31 December 1997 mainly represent long-term receivables relating to an agreement to cede surplus capacity in the Companyı́s fibre optic network (see note 25 e)).

At 31 December 1997 the net balance receivable from domestic electricity companies includes Ptas. 8,954 million (Ptas. 4,247 million at 31 December 1996) representing the part due to Red Eléctrica de España, S.A. of electricity charges invoiced or pending billing to end users of electricity by those companies, which collect such amounts on the Company's behalf. The estimated amount pending billing to the final consumer at 31 December 1997 is Ptas. 3,634 million (Ptas. 3,734 million at 31 December 1996). This balance also includes uninvoiced income recognised on the power supply contract between Electricité de France (EDF) and the Company in respect of the month of December 1997, which amounts to Ptas. 1,084 million (Ptas. 2,575 million in 1996). The total balance receivable from domestic electricity companies is presented net of amounts due to electricity sub-systems for a total of Ptas. 8,974 million in respect of the distribution of the moneys received in compensation from EDF under the framework Agreement for the adaptation of contracts for the supply of electrical power made on 8 January 1997 (see notes 20 and 25a)).

The balance of foreign electricity companies at 31 December 1997 represents mainly invoices issued to l'Office Nationale de l'Electricité (ONE) of Morocco in respect of guaranteed power supplies for a portion of 1998, in accordance with the Agreement for the supply of electrical power (see notes 18 and 25c)). At 31 December 1997 other debtors reflect mainly the short-term balance receivable in relation to the Agreement to cede the use of surplus capacity from the Company's fibre optic network (see notes 9 and 25 e)).

At 31 December 1996 transitory VAT receivable relates to a refund claimed in 1987 in relation with the transitory regulations governing VAT on investments in certain assets. This claim was initially rejected by the tax authorities and the company lodged an appeal through the courts, which issued a final ruling in favour of the Company. The amount of the refund, plus interest, was received on 3 April 1997. Accordingly, the provision made in this regard has been released during the year.

### (8) Shareholders' equity

Details of movement in shareholders' equity during 1997 and 1996 are shown in Appendix III, which forms an integral part of this note.

### (a) Share capital

At 31 December 1997 and 1996 share capital comprises 45,090,000 shares of Ptas. 1,000 each, subscribed and fully paid. All shares have the same rights. The transfer of shares is subject to certain statutory restrictions.

At 31 December 1997 and 1996 the share capital is held as follows:

		1997	1996	
Shareholders	Million pesetas	Percentage ownership	Million pesetas	Percentage ownership
Sociedad Estatal de Participaciones Industriales	22,549	50.01	451	1.00
Iberdrola , S,A,	12,308	27.30	12,308	27.30
Unión Eléctrica Fenosa, S,A,	2,892	6.41	2,892	6.41
Empresa Nacional de Electricidad, S,A,	2,255	5.00	20,291	45.00
Empresa Nacional Hidroeléctrica del Ribagorzana, S,A,	2,254	5.00	2,254	5.00
Compañía Sevillana de Electricidad, S,A,	1,812	4.02	1,812	4.02
Electra de Viesgo, S,A,	636	1.41	735	1.63
Eléctricas Reunidas de Zaragoza, S,A,	198	0.44	198	0.44
Hidroeléctrica del Cantábrico, S,A,	186	0.41	186	0.41
Fuerzas Eléctricas de Cataluña, S,A,			3,963	8.79
Total share capital	45,090	100.00	45,090	100.00

In accordance with Law 54 dated 27 November 1997 governing the electricity sector, within six months the Company must bring the ownership of its share capital line with the requirement that the total direct and indirect interest owned by any single shareholder should not exceed 10%. Also, the sum of the total interests held directly and indirectly by companies operating in the electricity sector may not exceed 40%. These shares may not be syndicated. These maximum limits for shareholdings are not applicable to Sociedad Estatal de Participaciones Industriales, which will hold an interest of at least 25% in the share capital of the Company until 31 December 2003, after which it will maintain a minimum interest of 10%.

In the context of this reorganisation process, on 21 October 1997 Sociedad Estatal de Participaciones Industriales acquired a total of 22,098,580 shares, representing 49.01% of the share capital of the Company, from the Endesa Group. Of these shares, 18,036,000 were acquired from Empresa Nacional de Electricidad, S.A., 3,963,382 from Fuerzas Eléctricas de Cataluña, S.A. and 99,198 from Electra de Viesgo, S.A. At 31 December 1997 the Endesa Group holds a 15.87% interest in the Company.

## (b) Revaluation reserve

As required by Royal Decree 7 dated 7 June 1996 and Royal Decree 2607 dated 20 December 1996, the Company credited to the 1996 revaluation reserve the amount of the increase in the value of tangible assets arising from the revaluations carried out in accordance with that legislation.

The balance of this reserve (Ptas. 41,101 million) is presented net of a one-off tax charge and may not be disposed of until it has been inspected and agreed by the tax authorities or the inspection period, which ends on 31 December 1999, has elapsed. Nevertheless, if a revalued asset is sold or disposed of at a loss, the revalued amount of the asset, to the extent it did not exceed the loss, would be released from the reserve into taxable income and, accordingly, become distributable. Once the revaluation has been agreed by the tax authorities, or after the inspection period has expired, the balance of the reserve may be applied to offset prior years' losses, to increase share capital or to increase distributable reserves after ten years have elapsed since the 31<sup>st.</sup> of december of 1996.

The balance of the revaluation reserve may not be distributed, either directly or indirectly, unless the related gain has been realised; that is when the related assets have been depreciated, to the limit thereof, sold or written off.

## (c) Legal reserve

Companies are obliged to transfer 10% of the profits of each year to a legal reserve until this reserve reaches an amount equal to 20% of share capital. This reserve is not distributable to shareholders and may only be used to offset losses if no other reserves are available. Under certain conditions it may be used to increase share capital.

At 31 December 1997 the legal reserve is equal to 20% of the share capital of the Company.

## (d) Investment reserve

This reserve has been established in accordance with the Spanish Electricity Council ruling of 11 December 1987, which required the Company to set up a provision of Ptas. 1,352 million.

The investment reserve is not distributable without the express authorisation of the Electricity Council.

## (e) Reserve for accelerated depreciation

As permitted by Royal Decree-Law 2/1985, prior to 1990 the Company provided accelerated depreciation of Ptas. 4,428 million in respect of acquisitions of tangible assets between 9 May and 31 December 1985, and set up the relevant reserve for accelerated depreciation, which at 31 December 1997 amounts to Ptas. 2,922 million (Ptas. 3,028 million in 1996). Each year the Company debits this reserve and credits extraordinary income in an amount equal to the annual depreciation charge based on the useful lives of the assets subject to accelerated depreciation. Deferred tax liabilities arising as a result of accelerated depreciation are estimated, using the standard tax rate of 35%, at approximately Ptas. 1,023 million at 31 December 1997 (Ptas. 1,060 million in 1996). Subsequent to 1990 the Company made an adjustment of Ptas. 2,546 million to taxable income, as permitted by the aforementioned legislation, and recorded the related deferred tax liability (see note 19).

#### (f) Own shares

The Company carries out no operations involving own shares.

#### (9) Deferred income

Details at December 31 are as follows:

	Million pesetas	
	1997	1996
Capital grants	6,683	6,645
Other deferred income	25,102	2,772
	31,785	9,417

At 31 December 1997 other deferred income includes amounts arising from the agreement to cede the use of surplus capacity from the Company's fibre optic network (see note 25 e)). It also includes the portion of the compensation received from EDF assigned to the Company in respect of the Agreement made on 8 January 1997 in relation to the adaptation of the electricity supply contracts (see note 25 a)). Other amounts recorded under this caption relate to unrealised gains on operations in September 1997 involving financial derivatives contracted to hedge bond issues and on the contribution of non-returnable tangible assets.

### (10) Provisions for liabilities

Details are as follows:

	Million pesetas	
	1997	1996
Provision for pensions and other commitments	93	85
Provision for other liabilities	660	487
_	753	572

The provision for other liabilities mainly covers the possibility of unfavourable rulings in respect of claims from third parties or public entities.

# (11) Issue of long-term debentures and other negotiable securities

At 31 December 1997 and 1996 this balance represents bonds issued at rates varying between 3.65% and 12.15% per annum which mature in periods of between 2 and 7 years.

During 1997 unhedged and hedged debts have accrued average annual interest at rates of 9.40% and 9.39%, respectively (9.96% for hedged debts in 1996).

#### (12) Long term loans

Details of long-term loans are as follows:

	Million pesetas	
	1997	1996
Debt ceded by electricity companies to banks relating to assets acquired on incorporation	13,084	14,970
Less, transfer to other long-term creditors	(2,556)	-
Less, current portion (note 15)		(1,886)
Other long-term loans		25,989
Less, current portion (note 15)		(1,293) <b>37,780</b>

At 31 December 1997 debt related to assets acquired on incorporation has decreased compared to the prior year mainly because one of the electricity companies has recovered its portion of the debt, which amounts to Ptas. 2,556 million (see note 13). Other long-term loans bear interest at fixed annual rates of between 5.35% and 12.60% and at variable rates based on MIBOR and LIBOR plus differentials between 0.10% and 0.14%.

Details of foreign currency loans at December 31 are as follows:

	Million pesetas	
Moneda	1997	1996
ECU Swiss Franc German Mark U,S, Dollar Dutch Guilder	6,126 2,015 1,217 1,498 1,000 <b>11,856</b>	5,955 1,874 1,212 1,498 1,000 11,539

During 1997 unhedged and hedged Peseta loans have accrued average annual interest at rates of 8.67% and 8.27%, respectively (9.99% for hedged loans in 1996). Average interest on unhedged and hedged foreign currency loans has been 8.42% and 9.12%, respectively (8.76% for hedged loans in 1996).

Long-term maturities of the loans are as follows:

	Million pesetas	
	1997	1996
Two years Three years Four years Five years Thereafter	4,966 4,593 4,996 5,430 16,691	4,231 4,375 4,911 5,383 18,880
	36,676	37,780

In September 1997 the Company renegotiated a syndicated credit facility with a limit of Ptas. 20,000 million. No amounts have been drawn down against the facility at 31 December 1997.

#### (13) Other long term creditors

A detail of other long-term creditors at 31 December 1997 and 1996 is as follows:

	Millio	on pesetas
	1997	1996
Debt with electricity companies relating to assets acquired on incorporation	13,938	16,155
Other debt related to the acquisition of fixed assets		1,740
	13,938	17,895
Transfer from long-term bank loans	2,556	-
Less, repayments in advance Less, current portion (note 17)	(16,307) (30)	- (3,957)
	157	13,938
Deferred tax liability (note 19)	6,906	6,399
Long-term deposits	5	5
	7,068	20,342

On 30 December 1997 the Company repaid the debt with electricity companies related to assets acquired on incorporation in advance for Ptas. 16,307 million. This amount includes a balance of Ptas. 2,556 million in respect of debt recovered by an electricity company (see note 12). Until that date the debt bore variable interest based on the average interest rate at three months for deposit and swap operations involving treasury bills.

The long-term maturity of balances with other creditors is as follows:

	Million pesetas	
	1997	1996
Two yearss	290	2,601
Three years	286	2,816
Four years	285	3,016
Five years	342	3,255
Thereafter	5,865	8,654
	7,068	20,342

# (14) Issue of short-term debentures and other negotiable securities

At 31 December 1997 this balance comprises Ptas. 997 million (Ptas. 927 million in 1996) related to accrued interest payable on the bonds issued by the Company (see note 11) and bonds amounting to Ptas. 14,432 million which fall due in 1998.

## (15) Short term loans

Details of short-term loans are as follows:

	Million pesetas	
	1997	1996
Debt ceded to banks relating to assets acquired on		
incorporation (note 12)	1,711	1,886
Loans (note 12)	2,154	1,293
Promissory notes		
and credit facilities	24,767	12,900
	28,632	16,079
Accrued interest payable	2,054	2,387
	30,686	18,466

In 1997 promissory notes bear interest at annual rates of between 4.59% and 8.88% (between 5.99% and 10.60% in 1996).

In both 1997 and 1996 credit facilities bear interest at MIBOR or LIBOR rates plus a differential of between 0.10% and 0.20%.

At 31 December 1997 there were no promissory notes or draw downs in foreign currency (at 31 December 1996 short-term credit facilities in Swiss francs amounted to Ptas. 390 million).

During 1997 unhedged and hedged promissory notes and short-term Peseta loans have accrued average annual interest at rates of 5.79% and 5.93%, respectively (8.59% on hedged operations in 1996). Foreign currency loans bear average interest of 1.93% (3.73% in 1996).

Promissory notes are those issued by the Company through financial institutions and are recorded at their nominal value. The difference between this value and the amount actually received is recorded on the accruals basis and classified as prepaid expenses. At 31 December 1997 and 1996 a programme to issue «highly liquid» promissory notes up to a maximum of Ptas. 28,000 million has been registered with the Spanish Stock Exchange Commission.

At 31 December 1997 the Company has unused credit facilities of Ptas. 8,282 million (Ptas. 8,360 million at 31 December 1996).

#### (16) Trade creditors

Details at December 31 are as follows:

-	Million pesetas	
-	1997	1996
Electricity and power purchases	785	5,434
Services rendered	7,017	5,750
	7,802	11,184

The decrease in the balance related to electricity and power purchases is mainly related to the agreement with Electricité de France (EDF) to supply electricity and power (see note 25 a)).

## (17) Other creditors

At 31 December 1997 and 1996 other creditors are as follows:

	Million pesetas	
	1997	1996
Tax and social security authorities	1,878	4,433
Short-term guarantee deposits received	466	352
Other debts	9,344	14,881
	11,688	19,666

Balances due to the tax and social security authorities comprise the following:

	Millio	n pesetas
	1997	1996
Taxes payable:		
Withholding taxes	213	195
Income tax	1,272	2,025
One-off tax charge on revaluation	-	1,271
VAT	-	619
Other taxes	3	3
Social security	143	140
Deferred income tax liability (note 19)	247 1, <b>878</b>	180 <b>4,433</b>
I		

Other debts are as follows:

	Million pesetas	
	1997	1996
Debts with electricity companies relating to assets acquired on incorporation	30	2,217
Other debts relating to the acquisition of fixed assets		1,740
Transferred from long term (note 13)	30	3,957
Accrued interest payable	7	439
	37	4,396
Creditors, purchases and maintenance of assets and other items	6,732	9,119
National electricity companies international power exchange	2,575	1,366
1	9,344	14,881

#### (18) Prepaid expenses and accruals

At 31 December 1997 prepaid expenses comprise Ptas. 611 million (Ptas. 332 million in 1996) mainly in respect of financial expenses generated 1997 which will be recognised over the ensuing years.

Accruals mainly reflect income of Ptas. 4,357 million received in advance in respect of billings for guaranteed power supplies relating to a part of 1998 in accordance with the power supply agreement between ONE and the Company (see note 25 c)). Accruals also include income of Ptas. 2,296 million (Ptas. 2,636 million in 1996) received in advance on the power supply agreement between EDF and the Company (see note 25 a)).

#### (19) Taxation

In 1997 the Company has filed a consolidated income tax return as a part of the consolidated tax group n<sup>e</sup> 9/1986, which formed by Sociedad Estatal de Participaciones Industriales and the companies in which it has a majority shareholding, in accordance with Law 5 of 10 January 1996.

In accordance with the consolidated tax regime, the individual income tax payable and receivable of each company forming part of the consolidated group are integrated into the declaration of the parent company (Sociedad Estatal de Participaciones Industriales). As a result, the Company will be required to pay Ptas. 1,272 million to Sociedad Estatal de Participaciones Industriales in respect of income tax for 1997. This amount represents the expected income tax charge for the year of Ptas. 4,153 million, less deductions of Ptas. 2,881 million for withholdings at source of interest income and payments on account which the Company settled directly with the tax authorities prior to joining the consolidated tax group.

As a consequence of the treatment permitted by fiscal legislation for certain transactions, the accounting profit differs from taxable income. A reconciliation of accounting profit for the year with the taxable income that the Company expects to declare after approval of the 1997 annual accounts, together with that for 1996, is as follows:

	Milli	on pesetas		Millic	n pesetas
	1997	1996		1997	1996
Profit before income tax	14,003	14,434	Accounting income		
Permanent differences	146	21	at 35% Less, tax credits	4.952 (199)	5.059 (1.260)
Taxable accounting income	14,149	14,455	Expense		
Timing differences: Generated during the year	(565)	(604)	for the year	4.753	3.799
Reversal of prior yearss	(1,147)	(1,381)	Prior yearsí adjustment	(290)	88
Taxable income	12,437	12,470	Income tax charge	4.463	3.887

Details of the 1997 and 1996 income tax charge are as follows:

The Company is obliged to maintain fixed assets for which credits have been taken for a period of five years.

Details of timing differences in the recognition of expenses and income for accounting and tax purposes at 31 December 1997 and 1996 and the related accumulated deferred tax assets and liabilities are as follows:

		1997		1996
	Timing difference	Tax effect	Timing difference	Tax effect
Deferred tax assets				
- Long-term (note 6)	1 000	0.57	000	0.4.4
Deferred income Other	1,020 509	357 178	983 681	344 239
	1,529	535	1,664	583
- Short-term (note 7)	1,527	505	1,004	000
Transitory VAT	-	-	76	26
Other	686	240	520	182
	686	240	596	208
	2,215	775	2,260	791
Deferred tax liabilities:				
- Long-term (note 13)		(		
1985 accelerated depreciation (Royal Decree 2/1985)	1,974 7,769	691 2 710	2,040	714 2,829
1975 accelerated depreciation (Royal Decree 175/1975) 1988 accelerated depreciation (Royal Decree 12/1988)	7,768 2,515	2,719 880	8,083 2,597	2,029 909
1993 accelerated depreciation (Royal Decree 3/1993)	6,117	2,141	4,640	1,624
1992 accelerated depreciation (Royal Decree 31/1992)	580	203	437	153
Accelerated amortisation of capitalised	777	272	486	170
	19,731	6,906	18,283	6,399
- Short-term (note 17)	7/	07		
1985 accelerated depreciation (Royal Decree 2/1985) 1975 accelerated depreciation (Royal Decree 175/1975)	76 251	27 88	- 271	- 95
1988 accelerated depreciation (Royal Decree 12/1988)	101	35	121	43
Accelerated amortisation of capitalised	278	97	120	42
	706	247	512	180
	20,437	7,153	18,795	6,579

At 31 December 1997 the Company has open to inspection by the tax authorities all applicable taxes since 1994, inclusive, except for VAT which is open to inspection since December 1992. The directors do not expect that significant additional liabilities would arise in the event of inspection.

#### (20) Net sales

Details are as follows:

	Millic	on pesetas
	1997	1996
Income from services rendered	49,624	52,246
Sales of electricity	11,173	30,958
Income from international power exchanges	1,055	571
Other income from services rendered	1,210	591
Sales of by-products	45	35
	63,107	84,401

Income from services rendered is a percentage of the amounts invoiced to end users by the electricity generating companies for power supplied. The percentage is fixed each year by the Ministry of Industry and Energy. Sales of electricity represent income recognised in respect of sales of energy under the power supply contract between EDF and the Company. The decrease at 31 December 1997 is due to re-negotiation of the agreement, which has resulted in less power and lower prices, as well as a decline in imports and the effect on invoicing of the application of the compensation established in the revised agreement (see note 25a)).(This decrease in sales of electricity is also reflected in the cost of purchases of electricity recorded under materials consumed)

Of the profits obtained from international electricity exchange operations, 70% is assigned to the domestic electricity companies and the remaining 30% to the Company. These amounts are recorded under income from international power exchanges.

#### (21) Personnel expenses

Details are as follows:

	Millic	on pesetas
	1997	1996
Wages and salaries Social Security Pension fund	6,221 1,557	6,003 1,455
and other similar commitments Other social costs	122 621	113 570
-	8,521	8,141

The average number of employees, distributed by categories, is as follows:

	1997	1996
Managers	22	21
Honours graduates	317	317
Graduates	327	325
Assistants	277	279
Administrative staff	159	159
	1,102	1,101

#### (22) Prior years income and expenses

Details are as follows:

		/	Nillion p	pesetas
		Income	Exp	<u>oenses</u>
	1997	1996	1997	1996
Adjustments to the EDF contracts	681	238	381	175
Other items	152	38	37	100
	833	276	418	275

Adjustments to the EDF contracts mainly reflect amounts arising as a result of annual modifications to the conditions established relate to prior years.

# (23) Remuneration of and balances with members of the Board of Directors

In 1997, the members of the Board of Directors, including those who are employees of the Company, have received Ptas. 55 million (Ptas. 45 million in 1996) in respect of salaries, allowances and other remuneration.

At 31 December 1997 no loans or advances have been granted to members of the Board of Directors (loans and advances amounted to Ptas. 16 million in 1996).

#### (24) Financial derivatives

Hedging operations carried out by the Company using financial derivatives mainly comprise over the counter operations (specific bilateral transactions). For accounting purposes these are classified as interest rate hedging operations (see note 4f)).

The bonds issued in September 1997 have been hedged through a swap operation. Income arising on the part of this operation related to the coverage of the redemption premium and issue expenses are deferred over the period to maturity of the bond.

At 31 December 1997 the Company has contracted operations to hedge interest and/or exchange rates risks related to borrowings, as follows:

			AMOUNT	
LIABILITY	TYPE OF	TYPE OF	COVERED	
COVERED	COVER	OPERATION	(PTAS. M)	TERM
Bonds	Interest rate	Swap and collar	14,000	Up to 6 years
Long-term Peseta Ioans	Interest rate	Swap and collar	6,000	6 months-5 year
Long-term foreign currency loans:				2-4 years
• ECU	<ul> <li>Interest rate</li> </ul>	• Collar	3,182	
<ul> <li>German Mark</li> </ul>	<ul> <li>Interest rate</li> </ul>	• Swap	254	
• US Dollar	<ul> <li>Interest and exchange rat</li> </ul>	• Swap	1,498	
• Dutch Guilder	<ul> <li>Interest and exchange rat</li> </ul>	<ul> <li>Swap and collar</li> </ul>	1,000	
Short-term Peseta loans	Interest rate	Collar	1,000	1-9 months

#### (25) Commitments

At 31 December 1997 the Company is party to certain long-term agreements, as follows:

 a) An agreement for the supply of electricity by Electricité de France (EDF) to the Company. Supply commenced in October 1994 and will be for a period of 16 years. On 8 January 1997 the Company and EDF agreed to modify the supply agreement because the expected capacity of the international electricity connection with France has been significantly reduced as a result of the decision by French State not to authorise the construction of the Aragón-Cazaril line.

Under the revised agreement the power to be supplied by EDF has been reduced to between 300 and 550 megawatts, depending on the year. Also, the price of energy acquired in accordance with this contract and the power available have been reduced. Both parties undertake to extend the Pyrenees electricity connection by constructing a new electricity line.

In accordance with the agreement, in 1997 the Company received compensation from EDF amounting to French Francs 400 million for the decrease in power and the electricity not supplied, as well as the opportunity cost relating to other connections and costs incurred in the modification of existing Spanish connections. On 29 December 1997 the Spanish Ministry of Industry and Energy ruled that the Company should pay the domestic electricity companies an amount of Ptas. 7,736 million, which represents the portion of the aforementioned compensation not attributable to the Company.

During 1997 EDF has also paid the Company an amount of French Francs 140 million in respect of compensation for expenses incurred in the construction of the Spanish part of the electricity connection.

- b) An agreement for the supply of energy by the Company to EDF during the winter peak period. This agreement commenced in November 1995 for a period of 15 years. Under the terms of the agreement, the Company undertakes to provide EDF with power equal to that stipulated in the supply agreement mentioned in section a) above for a maximum of 600 hours per year during the winter months, in accordance with the modifications agreed on 8 January 1997.
- c) An agreement for the supply of energy, which requires that the Company supply the Office Nationale de l'Electricité de Maroc (ONE) with energy of 300 MW. In accordance with the agreement, power will be supplied between January 1996 and December 1998. Although the Spain-Morocco electricity connection has been completed in 1997, supply has not commenced as both parties are analysing how to adapt the original agreement to the current situation.
- d) A supply agreement with Forces Electriques d'Andorra (FEDA), whereby EDF and the Company, jointly, will supply a maximum equivalent to a transmission capacity of 100 MVA until 31 December 1999.
- e) An agreement dated 4 June 1997 between the Company and Netco Redes, S.A. to cede the use and maintenance of the surplus capacity from the Company's fibre optic network for a period of 30 years. During 1997 the rights ceded under this agreement have been transferred to Retevisión, S.A.

#### (26) Statements of source and application of funds

The statements of source and application of funds for 1997 and 1996 are set out in Appendix IV, which forms an integral part of this note.

Appendixes

Assets	1997	1996
FIXED ASSETS		
Intangible assets	1,759	1,605
Tangible assets (note 5) Investments (note 6)	243,740	246,585
Guarantee deposits	10	10
Public entities (note 19)	535	583
Other investments	1,465	1,550
	2,010	2,143
debtors (note 7)	6,353	
TOTAL FIXED ASSETS	253,862	250,333
DEFERRED EXPENSES	960	935
CURRENT ASSETS		
Stocks	669	826
Debtors (note 7)	17,373	17,129
Short-term investments (note 6)	736	1,036
Cash and banks	40	106
Prepaid expenses (note 18)	611	332
TOTAL CURRENT ASSETS	19,429	19,429

TOTAL ASSETS	274,251	270,697

This Appendix forms an integral part of note 2 to the annual accounts.

# **BALANCE SHEETS**

31 December 1997 and 1996

APPENDIX I

(Expressed in million pesetas)

Shareholders' equity and liabilities	1997	1996
SHAREHOLDERS' EQUITY (note 8)		
Share capital	45,090	45,090
Revaluation reserve	41,101	41,101
Reserves	14,272	30,565
Profit for the year	9,540	10,547
Interim dividend (note 3)	(3,000)	(2,367)
TOTAL SHAREHOLDERS' EQUITY	107,003	124,936
DEFERRED INCOME (note 9)		
Capital grants	6,683	6,645
Other deferred income	25,102	2,772
TOTAL		
DEFERRED INCOME	31,785	9,417
PROVISIONS FOR LIABILITIES (note 10)	753	572
LONG-TERM CREDITORS		
Bonds (note 11)	18,517	24,432
Loans (note 12)	36,676	37,780
Other creditors (note 13)	7,068	20,342
TOTAL LONG-TERM CREDITORS	62,261	82,554
CURRENT LIABILITIES		
Bonds (note 14)	15,429	927
Loans (note 15)	30,686	18,466
Trade creditors (note 16)	7,802	11,184
Other creditors (note 17)	11,688	19,666
Accruals (note 18)	6,844	2,975
TOTAL CURRENT LIABILITIES	72,449	53,218
Total shareholder's equity and liabilities	274,251	270,697

Expenses	1997	1996
OPERATING EXPENSES		
Materials consumed	11,742	31,177
Personnel expenses (note 21)	8,521	8,141
Depreciation and amortisation	15,720	13,676
Variation in trade provisions	133	186
OTHER OPERATING EXPENSES		
External services	8,791	9,835
Local taxes	80	119
Other overheads	144	172
Provision for liabilities (note 10)	261	50
TOTAL OPERATING EXPENSES	45,392	63,356
OPERATING PROFIT	20,955	24,652
FINANCIAL EXPENSES	7 000	0.000
Interest and similar expenses	7,309	8,933
Exchanges losses	1,268	667
- TOTAL FINANCIAL EXPENSES	8,577	9,600
PROFIT ON ORDINARY ACTIVITIES	13,031	15,402
EXTRAORDINARY LOSSES AND EXPENSES		
Variation in provision for tangible assets (note 5)	336	1,514
Losses on tangible assets	48	19
Extraordinary expenses	3	2
Prior years' expenses (note 22)	418	275
TOTAL EXTRAORDINARY EXPENSES	805	1,810
	972	
Extraordinary profit		
PROFIT BEFORE TAX	14,003	14,434
	<b>14,003</b> (4,463)	1 <b>4,434</b> (3,887)

This Appendix forms an integral part of note 2 to the annual accounts.

# RED ELECTRICA DE ESPAÑIA, S.A.

# PROFIT AND LOSS ACCOUNTS

31 December 1997 and 1996

Exercise 1997

# APPENDIX II

(Expressed in million pesetas)

Income	1997	1996
OPERATING INCOME Net sales (note 20) Self-constructed assets Other operating income	63,107 2,546 694	84,401 2,791 816
TOTAL OPERATING INCOME	66,347	88,008
FINANCIAL INCOME Investment income Other interest and similar income Exchange gains	130 456 67	21 228 101
TOTAL FINANCIAL INCOME	653	350
NET FINANCIAL EXPENSE	7,924	9,250
EXTRAORDINARY PROFIT AND INCOME Profit on tangible assets Capital grants taken to income Extraordinary income Prior years' income (note 22) TOTAL EXTRAORDINARY INCOME	2 512 430 833 1,777	452 114 276 842
NET EXTRAORDINARY LOSSES	-	968

# RED ELECTRICA DE ESPAÑA, S.A.

# MOVEMENT IN SHAREHOLDERS ' EQUITY

31 December 1997 and 1996

Exercise 1997

**APPENDIX III** (Expressed in million pesetas)

	Share capital	Reva- luation reserve	Legal reserve	Investment reserve	Voluntary reserve	Accelerated depre- ciation	Total reserves	Profit for the year	Interim dividend	Total
Balances at 31 December 1995	45,090	-	7,349	1,352	13,935	3,142	25,778	9,636	(2,255)	78,249
Distribution of 1995 profits:										
Legal reserve Dividends	-	-	963 -	-	-	-	963	(963) (4,735)	۔ 2,255	- (2,480)
Voluntary reserves Reversal of accelerated depreciation	-	-	-	-	3,938	-	3,938	(3,938)	-	-
reserve	-	-	-	-	-	(114)	(114)	-	-	(114)
1996 profit	-	-	-	-	-	-	-	10,547	-	10,547
Interim dividend	-	-	-	-	-	-	-	-	(2,367)	(2,367)
Revaluation of fixed assets (Royal Decree										
7/1996)		41,101	-							41,101
Balances at 31 December 1996	45,090	41,101	8,312	1,352	17,873	3,028	30,565	10,547	(2,367)	124,936
Distribution of 1996 profits:										
Legal reserve	-	-	706	-	-	-	706	(706)	-	-
Dividends Voluntary reserves Reversal of accelerated	-	-	-	-	- 5,107	-	- 5,107	(4,734) (5,107)	2,36/	(2,367) -
depreciation reserve	-	-	-	-	-	(106)	(106)	-	-	(106)
1997 profit	-	-	-	-	-	-	-	9,540	-	9,540
Interim dividend (note 3)	-	-	-	-	-	-	-	-	(3,000)	(3,000)
Extraordinary dividend 30/06/97 (note 3)			-		(22,000)	- (	22,000)			(22,000)
Balances at 31 December 1997	45,090	41,101	9,018	1,352	980	2,922	14,272	9,540	(3,000)	107,003

This Appendix forms an integral part of note 8 to the annual accounts.

# RED ELECTRICA DE ESPAÑA, S.A.

Exercise 1997

31 December 1997 and 1996			esseu n		pesetas)
APPLICATIONS		, , , ,		1997	1996
ACQUISITION OF FIXED ASSETS					
Intangible assets				429	401
Tangible assets				12,994	12,286
Investments				317	744
				13,740	13,431
DIVIDENDS				2,367	2,480
				3,000	2,367
EXTRAORDINARY DIVIDEND				22,000	-
CANCELLATION OR TRANSFER TO SHORT PROVISION FOR LIABILITIES				34,635 50	11,751 76
REVALUATION TAX CHARGE					1,271
TOTAL APPLICATIONS				75,792	31,376
SOURCES				1997	1996
funds generated on operations					
Profit for the year				9,540	10,547
Reversal of provision for liabilities				(106)	(221)
Depreciation and amortisation				15,720	13,676
Reversal of accelerated depreciation reserved				(106)	(114)
Provision for pensions and similar commitr				9	8
Loss on disposal of fixed assets				56 328	19
Provision for liabilities					138
Exchange losses				1,251 58	528
Deferred expenses recognised during the Capital grants and other deferred income				(1,163)	(479)
Provisions for impairment					1,514
				25,923	25,616
DEFERRED INCOME (*)				22,563	1,665
LONG-TERM DEBTORS (*)				(5,385)	1,005
LONG-TERM LIABILITIES (*)				13,057	1,796
DEFERRED EXPENSES (*)				(50)	-
DISPOSAL OF FIXED ASSETS				(00)	
Tangible assets				3	42
Investments				450	343
				453	385
TOTAL SOURCES				453 <b>56,561</b>	385 <b>29,462</b>
TOTAL SOURCES DECREASE IN WORKING CAPITAL					
				56,561	29,462
				<b>56,561</b> 19,231	<b>29,462</b> 1,914
DECREASE IN WORKING CAPITAL				56,561 19,231 75,792 1996	<b>29,462</b> 1,914
DECREASE IN WORKING CAPITAL	199 Increases	7	Incre	56,561 19,231 75,792 1996 cases	29,462 1,914 31,376 Decreases
CHANGES IN WORKING CAPITAL	199	7 Decreases 157	Incre	56,561 19,231 75,792 1996	29,462 1,914 31,376 Decreases 198
CHANGES IN WORKING CAPITAL Stocks Current liabilitiess	199 Increases	7 Decreases 157 - 19,231	Incre	56,561 19,231 75,792 1996 cases ,713	29,462 1,914 31,376 Decreases
CHANGES IN WORKING CAPITAL Stocks	199 Increases	7 Decreases 157 - 19,231 300	Incre	56,561 19,231 75,792 1996 cases ,713 685	29,462 1,914 31,376 Decreases 198
CHANGES IN WORKING CAPITAL Stocks	199 Increases - 244 - - -	7 Decreases 157 - 19,231	Incre	56,561 19,231 75,792 1996 cases ,713	29,462 1,914 31,376 Decreases 198 8,184
CHANGES IN WORKING CAPITAL Stocks	199 Increases 244 - - 279	7 Decreases 157 19,231 300 66	Incre 5	56,561 19,231 75,792 1996 cases ,713 685 77 -	29,462 1,914 31,376 Decreases 198 8,184 - 7
DECREASE IN WORKING CAPITAL         CHANGES         IN WORKING CAPITAL         Stocks         Debtors         Current liabilitiess         Short-term investments         Cash and banks         Prepaid expenses	199 Increases 244 - - 279 523	7 Decreases 157 19,231 300		<b>56,561</b> 19,231 <b>75,792</b> <b>1996</b> <b>ases</b> ,713 - 685 77 - ,475	<b>29,462</b> 1,914 <b>31,376</b> <b>Decreases</b> 198 8,184
DECREASE IN WORKING CAPITAL         CHANGES         IN WORKING CAPITAL         Stocks         Debtors         Current liabilitiess         Short-term investments         Cash and banks	199 Increases 244 - - 279	7 Decreases 157 19,231 300 66		56,561 19,231 75,792 1996 cases ,713 685 77 -	29,462 1,914 31,376 Decreases 198 8,184 - 7

(\*) These amounts are shown net of the redemption premium relating to the issue of bonds in 1997, which was hedged through a swap operation (see note 24), This Appendix forms an integral part of note 26 to the 1997 annual accounts.

During 1997 Red Eléctrica has maintained balanced growth in key areas and has surpassed its business objectives, both with regard to profits on ordinary activities and self-financing of investments.

Profit before tax for 1997 amounted to Ptas. 14,003 million, which is similar to the 1996 figure of Ptas. 14,434 million. Nevertheless, in 1997 income earned through electricity tariffs declined by Ptas. 2,500 million compared to the prior year and, as a result of the revaluation of tangible assets by Ptas. 42,372 million at 31 December 1996, the depreciation charge for the year increased. The impact of both these matters on profit and loss has been cushioned by improvements in the management of revenues and expenses.

Profit after tax was Ptas. 9,540 million, which will permit the Company to pay an appropriate dividend and continue to apply funds to reserves in line with prior years.

At their extraordinary general meeting held in June 1997 the shareholders authorised the Company to distribute an extraordinary dividend of Ptas. 22,000 million with a charge to distributable reserves, and approved the distribution of dividends of Ptas. 3,000 million on account of profit for 1997.

In 1997 the ordinary income of Red Eléctrica amounted to Ptas. 67,000 million, which is Ptas. 21,358 million less than in the prior year. This is mainly due to the reduction in income derived from the import by Red Eléctrica of electricity and power from Electricité de France (EDF), which has decreased as a result of the modifications agreed in January 1997 to the original contract. Expenses incurred in the import of power and energy related to the aforementioned agreement have also fallen, which has resulted in a fall in the cost of electricity tariffs.

As mentioned above, income earned on energy transmission and administration of the public electric power system declined by approximately Ptas. 2,500 million, 5% less than in 1996. Total revenues in this respect amounted to Ptas. 49,624 million in 1997.

Total expenses before tax amounted to Ptas. 54,774 million compared to Ptas. 74,766 million in 1996, as a consequence of lower costs related to the import agreement with EDF. If costs related to this agreement are excluded, total expenses before tax fell by 1.7%, from Ptas. 45,149 million in 1996 to Ptas. 44,378 million in 1997.

## Management report

Cash-flow before income tax amounted to Ptas. 30,240 million, 2.6% up on the prior year. This represents 44% of the total income of Red Eléctrica or 52.5% excluding income generated as a result of agreements for the import and export of energy. As a consequence, the Company has been able to finance all of its investment activities, which amounted to Ptas. 13,423 million in 1997, and achieve a net ratio of self-financing of investments of 153%.

The funds generated, together with those derived from the agreement to cede the surplus capacity of the Red Eléctrica's fibre optic telecommunication network have made it possible to finance a significant portion of the extraordinary dividend distributed to the shareholders in June with a charge to voluntary reserves and limit the need for additional borrowings to Ptas. 1,290 million.

The new installations incorporated into the transmission network during 1997 are as follows:

- In western Andalusia, the 400 kV Pinar del Rey-Estrecho line (34.2 km) and the Estrecho-Fardioua cable, making the Spain-Morocco interconnection across the Straits of Gibraltar. Red Eléctrica owns 15.2 km of the cable for this new interconnection, of which 2.1 km is underground and 13.1 km underwater.
- Reconfiguration of the Loeches substation in central Spain through the installation of two new 400 kV bays and a 600 MVA auto-transformer.
- Renovation and improvement work in Aragón and Catalonia on the Spanish lines of the interconnection with France (Biescas-Pragneres and Vic-Baixas). In 1998 this work, together with work on the French side, will permit a capacity increase of 500 MW in the interconnection between the Spanish and French electrical systems.

Construction work has continued on the new installations to complete the 400 kV transmission circuit in Andalusia (Pinar del Rey-Tajo de la Encantada line) and to improve the power supply on the East Coast (Litoral-Rocamora line) and in the Cantabria region (Soto-Penagos-Güeñes-Itxaso axis).

During 1997 the Company's telecommunications network has grown by 680 km of fibre optic cable and 6 new links. Accordingly, the network currently consists of a total of 8,200 km of fibre optic cable and 130 links. The Company's telecommunications control centre has also commenced operations during the year.

The capacity of the telecommunications network of Red Eléctrica has also made it possible to serve third parties during the year. In June 1997 Red Eléctrica entered into an irrevocable agreement with the telecommunications consortium Netco Redes, S.A. which is formed by Endesa, Union-Fenosa and STET to cede the use and maintenance of the surplus capacity of the Company's fibre optic network for a period of thirty years. This surplus capacity is currently being used by Retevision, S.A. to provide telecommunications services. The agreement reserves significant transmission capacity for the sole use of Red Eléctrica and requires that the fibre optic network give priority to electricity sector activities.

The most significant matters in relation to the operation of the electricity systems have been the growth in demand, the increase in energy acquired from selfproducers and the high level of natural hydraulic contributions from hydroelectric power stations, whose reservoirs reached record high water levels. The demand for electricity in mainland Spain reached 162, 198 GWh (provisional data), which represents an increase of 3.8% over 1996. This percentage rises to 5.3% if the effect of the weather conditions and the number of working days is taken into consideration.

Key aspects relating to the structure of production were the increase in the contribution of coal-fired power stations. which at 39.5% was 4% up on 1996, and the decrease in the contribution of hydroelectric and nuclear power stations. In 1997 hydroelectric power accounted for 21.0% of the total, 4% less than in the prior year and nuclear power stations contributed 35.1%, a 3% decline compared to 1996. Energy generated by gas has increased significantly from 0.4% to 4.2% of the total in 1997. The average variable cost of generating was Ptas. 2.58/kWh, which at constant fuel prices represents an increase of Ptas. 0.33/kWh over the prior year.

International electricity exchanges resulted in net exports of 3,085 GWh, comprising imports of 1,409 GWh and exports of 4,494 GWh. In 1997 electricity supplies continued under the long-term contract between EDF and Red Eléctrica. The Company has continued the habitual exports to France and Portugal, as well as those to various companies in Belgium and Switzerland as a result of surplus hydroelectric power. During 1997 Red Eléctrica has also commenced exports to Morocco.

In May 1997 the new Red Eléctrica control centre was opened in the presence of the Minister of Industry and Energy. This control centre for the management of the electrical system in real time has been developed using the most advanced IT and telecommunications technologies available. The control system installed and those which have entered service in the regional control centres incorporate specific technologies developed by Red Eléctrica, including, inter alia, expert systems to assist in operations and simulators to train operators.

In 1997 Red Eléctrica's environmental activities have focused on the completion of environmental impact studies for six lines and three substations, while the assessment of a further twelve lines and four substations has advanced considerably.

The Company has continued with its programme of activities regarding the protection of plant cover, bird-life and the landscape, as well as the prevention and correction of the impact produced by the installations and activities of Red Eléctrica. The Company has also persevered with research into the effect of electromagnetic fields, as well as promoting and disseminating environmental issues to the general public. To this end, Red Eléctrica has organised a course in conjunction with the University of Valladolid on the subject of recent research into the links between electromagnetic fields, health and the environment, with the participation of both Spanish and international experts. In 1997 the Company commenced publication of the «Bulletin of new developments regarding electrical and magnetic fields» on a twice-monthly basis.

Red Eléctrica's Environmental Management System has been implemented during the year and the Company expects to obtain the AENOR quality certificate in 1998.

The Company has already obtained AENOR certificates in recognition of the quality of the maintenance of power lines and high tension substations, which comply with ISO-9001 and ISO-9002 standards, respectively. The first internal audit of the system to ensure quality in the operation of the electricity system was performed at the end of the year as part of the process of obtaining the AENOR certificate in accordance with ISO-9002.

During 1997 Red Eléctrica has completed several longterm research and development projects, the total direct and indirect cost of which is approximately Ptas. 900 million. Key projects completed include the basic design and specification of flexible power control systems (FACTS) for application to the Spanish electrical system, the development of prototype optoelectronic measurement transformers, as well as an automated system incorporated into high tension lines to detect fires, which will provide notable environmental benefits. The average number of employees in 1997 has been 1,102, which is similar to the figures for the last two years, which indicates that Red Eléctrica has attained a stable workforce.

The new Law governing the electricity sector was approved in November 1997, which represents a considerable step towards deregulating the electricity sector as it provides for a free market for electricity generating. This legislation also requires the creation of a new trading company to act as Market Operator, which will be responsible for the economic management of the system and will match orders for the purchase and sale of electricity between generators, distributors, electricity traders and qualified consumers.

The new Law ratifies Red Eléctrica as an electricity transmission company which is responsible for the technical management of the electricity system, in accordance with the functions assigned to it as System Operator, and management of the transmission network. The Law requires that the ownership of the Company be restructured during the first half of 1998 to ensure that individual shareholders own no more than 10% of the share capital and that the sum of direct or indirect shareholdings of parties operating in the sector be limited to 40% of the share capital. Prior to approval of the Law, Sociedad Estatal de Participaciones Industriales (SEPI) acquired part of the share capital owned by the Endesa group. Accordingly, SEPI currently owns a 50.01% interest in Red Eléctrica.

In accordance with the ninth transitional provision of this law, Compañía Operadora del Mercado Español de Electricidad, S.A. (Market Operator) was incorporated in December 1997 with a share capital of Ptas. 300 million, fully subscribed by Red Eléctrica. This investment will subsequently be divested in accordance with the requirements of the Law in relation to maximum shareholdings within the period established to that effect.

The incorporation of Compañía Operadora del Mercado Español de Electricidad, S.A. was preceded by a period of intense activity for Red Eléctrica with the collaboration of the electricity companies, the Spanish Electricity Council and the Ministry of Industry and Energy, as well as specialist companies. In the final quarter of 1997 Red Eléctrica provided the new company with the necessary information systems and procedures to guarantee its operations and the transparency of transactions carried out in the electricity production market. The Market Operator has been responsible for the economic management of the system since 1 January 1998.

Red Eléctrica, as System Operator in charge of the technical management of the electricity system, has developed the required procedures and information systems to ensure that market criteria are applied to the operation of the system, as well as the security and continuity of the electricity supply. This refers particularly to the implementation of regulations and systems for the management of the technical restrictions inherent in the transmission network and system and the management of the complementary services sector, which will both be subject to market criteria, as well as systems for IT, communication and co-ordination with the Market Operator and entities participating in the market.

Accordingly, Red Eléctrica has played a significant part in preparing the necessary operational tools to establish the Spanish electricity market. This deregulation process commenced in December 1996 when the electricity Protocol was signed and has proceeded apace with the enactment of the relevant legislation, which will be further developed over the coming months.

1997 has been an eventful year, from both an economic and institutional point of view. Red Eléctrica's objectives for 1998 are to respond efficiently and competitively to the new challenges raised by the new Electricity Act, and to maintain the profitability and efficiency achieved in prior years. In 1998 the Company expects to make investments of approximately Ptas. 10,000 million, which will be entirely self-financed, and to maintain the workforce in line with figures for 1997.

	1997		
	BASIS FOR DISTRIBUTION		
	Profit for the year	9.539.777.762	
	TOTAL	9.539.777.762	
	DISTRIBUTION		
	Legal reserve Voluntary reserve Dividends:	4.172.552.762	
Proposed distribution	Interim dividend Supplementary dividend		
of profits	TOTAL	9.539.777.762	

Rafael Garcia de Diego Barber, Secretary of the Board of Directors of Red Eléctrica de España, S.A., as entitled by Article 109 of the Mercantile Register Enabling Regulations,

#### HEREBY CERTIFIES:

That the annual accounts, management report and proposed distribution of profits, shown in this document, are a true and accurate copy of those which were inspected and approved during the meeting of the Board of Directors of Red Eléctrica de España, S.A., held on March 10th, 1998. A copy of the annual accounts and the management report, signed by all the administrators in accordance with Article 171.2 of the Regulations pertaining to the Law on Companies, is kept in the Secretary's office.

With the object of declaring these matters and for the required legal effects, this certificate is hereby issued in Madrid on April 30th, 1998.